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Izet Masic¹, Catherine Chronaki²

¹Academy of Medical Sciences of Bosnia and Herzegovina. Sarajevo, Bosnia and Herzegovina.
²European Federation for Medical Informatics, Lausanne, Switzerland

Corresponding author: Professor Emeritus Izet Masic. MD, PhD. FWAAS, FEASA, FIAHSI, FEFMI, FACMI. Academy of Medical Sciences of Bosnia and Herzegovina. Sarajevo, Bosnia and Herzegovina. E-mail: izetmasic@gmail.com. ORCID ID: http://www.orcid.org/0000-0002-9080-5456.

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ABSTRACT
This is the second volume of the official magazine of the European Federation for Medical Informatics (EFMI) named as “EFMI Inside”, which was established as Newspaper in Lyon in August 2019, during “MEDINFO 2019” Conference and EFMI Council meeting. Idea for founding EFMI Inside was born by Catherine Chronaki, current President of EFMI and Izet Masic, Honorary Fellow of EFMI and Editor-in-Chief of the official journal of EFMI Acta Informatica Medica. EFMI Council members discussed and concluded to start with magazine in which we can record important and prompt facts and information about past of EFMI, with current and future activities of European Federation for Medical Informatics). After the first issue published in 2020 a lot of medical informaticians expressed their positive comments about useful and informative magazine within medical informatics field worldwide. This publication became an important and useful resource of EFMI activities for everybody who wants to be familiar with Medical informatics development and achievements in all areas of this academic and scientific discipline in European countries, but also, worldwide. The second issue covered facts about 31st MIE 2021 Conference organized in Athens in May 2021, but also contains important facts about other EFMI activities and interview with a pioneer of Medical informatics, academician Gjuro Dezelic from Croatia, and finally, obituaries of the three influential Medical informatics experts: Francis Roger France, Ragnar Nordberg and Peter Pharow. Some of chairs of Working Groups contributed with their reports in the past year who were actively involved in the development of Medical informatics in their countries, but also worldwide.

Keywords: EFMI, MIE Conferences. EFMI Inside newsletter.

On Occasion of the 31st Medical Informatics in Europe (MIE) Conference “Public Health and Informatics”
IZET MASIC
On Occasion of Forty Five Anniversary of the EFMI (1976-2021)
IZET MASIC
Short Review of the MIE 2021 Conference, Athens, Greece, May 29th-31st
CATHERINE CHRONAKI
MIE2021 Awards – Reflections on γEFMI
IVANA OGNJANOVIC
EFMI as partner in EU projects – HosmartAI LÄCRÄMIGARA STOICU-TIVADAR
Interview with Gjuro Dezelic, Former President of the Yugoslav Association of Medical Informatics, 1990-1992, and Honorary President of the Croatian Society for Medical Informatics
IZET MASIC
IZET MASIC
Obituary for Peter Pharow
BERND Blobel
Obituary of Ragnar Nordberg (1936-2020)
LARS LINDSKÖLD
In Memory of Francis Roger France (1941-2021)
IZET MASIC

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On Occasion of the 31st Medical Informatics in Europe (MIE) Conference “Public Health and Informatics”

COVID-19 pandemic asks the engagement of all experts in different medical fields including Medical Informatics experts to help with management of the COVID-19 pandemic

IZET MASIC
Editor-in-Chief

The MIE2021 conference was a unique opportunity to meet experts from all involved fields, from deep learning or genomics, up to human factors, ethical and societal aspects. MIE conferences attract not only senior researchers in the field of medical informatics. It is also, and mostly, a place where young scientists have chance and possibility to present and discuss their research work, to meet peers, to network and form collaborations, and to seek job and career opportunities.

Moreover, an important part of the MIE2021 Conference was organizing a special tracks with European initiatives and projects, including special tracks such as the European Commission funded FAIR4HEALTH project. Collaborating with standardizing organizations, such as HL7 they discussed the creation of global frameworks to improve data usability to support life science research across borders, systems, and languages.

Other noteworthy tracks were devoted on encryption, blockchain and privacy-conscious data sharing. Ethical and legal experts investigated and proposed practical ways to support innovation directed towards alleviating the burden of diseases such as COVID-19, rare cancers while promoting bio-surveillance networks. Finally, in the Program of MIE2021 special attention was given to placing patients and citizens at the centre of the digital health transformation debate. Patient organizations, and patient partner groups joined the discussion on innovative ways to encourage their active involvement and participation of their members. Digital health companies have also been included in the special sessions regarding the prolific results of the public-private convergence. Start-ups established by talented young entrepreneurs met global companies and non-profit international organizations active in the field of life science and information technologies sharing insights and inspirations about the convergence of healthcare and public health powered by the digital transformation of health systems.
Medical informatics is foundational for understanding and practice of the medicine. With computing power, medical data and Information-Communication Technologies (ICTs), it provides the means to analyze different aspects and develop new knowledge in the study of man, his health and disease, and functioning of the total health activities (Izet Masic, 1994)

IZET MASIC
Editor-in-Chief

Development of medical informatics started in the fifties during the 20th century. In the postwar period, USA was the leading country in the field of computer science and brought the first applications of computers in medicine. ICT developments during the last two decades were particularly important for medical informatics, as the Internet had profound influence on everyday medical work. The Internet caused an information revolution. Medical information became available to the public and ceased to be in exclusive control of health professionals. The development and global spreading of ICT brought new medical fields, deeply interdisciplinary and connected to medical informatics: telemedicine and cybermedicine.

In 1957, I. L. Auerbach, USA sent a proposal to Unesco on behalf of the American Federation of Information Processing Societies to sponsor one international conference on information processing. As a result, the first international conference on information processing was held in 1959 in Paris with 1800 participants from 37 countries. A few representative of national societies developed statutes, sent them out to the national societies and had them approved. A provisional executive with Mr. Auerbach and Academician Anatol A. Dordonicyn, Union of Socialist Republics was elected. [1-3]. The first council meeting of the Internal Federation for Information Processing (IFIP) was held in Rome in June 1960. Already, 15 countries were IFIP members: Belgium, Canada, Czechoslovakia, Denmark, Finland, Germany, Japan, The Netherlands, Spain, Sweden, Switzerland, the Union of Soviet Socialist Republics, United Kingdom and United States of America. Mr. Auerbach was elected President, Professor Alwin Walter from Germany vice-president and Dr. Ambrose Speiser from Switzerland, secretary-treasurer. The work within IFIP was organized in Technical Committees (TC) and their Working Groups (WG). Already in 1963 the first 3 TCs were established: TC1 Glossary, TC2 Programming Languages and TC3 Education (11-19).

In 1967, TC4, Health Care and Bio-medical Research, was established with Professor Francois Gremy from France as the Chairman and J. M. Forsythe, from the United Kingdom as its Secretary. The first Working group (WG1) was Education of Medical and Paramedical Personnel. In 1973, Jan Roukens from Holland was elected as the new Chairman. He was Chairman until 1980, when the TC ended and the International Medical Informatics Association (IMIA) was accepted by IFIP. A new secretary Jan van Egmond from Belgium was elected 1971. He passed away 1978. Many member countries of TC4 wanted more freedom from IFIP and that resulted in TC4 getting the status of Special Interest Group. TC4 organized the first World Congress of Medical Informatics in parallel with the IFIP Congress in Stockholm, Sweden 1974. The following one was organized in Toronto, Canada in 1977. In 1980, IMIA became independent from IFIP. The inaugural meeting took place on May 11, 1979 in Salle Capitruimi, Paris with speeches of Professor Bailey, WHO, Professor Bobillier, President IFIP, Professor Gremy and Dr. J. Roukens chair TC4. At the general assembly meeting, the following new board was elected: Dr. David Shires USA president, Dr. Hans Peterson Sweden, vice-president and chair By-Laws Committee, William Abbott, U. K. Secretary, Dr. Shigekoto Kaihara, Japan, chair Newsletter Committee and Professor Peter Reichertz, Federal Republic Germany, chair Publication Committee. The interest to establish a European federation of national medical informatics societies started already one year after the Medinfo Congress in Stockholm (1974). There were three persons that in 1975 had the first discussions and they were J. Roukens, Holland, J. van Egmond, Belgium, and Mogens Jorgensen, Denmark. They started to write statutes and discuss these with a few other interested representatives from other European countries. These persons were called the Preliminary executive group and they held a meeting in Paris in June 1976, where they decided to invite all known European societies to be represented at a constituent meeting of the Federation of the European Medical Informatics Society. It was proposed that one delegate with voting right from each Society be present in Copenhagen on September 10 and 11, 1976.

The members present were: Barry Barber, UK; Antonio Perens de Talens, Italy; Francois Gremy France; Rolf Hansen Norway; Mogens Jorgensen Den-
mark; Hans Peterson Sweden; Peter Reichertz Federal Republic of Germany; Jan Roukens Holland; Jan van Egmond Belgium; and Ilkka Vaananen Finland. In addition, two representatives from WHO were invited as they had shown interest in the new Federation and had offered to host the meeting in the WHO European headquarters premises in Copenhagen following with an invitation for lunch. The WHO representatives were the head of WHO Europe, M. Secuduilh and A. Weber. Dr. Secuduilh welcomed the delegates to the Regional Office of WHO hoping that the meeting would prove to be an historic new starting point in the field of medical informatics. He outlined a number of problems in this field and described the continuing interest of WHO in joint collaborative action and the development of new initiatives in Health Care. He wished the delegates success in stabilizing a strong European Federation for Medical Informatics. At the meeting Dr. Jorgensen was elected as Chairman and Dr. Barber as Secretary. It was unanimously agreed that a Federation of European National Societies should be established. The Federation should have a Council consisting of one delegate from each member and one Executive committee elected by the Council. The Council should be responsible for accepting or rejecting applications for membership. In order to finish the work with the statutes and other outstanding work a Preliminary Executive was appointed as officers and members: Dr. A. Remond, France, Chairman; Dr. B. Barber, UK, Secretary; and Prof. P.L. Reichertz, Treasurer. The members of the preliminary executive had been: Dr. M Jorgensen, Dr. J. Roukens and D. J. van Egmond.
The most important directions of work which have been developed referred to history of health and patient record systems are security, nursing informatics, communication standards and a common terminology. Purpose, goals and organisational structure The objectives of EFMI still are: a) To advance international co-operation in Medical Informatics and dissemination of information on a European basis; b) To promote high standards in the application of medical informatics; c) To promote research and development in medical informatics; d) To encourage high standards in education in medical informatics; e) To function as the autonomous European Regional Council of IMIA (International Medical Informatics Association) [1]; f) Organizational structure of EFMI is shown in Figure 7. Through its Working Groups (WGs), EFMI contributes to the scientific development of medical informatics. WG Chairmen organize tutorials workshops and many of them teach medical informatics in their homeland as well as on international courses. EFMI has now many working groups: Education in Health Informatics - ‘EHD; Electronic Health Records - ‘EHR; Evaluation and Assessment of Health Information Systems - ‘EVAL; Health Informatics for Interregional Co-operation - ‘HII; Health Information Management - ‘PGHIME; Human and Organisational Factors of Medical Informatics - ‘HOFMI; Information for Disabled People and Rehabilitation - ‘IDR; Libre/Free and Open Source Software - ‘LIFOSS; Micro former MBDS; Medical Imaging Processing - ‘MIP; Nursing Informatics in Europe - ‘NURSIE; Primary Care Informatics - ‘PCI; Personal Portable Devices - ‘PPD; Safety, Security and Ethics - ‘SSE; and Traceability - ‘TRA’ [7]. Currently, 28 countries are members of the EFMI Council. Applications are open to representative societies in countries within the European Region of WHO. EFMI operates with a minimum of bureaucratic overhead with each national society supporting the Federation by sending a representative to participate in the Council [8, 9, 10]. National societies as members of EFMI in the EFMI Council are represented by one national representative with voting rights. To achieve its goals, EFMI organizes European Congresses the MIE-s (Medical Informatics Europe). So far 24 general congresses have been organized by EFMI [8]. These have taken place in several university centers: Cambridge (1978), Berlin (1979), Oslo (1988), Glasgow (1990), Vienna (1991), Jerusalem (1993), Lisbon (1994), Copenhagen (1996), Thessaloniki (1997), Ljubljana (1999), Hannover (2000), Budapest (2002), St Malo (2003), Geneva (2005), Maastricht (2006), Gothenburg (2008), Sarajevo (2009), Oslo (2011), Pisa (2012), Istanbul (2014), Madrid, (2015), Munich (2016), Manchester (2017), Gothenburg (2018), Gothenburg (2018), and Geneva (2020). EFMI is running another other series of focused conferences: the Special Topic Conferences (STC). This concept has the following components: Organization by a member society in combination with its annual meeting, EFMI council meeting is integral part, Topic defined to the needs of the member society, Relevant EFMI Working groups are engaged for the content, Contributions mostly on invitation, Small 2-day conference with 100+ participants (8). The STC conferences took place in: Bucharest (2001), Nicosia (2002), Rome (2003), Munich (2004), Athens (2005), Timisoara (2006), Brijuni (2007), London (2008), Antalya (2009), Reijikavik (2010), Lasko (2011), Moscow (2012), Prague (2013), Budapest (2014), Paris (2016), Tel Aviv (2016), Zagreb (2018), Hanover (2019), Kuopio (2020) e-conference, Seville (2021 hybrid).

The most important meeting, however is the EFMI Council Meeting (twice a year), where council members can exchange opinions and have opportunity to discuss current problems in medical informatics [1-3]. EFMI has two highly respected official general journals, the International Journal of Medical Informatics (former title: International Journal of Biomedical Computing), and Methods of Information in Medicine. The most important EFMI publication, indexed in Medline, is Studies in Health Technology and Informatics, which publishes papers presented at MIE Conferences [8]. EFMI also publishes several sub-specialty official journals covering the spectrum of medical informatics sub-disciplines [11, 12].

Through its work, EFMI provides leadership and expertise to the multidisciplinary, European medical informatics community and to policy makers, enables the transformation of healthcare in accord with the world-wide vision of improving the health of the world population. EFMI is constantly striving to further the services it provides to its members and the medical informatics community by promoting free interaction among and between its member network and the bio-medical and health informatics community at large.

REFERENCES
Short Review of the MIE 2021 Conference, Athens, Greece, May 29th-31st

Saturday the 29th of May was the first day of the 31st Medical Informatics Europe Conference, the first fully digital edition of the flagship Conference, of the European Federation for Medical Informatics. During the last 14 months of preparation, there was a lot of discussions whether to have it hybrid or purely virtual. In the end, around September the decision was taken to have it purely virtual.

Catherine Chronaki
EFMI President (2020-2022)

For GBHI, the national member of EFMI in Greece and for many of us it was a disappointment. At the same time, it has been an opportunity to take digital EFMI forward. After almost a year of hard work, the EFMI community welcomed the 1st all digital MIE with 400 attendees, 203 accepted full papers indexed in MedLine, 32 short communications and 26 posters. The open access proceedings are already available on the IOS Press website (https://ebooks.iospress.nl/ISBN/978-1-64368-185-6), featuring the Acropolis on the cover.

In the opening Professor John Man- tas chair of the scientific committee commemorated the bicentennial of the Greek revolution (1821-2021) with a video that shared the modern history of the oldest democracy.

Then, in my role as president of EFMI for the next two years, commemorated the 45 years from the establishment of the European Federation for medical informatics, with a video developed by the EFMI Honorary Fellow, Professor Izet Masic (https://vimeo.com/554429832).

In this way, my opening address connected the rich past of EFMI with its digital future. I shared the strategic initiatives of eFMI for 2021-22, renew, connect and grow, focusing on yEFMI led by Ivana Ognjanović, digital EFMI by Paris Gallos, Institutional Member Collaboration by Lars Lindsköld. Highlights from FAIR4Health (on fair health data for research, www.fair4health.eu, led by Carlos Parra Calderón) and HOSMARTAI (www.hosmartai.eu, led by Lacramioara Stoicu Tividar).

Finally, Elske Ammenwerth received the EFMI AC2 Certificate for the biomedical informatics program of University UMIT Tirol. While we could only see each other online, thanks to past EFMI presidents, and current honorary fellows George Michalas, Christian Lovis, and Jacob Hofdijk we were able to take a stroll in the memory lane. We remembered past times of scientific and cultural interaction in person, during past MIEs.

Following the opening ceremony, Christian Lovis delivered a keynote address entitled “COVID-19 predictions : reality check” that advocated for high quality data noting that when legal, organizational and other restrictions to the reuse of health data are lifted, we are left with data that simply are not of sufficient quality. A key lesson from the pandemic said Prof Lovis, “is that the problem was not access the data, but use of the data. Moving forward, we should focus on semantics and describe the data at the source”, he reflected.

As EFMI moves into the digital world, we need to find new ways to interact. Therefore, I asked some our EFMI colleagues to reflect on the sessions of this first day of MIE2021, please enjoy and share your own observations and thoughts. Until we meet again in person and enjoy stimulating scientific debates.

Session 1 Biomedical data, tools and methods (Room A, 9am), Chair Anne Moen. By Anne Moen, EFMI Honorary Fellow, EFMI President (2015-2016)

During the session we learned about...
novel informatics approaches to solve logistics, diagnostic, and management problems. This picture is from “Ex-
periencing U”, which sought to improve or-
ientation as well as patient and visitor flow into a complex institution, seek-
ing to meet specific challenges during COVID-19 pandemic. We also heard about analytics approaches to improve accuracy in ICD-10 coding, diagnostic accuracy, detect risk of self-harm, from mental stress or alcohol use disorder, as well as the intricacies influencing adherence to specific treatment. Dis-
cussion with the presenters focused on Good Data, patient consent to use EHR data for analytic purposes and further work to advance predictive power go-
ing forward.

Session 3–Health and prevention (Room C, 9am), Chair: Romaric MARCILLY by Romaric Marcilly, Chair EFMI HOFS MI WG

The session explored the availabili-
ty and usefulness of health databases in the contexts of vaccine certification and of profiling of HIV pre-exposure prophylaxis candidates. It also explored the meaning of “safety” for assisted liv-
ing technologies and the adaptation of data visualization to the profile of peo-
ples involved in the care process of smart home occupants. Finally, the develop-
ment and evaluation of applications to support nurses’ shift report and to empower patients with kidney diseases were also presented.

Session 4: Precision medicine and public health–Public health informatics (Room A, 10:30), Chair Jacob Hofdijk By Jacob Hofdijk, Honorary Fellow, EFMI President (2009-2010)

Had four presenters from four dif-
ferent continents and four different time zones. Melody Greer was actively participating in the discussion at 03.00 time zones. Melody Greer was actively

er areas of Iran could not be involved in the process miners and the clinical spe-
cialists. The interaction proved a strong asset of the work. The analysis focused on the high variability of the pathway. In the discussion we identified the lack of the outcome of the different diag-

nistic tests and procedures could add an important additional dimension to the process mining approach. This approach which was tested on UK data in Indonesia can as principle also be used for other clinical pathways in other re-

gions. With four presentations we had an interesting discussion and the chair offered the over 40 participants a half hour coffee break.

Session 5–Human factors and citizen centred digital health
Chair: Ulla-Mari KINNUNEN By Ulla-Mari KINNUNEN, EFMI Com-
munity, IMIA NI SIG, Finland

The session “Human factors and cit-
izen centred digital health” included six full paper presentations related to health informatics (HI)/telemedicine competencies, and teaching and learn-
ing HI. A very timely topic interna-
tionally is the gap between technology and seniors. We heard a presentation of user interface development. Particip-
ants (n=11) aged over 70, and the oldest about 95 years, were involved in multi-method research.

A topic of citizens’ understanding of their laboratory results was interesting. It is important to transform lab test results in such a format that citizens without knowledge of health care can understand them. All in all, e-health literacy competencies for citizens are important. An evaluation of an app was performed to find out the how this can be done to better support citizens engagement in each own health and well-being.

The last trip of this session was In-
donesia, where Angelina Kurniati pre-

sented her research on UK data from Leeds on Endometrial Cancer. Angelina con-
nected after a long time wait-
ing for approval to use the data Patient
A vide international survey was conducted in 18 countries concerning emergency remote learning (ERL) for nursing students during COVID-19 pandemic. The questionnaire was developed by the IMIA Student and Emerging Professionals Special Interest Group (IMIA-NI SEP), it was translated in 7 languages. The result showed vide variation in online teaching methods. Even the problems faced, teachers will probably use the methods also in the future.

Two presentations highlighted the importance of medical students’ competencies in digital health. We discussed e.g. what the competencies are and in what phase of the studies should those competencies be taught. So far there are too few courses in medical curriculum or at least not what IMIA recommendations suggest.

Related to COVID-19 pandemic we heard a presentation of Open WHO Massive open online (MOOC) courses. The utilization of courses was high, and sure we all agree the importance of them is this internationally harmful situation.

Session 6–Ethics, Legal and societal aspects Chair: Carlos Luis PARRA CALDERÓN, By Carlos Luis PARRA CALDERÓN, EFMI Treasurer

The session proceeded normally. Studies were presented that dealt with social, legal, and ethical aspects with different approaches—two papers in the context of the Covid19 pandemic. Exciting research results were presented on the factors influencing the sharing of personal data, how the FHIR standard supports the sharing of health data in Europe, how to improve professionals’ training, or the aspects of the tensions between regulation needs and the acceleration of innovation.

Workshop Defining One Digital Health or how training the future generations of One Health professionals (Room B, 14:00): EFMI’s new “One Digital Health” WG presented at MIE2021 By Oscar Tamburis, Chair EFMI ODH WG and Arriel Benis, Executive Officer (2021-2023), co-Chair ODH WG

The new Working Group of the European Federation of Medical Informatics dedicated to One Digital Health (ODH) has been officially presented by its founders – Arriel Benis (Co-Chair), Catherine Chronaki, Anne Moen, and Oscar Tamburis (Co-Chair) – in a workshop held during the first day of the MIE 2021 Conference. The One Digital Health framework, is articulated around the “ODH Steering Wheel” with:

- 2 enabling Keys (One Health; Digital Health);
- 3 overarching Perspectives (Individual; Population; Ecosystem);
- 5 interconnecting Dimensions (Education; Citizen engagement; Environment; Healthcare Industry 4.0; Human and Veterinary Healthcare), and;
- a 1 Technology Ring.

One Digital Health aims to digitally transform future health ecosystems, by implementing a systemic health and life sciences approach that takes into account broad digital technology perspectives on human health, animal health, and the management of the surrounding environment. This approach allows for the examination of how future generations of health informaticians can address the intrinsic complexity of novel health and care scenarios in digitally transformed health ecosystems.

The main challenges that the new EFMI’s WG “ODH” is called to deal with include facilitating and improving interactions between One Health and Digital Health communities, allowing efficient interactions and the delivery of near–real-time, data-driven contributions in systems medicine and systems ecology. One of the first objectives is to develop an information model to connect animal health, human health and the overall ecosystem.

LinkedIn community webpage: https://www.linkedin.com/company/efmi-working-group-one-digital-health/

One Digital Health framework seminal paper: https://www.jmir.org/2021/2/e2189/

What do you think of Arriel’s and Oscar’s account of the ODH Workshop? You can access the recording of workshop in the video library. Send us your thoughts at info@efmi.org mentioning the “MIE2021 Daily May 29, ODH Workshop” on the subject line.

Session 8–Ethics, Legal and societal aspects, Chair Arriel Benis By Arriel Benis, Executive Officer (2021-2023), co-Chair ODH WG

The session explored the use of transversal approaches related to various informatics approaches and tools for trying to understand the diversity both from the patients, clinicians, and researchers’ perspectives. This session allowed to point-out the short and long terms impacts of the COVID-19 pandemics on healthcare services, research, professional and personal developments.

What do you think of Arriel’s account of session 8? You can access the recording of workshop in the video library. Send us your thoughts at info@efmi.org mentioning the “MIE2021 Daily May 29, session 8” on the subject line.

Impressions after moderating Session 9 (room C, 15:00) Session 9–Biomedical data, tools and methods–Artificial Intelligence, symbolic reasoning, machine learning by Mikhail SHIFRIN, EFMI Council Member, National Representative Russian Federation.

Session 9 comprised presentations and pre-recordings of 7 accepted papers, followed by live discussion and Q&A.
I have two proposals. In real practice, in connection with this, do a lot of computational work without circumstances provoke researchers to programs and mighty computers. These access to rich libraries of ML and NLP many such 'proof of the concept': free is a very clear reason for appearing of more significant and purposeful. There is even at the horizon, makes every stage able and implementable problems, but the presence of medically reasonable problem. Unfortunately, many authors using ML or NLP methods solve problems that can be satisfactorily formulated in formal terms but cannot be implemented in practice. With no doubt, such problems may be a necessary stage of the investigation, but the presence of medically reasonable and implementable problems, even at the horizon, makes every stage more significant and purposeful. There is a very clear reason for appearing of many such 'proofs of the concept': free access to rich libraries of ML and NLP programs and mighty computers. These circumstances provoke researchers to do a lot of computational work without deep understanding of it from the point of view of the applicability of the results in real practice. In connection with this, I have two proposals.

First, to introduce a new label at submissions to our conferences – 'proof of the concept'. It will not be a kind of black mark; it will just indicate the stage of the work and inform listeners/readers not to wait for completed results and implementations.

Second to organize at future conferences master classes: 'How to state formal problems, so that results would be useful and implementable'.

**PANEL–Implementing HL7 FHIR: The FHIR Accelerator Program**

**Session 11: Health and Prevention** (16.30 – 18.00) Chair Kaia Saranto By Kaia Saranto, Chair EFMI Education WG

This panel organized by Charles Jaffe, introduced several HL7 FHIR accelerator programs presenting the scope and vision and recent developments. Accelerators presented included Argonaut (Brett Marquard), DaVinci (on payer use cases, Viet Nguyen), CodeX (on cancer models, Steven Bratt), Gravity (Socioeconomic Determinants, Walter Suarez), Vulcan (Robert Goodwin on clinical research), and CARIN (Blue-button, patient access, Ryan Howells). Viet presented the model for use case maturity shown in the picture below, demonstrating also that different use cases are at different stage of interoperability. Robert described the use case of adverse event, and showed an impressive set of activities organized.

**Session 12–Precision medicine and public health** (May 29, 16:30) Chair: Ulla-Mari KINNUENEN By Uilla-Mari KINNUENEN, EFMI Community, IMIA NI SIG, Finland

In session "Precision medicine and public health" three full paper and six short communication papers were presented. We had 17 participants totally around. Here are some examples of the wide variation of the excellent presentations. Because of so many rapid presentations, probably the questions for presenters were difficult to set. However, finally, we had a good conversation. Thank you, all the active presenters, from Thailand, Argentina, German, Italy, USA and Malaysia. I would like to
thank also the technical, background support during all my sessions. Zoom, chat and Q&A worked very well.

A cross-sectional retrospective study was conducted in Thailand of patients (n=327) suffering from tuberculosis. Both electronic and manual data was used to find out the prevalence and expected survival time of drug-induced hepatotoxicity. The results showed differences in patients under and/or over 50 years.

A presentation of the preliminary findings of medication errors showed problems in ordering medication. The physician trainees don’t always understand the physician’s orders, and that might lead to that he/she might enter a wrong medication information. Also e.g. high workload of physicians and lack of pharmacists effect to this situation. Patient safety will be improved when these problems will be faced and fixed.

Several presentations were related to COVID-10 pandemic. We heard about the tracing app and the perceived usefulness and intention to use the app. Also, a study of digital skills of how to deal with the information related to pandemic was discussed. Differences were found between the subjective social status and educational status of citizens. Very important and timely topic had the presentation of spatial inequity of the ICU beds in different regions in Italy. Likewise, a computational solution, a reporting system for ICU capacity was developed. Two different systems were offered, and the mobile device or web portal system was preferred and the most often used.

Pandemic situation has raised demands to develop teaching methods. Problem based learning (PBL) in not a new method but can very easily be implemented also in online teaching (ePBL) for health care professionals. The presenter recommends highly to use the method.

Workshop Designing, modeling and implementing health ecosystems in transformation By Bernd Blobel, EFMI Honorary Fellow

HL7 Germany, represented by Bernd Blobel, organized the Workshop presenting contributions from 5 HL7 Affiliates. Ecosystems in general and transformed health ecosystems in special require communication and cooperation of stakeholders from many different domains using their specific methodologies, terminologies, ontologies and individuals skills. Therefore, we have to represent the concepts guiding the stakeholders involved in the business case in their specific context through domain-specific ontologies and to harmonize them by top level ontologies. Thereafter, we must transform the resulting business viewpoint into the enterprise, the information, the computational, the engineering and finally the technology viewpoint according to the development process specification of ISO 42010 and ISO 10746. Bernd Blobel (HL7 Germany) introduced the principles and challenges of designing, modelling and implementing transformed health ecosystems and the architecture-centric, ontology-based, policy-driven solution standardized in ISO 23903 and deployed by all workshop speakers. Stefan Schulz (HL7 Austria) supported that approach by highlighting, why ontological thinking matters for representing and harmonizing entities and relations in the biological domain. Ken Rubin (HL7 USA) explained the value of healthcare architectures for business and process modeling and the approach of Business Process Management +, when modeling the enterprise viewpoint. William Goossen (HL7 The Netherlands) demonstrated the transformation of ontology-based clinical concepts into clinical information models and related applications. Frank Oemig (HL7 Germany) discussed in detail the model transformation by addressing relations and dependencies of information models, data models and implementation artifacts. Mauro Giacomini (HL7 Italy) finally presented modeling and model transformation up to the corresponding FHIR resources for integrated, disease-specific regional health systems in Italy. In their presentations, but also in the discussion, all attendees emphasized the necessities and opportunities provided by ISO 23903 for enabling knowledge-level interoperability as well as the integration of independently developed specifications.

What do you think of Bernd’s report from the ecosystem workshop? You can access the workshop recording in the video library. Send us your thoughts at info@efmi.org with “MIE2021 Daily video library. Send us your thoughts at info@efmi.org with “MIE2021 Daily...” on the subject.

Keynote speaker: Patricia C. Dykes, Topic: Challenges and Opportunities for Improving Patient Safety Through Data Science and Informatics by Ivana Ognjanović, Chair yEFMI WG

Patricia Dykes is Senior Nurse Scientist and Program Director for Research in the Center for Patient Safety Research and Practice and the Center for Nursing Excellence at Brigham and Women’s Hospital and Associate Professor of Medicine at Harvard Medical School.

Dr. Dykes has been active in a variety of professional societies, and has had leadership positions in nursing informatics in AMIA, the Health Information Management and Systems Society (HIMSS), and the Alliance for Nursing Informatics. She has been recognized for these contributions by receiving the
HIMSS Nursing Informatics Leadership Award, her election as a Fellow of the American Academy of Nursing, and her election as a Fellow to the American College of Medical Informatics.

Key focus of the presentation was on potentials for improvement of patient safety through data science and informatics, developing knowledge and technology to safeguard patients; as well as a core mission to build and support a patient safety research workforce across primary, ambulatory and tertiary care settings. Evidence shows that medical harms and errors are a leading cause of death in the United States and globally and thus the culture of patient safety is necessary to be developed despite patient centred strategies, and information technology solutions have proven capabilities to support and enhance.

In order to practically show current level of development and observed outcomes, she presented projects implemented within the Center for Patient Safety, Research, and Practice related to identified patient safety issues: early detection of patient deterioration (hospital), pressure injury prevention (hospital) and early detection of poor COVID outcomes (long-term care).

The first presented project Early-Sense is aimed on IT enhanced early detection of patient deterioration. Despite high awareness of the needs, still remains a challenge to predict and early detection of decompensation. In addition to implemented solution, she presented developed continuous monitoring system implementation tools including usefulness for implementation checklists. Presented results: cost-benefit analysis

The project CONCERN (Communicating Narrative Concerns Entered by RNs) is rooted in the fact that nurses usually detect many symptoms of patient deterioration prior it comes to medical documentation, and thus could increase patient’s surveillance. Therefore, the project is aimed on creation of early warning system (EWS) for patients’ deterioration based on nursing documentation patterns or “signals” and integration of nurses’ expert clinical judgment when it perceives changes in a patient’s clinical state.

The second identified issue related to patient safety is prevention of high-pressure injuries for which purpose the machine learning techniques are used to address the gaps of other existing tools which are heuristic-based and have poor predictive ability and other EHR-based tools that are limited by small sample sizes, single site evaluation.

Finally, platform for early detection of poor COVID outcomes is important patient safety issue, due to advanced age and their high likelihood of having multiple chronic conditions, adults in senior living facilities are at highest risk for hospitalization from COVID-19, its most serious complications and dying. One of key focuses is on establishing feasibility of long-term care resident data integration from multiple sources, such as HER, sensing data from patients’ wearing sensors for monitoring their vital signs, resident reporting data.

SAFETY IS A PROBLEM FOR EVERYONE. Based on several decades of their experience in the field, she concluded that interventions that make patient care safer can be developed by using data science and informatics methods, leveraging both high and low-high interventions, which are further optimizing workflow (as a part of system improvement approaches) and require engaging patients and family (even during identification of study problems and also during development and testing solutions). These approaches have promising potentials to deliver safer care at a lower cost.

Sunday 30th of May was the second day of the 31st Medical Informatics Europe Conference, the first fully digital edition of the flagship Conference, of the European Federation for Medical Informatics. We started early and we had another full day, full of paper presentations, interactive workshops and panels. As previously noted you can already consult the medline indexed papers in proceedings published by IOS press, and the video presentation earlier today and yesterday in the video library thanks to the generous sponsorship of SNOMED International.

Catherine Chronaki, EFMI President (2020-2022)

Session 13- Health and prevention (May 30, 9am, room A), Chair Izet Masic By Izet Masic, EFMI Honorary Fellow

In the session, «Health and Prevention» held on May 30th 2021, four very interesting papers were presented. Christina Gena Dascalu et al. „Ten-months Study Regarding COVID-19 Spreading in Romanian Counties” analyzes the evolution of COVID-19 cases in Romanian counties over a period of 10 months, to highlight possible similarities that may contribute to a better understanding of the spreading pattern.

The study uses the number of active cases for each county in Romania, as well as Bucharest and the whole country, reported daily by the Romanian Ministry of Health. Authors compared the disease’s evolution in Suceava county with other counties in Romania in order to highlight the gaps between them and calculated the cross-correlations between counties interpreting as time series and found that lags varied between 1-15 days, the most counties having a lag of 6-7 days compared with Suceava and concluded that, on long term there are no important discrepancies between the regions in Romania regarding the evolution of the disease, which shows that the intervention efforts of the medical staff were uniform in efficiency.

Gabriela Marga et al. spoke about „Serious Gaming AI Supporting Treatment in Rheumatoid Arthritis” and presented a complex application for rehabilitation of patients with first and second stage rheumatoid arthritis (RA). The application contains a module for the doctor, for the kinetotherapist, and a module as a game matching the symptoms for each stage of RA. This neural network application, as authors stated, could assist rehabilitation of the RA hand with support of digital technology and multimodal interaction: leap motion, serious gaming, and neuronal networks as support for patients to perform the exercises at home classifying the correct movement with accuracy of 95%.

The application was tested by a group of students, and the degree of mental stress, fatigue in the fingers, wrists and physical exertion were insignificant in most cases.
EFMI inside

The third paper entitled „Use and Users of the Web-based Omaolo Covid-19 Symptom Assessment Tool in Finland Since March 16, 2020“ presented by Vesa Jormanainen et al. intended to answer if it is possible to quickly produce medical symptom self-assessment tools within the existing infrastructure and experimented with the Finnish Omaolo Covid-19 web-based symptom self-assessment tool. Authors tested the web-based Omaolo Covid-19 symptom checker during the second wave of the epidemic on sample range with 1.72 million questionnaires were recorded, out of which 1.55 million from symptomatic persons. Some 15% of the responses (245,500) were directed to seek emergency medical care based on the online screening by respondent response profiles.

Lastly, authors Joao Bettencourt-Silva et al. presented paper titled: „Social Determinant Trends of COVID-19: An Analysis Using Knowledge Graphs from Published Evidence and Online Trends“ where he pointed that the social determinants of health should play an increasingly important part in complementing public health datasets and in strengthening population trend analyses. The paper presents the results of a new approach to discover related health and social factors during the COVID-19 pandemic, which leverages a knowledge graph of related concepts mined from a corpus of published evidence (PubMed) prior to the pandemic. Population trends from online searches were used to identify social determinants of health (SDOH) concepts that trended high at the outset of the pandemic from a list of SDOH topics from the World Health Organization (WHO). Authors suggest an approach to derive new related health and social factors that may have either played a role in, or been affected by, the onset of the global COVID-19 pandemic and their results show how, from a list of SDOH topics, Food Security, Unemployment trended the highest at the start of the pandemic.

Discussion opened a lot of questions and dilemmas about COVID-19 pandemic and its medical, social, ethical, economical and other consequences related to the WHO statements and global targets “Health for all”, regarding determinants for health, especially for WHO strategy about Healthy aging and providing prevention measures within risk people group, who has a few most frequent co-morbidities like: CVDs, Diabetes, Carcinomas, Pulmonary diseases, etc. Health scientific and academic experts, including medical informatics experts need to be active in this field.

Session 14—Biomedical data, tools and methods, Chair: Patrick Weber, EFMI President (2013-2014)

This session was divided into engineer's developments in the electric signals such as EEG, EMG and terminologies on patient data. A better analyses and preparation of electric signals collections allow to better predict health related problems. The part of terminologies was highly discussed with questions. Finland minister representative is encouraging cross border data exchanges.


This session was dedicated on the efficiency of machine learning models in Malaria prediction” was presented by Ousseynou Mbaye. The paper investigates the clinical attributes that contribute to kidney graft failure following live and deceased donor transplantation using an association rule mining approach. Analysis of a kidney transplantation dataset acquired from the Scientific Registry of Transplant Recipients that included over 95000 deceased and live donor recipients over 5-years was performed. The study presented in the paper identified that recipient peripheral vascular disease and prolonged cold ischemia time are often associated with graft loss. The novel finding presented of association rules comprising three or more donor-recipient predictors in combination may have direct clinical combination.

"On the efficiency of machine learning models in Malaria prediction” was presented by Ousseynou Mbaye. The paper proposes an extensive study of the efficiency of the most popular machine learning models for the task of Malaria occurrence prediction. The authors have considered patients from Senegal and have evaluated the overall accuracy of each considered algorithm based on sign and symptom information. The main result presented is that machine learning algorithms are promising, in particular Naive Bayesian presents a recall very close to that of a rapid diagnostic test while improving highly
its precision by 9%.

“Modeling of activity-induced changes in signal propagation speed of mechanically-electrically stimulated neural fiber” was presented by Alina Troglio. The main purpose of the presented work was to test the combination of spike counting and predictive machine learning in modeling evoked speed changes of peripheral nerve fibers. The chosen approach showed promising results and additionally gave an important feedback for the further modeling process.

“Interpretable and Continuous Prediction of Acute Kidney Injury in the Intensive Care” was presented by Iacopo Vaglanzo. In this work, the authors proposed a machine learning model based on recurrent neural networks to continuously predict acute kidney injury. It was internally validated its predictive performance, both in terms of discrimination and calibration, and assessed its interpretability. This continuous model can support clinicians to promptly recognize and treat acute kidney injury patients and may improve their outcomes.

**Session 18–Supporting care delivery–Health information systems and evaluation Chair: Carlos Luis PARRA CALDERÓN By Carlos Luis PARRA CALDERÓN, EFMI Treasurer**

The session proceeded normally. Mr. Sotirios Anagnostopoulos, presented the first study in place of Professor Mantas. The presented papers reported interesting research related to the evaluation of complex clinical decision support tools and medical orders, the co-creation of user requirements for chronic older people, as well as exciting work on the assessment of the success of a hospital information system. Additionally, students’ perception of 3D digital printing in healthcare, tools to support self-management of hemophilia patients, as well as tools catering to the information needs of caregivers of ALS patients, were presented.

**WORKSHOP: Collaboration and cooperation as factors for mutual professional expertise growth in health informatics, Chair Arriel Benis By Arriel Benis, Executive Officer (2021-2023), chair HIIC WG**

During this workshop, the core team of the WG HIIC has successively presented:

- the challenges of cooperation and collaboration in the fields of health and medical informatics;
- the current flagship project of the WG, the EFMI Medical Informatics multilingual Thesaurus;
- the history of the WG, its origins, past, current, and near-future activities such as the working group involved in the HosmartAI European project wherein EFMI takes a leading part.

The core team of the workshop comprises Arriel Benis, WG HIIC Chair, Israeli representative at the EFMI Council, EFMI Executive Officer (2021-2023), Mihaela Crisan-Vida, WG HIIC Co-Chair, Stefan Darmoni, WG HIIC member, and Lăcrămioara Stoicu-Tivadar, WG HIIC member, WG HIIC founder, EFMI Past President (2018-2020).

In the second part of the workshop, there was a dynamic and fruitful discussion between the audience and the team of the WG HIIC. This exchange mainly focused on the potential extension and use of the EFMI Medical Informatics multilingual Thesaurus.

**WORKSHOP: G-Lens to focus medication information – opportunities with IPS and structured ePI standard, Host Anne Moen By Anne Moen, EFMI Honorary Fellow, EFMI President (2015-2016)**

This afternoon the Gravitate-Health project shared ongoing work from strategy towards implementation and selected scenarios to support implementation of services for citizens to focus health information to improve access and understanding of the information. The forthcoming ePI proof of concept standard by EMA and the International Patient Summary will be important trusted sources of health information helping to focus information elements mindful of specific needs, concerns and goal that can be useful to meet specific contexts. Extensive use of European and national information resources and common interoperability standards, e.g., HL7 FHIR®, will help make this important project feasible and sustainable.

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Building on existing health informatics educational recommendations (IMIA, TIGER etc.) this workshop presented results of the ERASMUS project eHealth4all@eu that focused on the verification of these recommendations. A verification performed through the lens of experts from the field, such as physicians, nurses, physiotherapists, managers and informaticians, is necessary to adjust the recommendations that were mainly developed in the academic arena. However, it is the healthcare workforce that is confronted with the digital tools and needs to be trained and upskilled regarding health informatics.

The developments are embedded in the rich tradition of EFMI’s and IMIA’s activities in the educational area which was presented by John Mantas from the University of Athens.

eHealth4all@eu, which aims to develop, implement and evaluate interprofessional courses for graduate students from all different health professions, utilizes an educational pipeline for the course development. This pipeline starts with recommendations rooted in the TIGER initiative (Technology Informatics Guiding Education Reform), updates these recommendations through a scoping review of relevant educational publications, verifies these findings in focus group interviews before defining the pedagogical methods, the learning platform and the syllabus.

This workshop concentrated on the finding from the focus group discussions that were conducted in the three partner countries, i.e. Finland (findings presented by Ulla-Mari Kinnunen), Germany (findings presented by Nicole Egbert) and Portugal (findings presented by Pedro Marques). The findings were presented and summarized:

The findings showed that the initial plans of the consortium to develop, implement and evaluated courses in the fields data protection and security, interoperability, data analytics, innovation and entrepreneurship, leadership and governance and finally ethical and legal issues met the requirements of the experts from the field. Some topics, e.g. data analytics, were highlighted only in one or two countries revealing some country specific views.

There was an interesting discussion, which was moderated by Ursula Hübner und Kaia Saranto, about the need to include health informatics ethics in the curricula of health professionals due to the upcoming AI based solutions and the steadily increasing digital outreach to patients. Both fields raised ethical questions that go beyond the classic biomedical ethics discourse. Furthermore, the question was raised how to increase the medical and health informatics workload in the curricula of physicians and nurses that are already crowded.

As the workshop lasted only 60 minutes, 15 minutes for the discussion were not enough to share all opinions and viewpoints. The discussion also revealed that there is a great interest in educational topics which matches the current IMIA activities to update its educational recommendations in biomedical and health informatics.

Session 19–Supporting care delivery (May 30, Room A, 15:00)
Chair: Anne MOEN By Anne Moen, EFMI Honorary Fellow, EFMI President (2015–2016)

During the session we learned from 6 presentations focusing on different ways to Support Care Delivery. The support ranged from perspectives on digitally mediated consultations to participatory co-design and community of practice for health needs and health system literacy by refugees. The ASPIRE framework seen here helped engage and guide the participatory processes. Supporting Care Delivery also included presentation of required technology support or lack of appropriate tools according to nurses in German study, importance of cybersecurity and professionals’ attitudes, digital phenotyping to suggest eligibility for participation in clinical research studies and preparation of a virtual coach to support elderly to continue rehabilitation program after transfer to the home. The presentations in this session demonstrated in a nice way the many opportunities to support care delivery with health informatics tool.

Session 20: Health and Prevention (May 30, Room B, 3:00 pm), Chair Mauro Giacomini by Mauro Giacomini, Chair THI WG

In this session we had four preregistered presentations and one live presentation, Nathan Jeffreys (University of Surrey, UK) presented his research entitled “Using primary care data to report real-world pancreatic cancer survival and symptomatology.”. The authors extracted a pancreatic cancer cohort from the English primary care database of electronic health records, analyzing symptom and mortality data. This study provides clinicians with updated UK-based survival estimates and symptom prevalence data. Future analysis should clarify high risk clusters of concurrent symptoms to aid earlier diagnosis and utilize primary and secondary care data linkage to improve information yield and granularity.

Artis Luguzis (University of Latvia) presented his research entitled “The impact of prescribed dose assumption in evaluation of adherence and persistence to medication in patients after acute myocardial infarction.” The authors
evaluate adherence and persistence to medication in patients after myocardial infarction and show that corresponding estimates differ significantly, when using different dosage assumptions, namely, when using defined daily dose or tablet per day dosage regimens. Moreover, they demonstrate that observed differences between medications might be a result of inaccurate dosage assumptions. Moreover, they propose a comparison of distribution of days between dispensing events to that of days supplied as a relatively simple visual inspection to validate dosage assumptions.

Andrea Prunotto (University of Freiburg, Germany) presented his research entitled "Automatic Generation of German Translation Candidates for SNOMED CT Textual Descriptions." The authors present an approach called MTP (multiple translation paths) aiming at assisting human translation in SNOMED CT localization projects based on free, web-based machine translation tools. For a chosen target language, MTP generates a scored output of translation candidates (TCs) for each input concept. This paper describes the basic idea of MTP, the distribution of its output TCs and discusses typical examples with German as target language. A first qualitative analysis was promising and supports their hypothesis that a majority voting applied to many translation candidates yields higher quality results than from one single engine and input language.

Patrick Essay (University of Arizona, Tucson, AZ, USA) presented his research entitled "Phenotyping COVID-19 Patients by Ventilation Therapy: Data Quality Challenges and Cohort Characterization." In this study, the authors applied a rule-based phenotyping algorithm to classify COVID-19 patients requiring ventilatory support. They analyzed patient outcomes of the different phenotypes based on type and sequence of ventilation therapy. In addition to summary statistics for each phenotype, they highlight data quality challenges and importance of mapping to standard terminologies. This work illustrates potential impact of accurate phenotyping on patient-level and system-level outcomes including appropriate resource allocation under resource constrained circumstances.

Helen Chen (University of Waterloo, Canada) presented her research entitled "Federated Deep Learning Architecture for Personalized Healthcare." The authors used deep learning to advance personalized healthcare requires data about patients to be collected and aggregated from disparate sources that often span institutions and geographies. Researchers regularly come face-to-face with legitimate security and privacy policies that constrain access to these data. In this work, they present a vision for privacy-preserving federated neural network architectures that permit data to remain at a custodian’s institution while enabling the data to be discovered and used in neural network modeling. Using a diabetes dataset, the authors demonstrate that accuracy and processing efficiencies using federated deep learning architectures are equivalent to the models built on centralized datasets.

After these very interesting and technically optimal presentations the group had an interesting discussion enlightening specific aspects of the presented research.

Session 21–Human factors and citizen centred digital health, Chair: Ivana OGNJANOVIĆ, ViceChair yEFMI WG, yEFMI Officer EFMI Board

The session included eight papers addressing different aspects of human engagement and interaction with digital services, ranging from the roles of citizens and social media users, patients, to professionals and students as future citizens and social media users, patients, to professionals and students as future health professionals and experts in the field.

Two presentations were related to Covid-19. One presentation was focused on analysis of tweets related to Covid-19. There was additional presentation focused on online social media analysis from perspective of peer interactions and identification of behaviour switching patterns in e-cigarette-related transitions between electronic and combusible modes.

One presentation was related to potentials of machine learning approaches as promising tools to address disability advocacy data needs by using Wikibase for editing, integrating, storing structured disability related data.

Related to education of future health professionals, one presentation was focused on presenting evaluation procedure and achieved data, as a key instrument in quality assurance and control of health care related educational programs, continual efforts on their improvements and modernization.

Session 24–Biomedical data, tools and methods, (May 30, Room C, 16:30) Chair: Kaija SARRANTO By Kaija Saranto, Chair EFMI Education WG

The session gave new insights through six interesting presentations. Image processing techniques were used to improve the quality of images in several patient cases e.g. to detect Alzheimer in early stage, to improve hearing loss by installing Cochlear implant and to localize vertebrae in Adolescent Idiopathic Scoliosis.

Patient clustering has high potential to develop more in dept clinical pathways. However, the amount of data to
create models for clustering is demanding. The quality of patient data is also challenging and need a lot of cleaning. In the analysis of fake news attached to Covid-19 virus through Natural Language Processing the results made distincttion of the role of titles and main text. Both seemed to have a meaning, but titles seem to be more unreliable.

Workshop Digital Health Education in the Context of DIT-ECRI and the Development of CONEDIG Georgi CHALTIKIAN, Na, Fara A. FERNANDEZ 1

Deggendorf Institute of Technology, European Campus Rottal Inn, Germany

Digital technology is being widely used in healthcare, however the field of Digital Health remains insufficiently understood and taught. As the challenges to implement Digital Health Education into formal education become evident, it is crucial that these issues be addressed. In order to address the need to have physicians who are confident in using, prescribing and navigating such solutions, this workshop was held to reflect this specific aspect. The workshop was structured as two presentations and a questionnaire. The first presentation was titled ‘Experience with Digital Health Education at DIT-ECRI’, followed by a presentation ‘Development of CONEDIG’. At the end of the workshop, a questionnaire ‘Needs Assessment for Digital Health Education’ that is currently being conducted by researchers at the Deggendorf Institute of Technology. This research is critical in order to cover the aspects of Digital Health education that are critical to analyse the state and needs of education in Digital Health.

yEFMI community initiatives:
All the Young Scientists in the field of Medical and Health Informatics across the Globe are invited to help yEFMI to develop an innovative program to support the young scientists and professionals, by expressing their interests and expectations from yEFMI and completing the survey available at following link. All the EFMI Institutional members are invited to contribute in aligning joint activities involving young researchers and professionals, by expressing their interests and potentials for cooperation with yEFMI. The survey is available at following link. yEFMI page: https://efmi.org/workgroups/yefmi-young-scientists/

Third day of MIE 2021 and Closing session
MIE2021, the first all digital Medical Informatics Europe is formally over:—410 participants, 203 full papers, 32 communications, 26 posters, 15 workshops, 5 panels, 6 demos, 6 amazing keynotes and we are looking forward to STC2021 in Seville hoping that we will be able to meet in person. Don’t get me wrong, there are positive aspects of being digital, like MIE2021 Daily, like the amazing walk in the memory lane prepared by Jacob Hofdijk with pictures from going back to the early eighties and the first MIEs and the video of Izet Masic shown in the opening. There is also the video library which will be available at mie2021.vfairs.com for another month. In the closing session, we looked again at the highlights of the last three days, the virtual conference environment, and the booth of EFMI where you can fill out the yEFMI surveys. If you have time during the next month please visit and complete the survey. We look forward to your feedback. You can also walk the booth of the FAIR4Health Project (www.fair4health.eu) and the MIE2021 poster wall. So not only we can already consult the MedLine indexed papers in proceedings published by IOS press, we can also revisit the video presentations from the last three days in the video library thanks to the generous sponsorship of SNOMED International. In the closing session, John Mantas and Lacramioara Stoiciu Tivadar, MIE2021, co-chairs of the scientific committee announced the awards, which appear below as captured on the screen.

Collaboration award winners of MIE2021!
Catherine Chronaki, EFMI President (2020-2022)

Medical, Health and Healthcare Sciences; Business Administration and Management. A look at the history and evolution of Digital Health education demonstrated the past attempts of including digital technology into the curriculum that has led to the present status of Digital Health programs. The challenges of integrating Digital Health training into the curriculum were recounted, so that future endeavors in providing Digital Health education can be tailored to meet these challenges. The experiences in teaching Digital Health at the Deggendorf Institute of Technology were demonstrated. The highlights of a project ‘Innovative Virtual Course on Global Digital Health (IVC-GDH)’ was presented. An initiative called “Consortium of Educational Institutions in Digital Health” (CONEDIG) created under the auspices of the International Society for Telemedicine and eHealth (ISfTeH) was also introduced. The vision of this working group is a “harmonized approach to digital transformation of healthcare worldwide through recognition of the Digital Health needs of each country and streamlining Digital Health education.” The participants were also introduced to the DigiHealthDay series, an event consisting of pre-event workshops and a symposium in Global Digital Health at the European Campus Rottal-Inn.

At the conclusion of the workshop, the participants were invited to take part in the survey “Needs Assessment for Digital Health Education” that is currently being conducted by researchers at the Deggendorf Institute of Technology. This research is critical in order to cover the aspects of Digital Health education that are critical to analyse the state and needs of education in Digital Health.

All the National Societies in the field of Medical and Health Informatics are invited to contribute to yEFMI activities and help in aligning joint activities involving young researchers and professionals. The survey is open for interested representatives of the national societies and available at following link. All the EFMI Institutional members are invited to contribute in aligning joint activities involving young researchers and professionals, by expressing their interests and potentials for cooperation with yEFMI. The survey is available at following link. yEFMI page: https://efmi.org/workgroups/yefmi-young-scientists/

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Collaboration award winners of MIE2021!
Catherine Chronaki, EFMI President (2020-2022)
were defined to simulate ten typical scenarios, the impact of adding a physician to simulate, through an agent-based model. The goal of this new work is to develop a simulation system to quantify the workload of the staff working in a regional reference center for the treatment of bleeding and hemorrhagic disorders. The authors have previously developed a simulation tool for fast annotation process is nearly twice as fast with our novel tool compared to the current state of the art.

Arshad Farhad (Keele University, Staffordshire, UK) presented his research entitled “A Preliminary Scoping Study of Federated Learning for the Internet of Medical Things (IoMT) and demonstrates the limited amount of research work in an area which has potential to improve patient care. Federated Learning and the IoMT—as standalone technologies—have already proved to be disruptive but there is a need for further research to apply federated learning to the IoMT.

Noemi Giordano (Politecnico di Torino, Italy) presented her research entitled “Simulation of the impact on the workload of the enlargement of the clinical staff of a specialist reference center”. The authors have previously developed a simulation system to quantify the workload of the staff working in a regional reference center for the treatment of bleeding and hemorrhagic disorders. The goal of this new work is to simulate, through an agent-based model, the impact of adding a physician to the staff. Ten sets of initial parameters were defined to simulate ten typical weeks. Results show that the introduction of the new physician together with a second ambulatory room can reduce the workload of all the staff to the expected 8-hour. In this situation, in which the staff workload does not exceed the daily capacity, the author may suppose that an increase in the quality of care and patient satisfaction will be possible.

Francesca Polce (University of Pavia, Italy) presented her research entitled “The Case Manager: Driving Medical Reasoning in a Distributed Environment for Home Patient Monitoring”. This study presents some preliminary results of the CAPABLE project that has been funded by the EU Horizon 2020 Programme over the years 2020-24 to support home care. A system is being designed and implemented supporting remote monitoring and virtual coaching for cancer patients. The system is based on a distributed modular architecture involving many components encapsulating various knowledge. The Case Manager has been designed as a separate component with the aim of coordinating the problem-solving strategies. A first version of the Case Manager has been released and used by the components in a prototypical scenario shown at the first project review.

Georges Bediang (University of Yaoundé I, Cameroon) presented his research entitled “Evaluation of the effectiveness of telemedicine in the management of cardiovascular diseases in primary health care in Cameroon: an intervention study”. This study aimed to evaluate the effectiveness of tele-expertise (tele-ECG) in primary health care in Cameroon for the management of patients with cardiovascular diseases or risk factors. It is a controlled multicenter study carried out in Cameroon two health facilities where tele-ECG has been implemented and two other where telemedicine has been not implemented for control purposes. Patients having cardiovascular risk factors or diseases received usual primary health care and could perform an ECG associated with cardiologists; remote expertise (tele-ECG) in the intervention centers. The primary outcome was to evaluate the rate of patients’ access to an ECG test and to cardiologist; expertise. The authors assess that telemedicine is effective for the management of patients with cardiovascular diseases in primary health care. It could improve healthcare provision, clinical processes, clinical outcomes of patients and their satisfaction.

Haris Aftab (University of York, York, United Kingdom) presented his research entitled “Classification of Failures in the Perception of Conversational Agents (CAs) and their Implications on Patient Safety”. In this paper, the authors classify failures of perception (recognition and understanding) of conversational agents and their sources. They also present a case study of a CA used for calculating insulin dose for gestational diabetes mellitus (GDM) patients. The authors then correlate identified perception failures of CAs to potential scenarios that might compromise patient safety.

Stine Hangaard (Aalborg University, Aalborg East, Denmark) presented her research entitled “Preliminary qualitative data on patient-related perspectives related to the implementation of a predictive algorithm in a telehealth system for COPD”. The aim of the present study was to evaluate patient-related perspectives from a five-week test of the implementation of a COPD prediction algorithm. The test intended to discover and avoid potential errors prior to testing the COPD prediction algorithm. The COPD prediction algorithm aims to predict exacerbations in COPD based on home measurements. In the present study, the algorithm was implemented in a currently deployed telehealth system. Five weeks after implementation, six interviews were conducted, including five interviews with patients with COPD and one interview with a specialized COPD nurse. The participants were overall satisfied with the telehealth system and the COPD prediction algorithm. However, technical issues must be addressed before the COPD prediction algorithm is ready to be tested. Moreover, communication with the monitoring nurses should be clearer based on the COPD nurse’s experiences. In conclusion, the participants were satisfied with the integration of the COPD prediction algorithm in the telehealth system. The identification of technical issues shows the importance of including a technical test period in a similar trial setup. After these very interesting and technically optimal presentations the group had an interesting discussion enlightening specific aspects of the presented research.
WORKSHOP—FAIRness for FHIR project: making the Covid-19 Datasets FAIR with HL7 FHIR By Sylvia Thun, chair HL7 Germany

The aim of this MIE2021 workshop organized by FAIR4Health project and supported by EFMI, RDA, and HL7 Europe was to present an update on the HL7 'FAIRness for FHIR project ' to deliver an Implementation Guide on making FAIR health data sets using HL7 FHIR. Thus, this workshop links data science with the health informatics and standards communities, working jointly with HL7 FHIR and FAIR in the context of data collected in the field of translational, clinical and epidemiological research. More specifically to:

- share early results in the development of and further elaborate of the HL7 FAIRness for FHIR implementation guide (HL7 FHIRFAIR IG), covering the use of HL7 FHIR to technically represent FAIR data improving measures of interoperability and reusability.
- encourage the medical and health information communities working on covid-19 to join the RDA and HL7 communities and share their experience contributing to the development of HL7 standards improving working methods to accurately represent FAIR criteria facilitating Covid-19 research.

The workshop started with presentation of workshop objectives and introduction of the FAIRness for FHIR project by Catherine Chronaki and Alicia Martinez. Then Matthias Loebe presented his experience as he set out to FAIRify a COVID-19 data set from global.health. He discussed the problems when attempting to FAIRify Data for SARS-COV-2 virus and Covid-19 disease research at European and international level. Matthias explored problems with using HL7 FHIR resources as a first step to FAIRify a global.health data set. Oya BEYAN commented on the level of FAIRness of the global health data set using the FAIR maturity model of RDA. Then, the GECCO-83 effort was presented by Sylvia Thun. FAIRness of sample Covid-19 data sets and their quality were discussed. (H2020 ORCHESTRA REDCAP, GECCO DE SIMPLIFIER) in, with the aim to understand the actions advancing the development of the HL7 FHIRFAIR IG by working in the Covid-19 domain, assessing important steps in the FAIR certification roadmap. Finally, Giorgio CANGIOLOI presented the HL7 FAIRness for FHIR project to create the HL7 FHIRFAIR IG, lead the discussion, and invite participants to contribute. The expected outcome is raising awareness on FAIR, the results of FAIR4Health project, RDA FAIR maturity models, and engagement with the HL7 Project on HL7 FAIRness for FHIR project to produce HL7 FAIR4FHIR IG.

Sylvia Thun presented GECCO as follows: The current COVID-19 pandemic has led to a surge of research activity. While this research provides important insights, the multitude of studies results in increasing fragmentation of information. To ensure comparability across projects and institutions, standard data sets are needed. The "German Corona Consensus Dataset" (GECCO), a data set that uses international terminologies and health IT standards improves interoperability of COVID-19 data, in particular for university medicine. An initial dataset was compiled as a working basis by merging data elements and response options of the following projects: the ISARIC-WHO CRF, the Pa-COVID-19 study, which investigates the pathophysiology of COVID-19 in a prospective patient cohort; the LEOS case registry, a clinical patient registry for patients infected with SARS-CoV-2 initiated by the ESCMID Emerging Infections Task Force (ETiF), the German Center for Infection Research (DZIF) and the German Society for Infectiology (DGI). This draft dataset was saved in a spreadsheet and sent to members of an expert board for comment and proposal of additional data elements. The expert board was composed of health professionals from 50 institutions, in particular departments from German university hospitals, professional associations, and other relevant organizations. For the prioritization, the experts were asked to assign a priority value to each data element of the dataset. Priorities were indicated on a 5-level scale that was loosely based on the NIH model for CDEs. To ensure syntactic and semantic interoperability, elements and response options of the core dataset were mapped to international standards and terminologies.

The following terminologies and code systems were used: the International Statistical Classification of Diseases and Related Health Problems, 10th revision, German modification (ICD-10-GM) for diagnoses; Logical Observation Identifiers Names and Codes (LOINC) for laboratory values and other measurements; the Unified Code for Units of Measure (UCUM) for measurement units; the Anatomical Therapeutic Chemical Classification System (ATC) for active ingredients of drugs and medications; SNOMED CT for diagnoses and other medical concepts. We used two terminology systems—SNOMED CT and ICD-10-GM—for diagnoses because ICD-10-GM is the dominant classification system in German healthcare and is important for reimbursement purposes, whereas SNOMED CT allows for a more detailed coding of clinical terms and is therefore preferable for better medical accuracy. The annotation of data elements with international terminologies was done using ART-DECOR, an open source collaboration platform for experts from medical, terminological and technical domains aiming on creation and maintenance of datasets with data element descriptions, use case scenarios, value sets and Health Level 7 (HL7) templates and profiles.

To define FAIR interoperable formats for data exchange, the HL7 standard ‘Fast Healthcare Interoperability Resources’ (FHIR) was used. FHIR builds on a set of "profiles", which provide generic data structures for common healthcare concepts, such as Patient, Practitioner, Observation, Medication or Condition. From these resources more specific data structure definitions, so-called "profiles", can be defined, which allow for interoperable data exchange across health IT systems. To ensure interoperability, care was taken to build on previous work where possible, in particular the FHIR profiles of the German Medical Informatics Initiative, the International Patient Summary (IPS), the Logica COVID-19 profiles and the FHIR base profiles of HL7 Germany. FHIR profiles were defined using Forge and published on the Simplifier.
The workshop raised a lot of interest, 35 people participated in the questions and topics discussed.

**Session 30--Biomedical data, tools and methods--Semantics, controlled terminologies, ontologies, and vocabularies, Chair: Ivana OGNJANOVIĆ By Ivana OGNJANOVIĆ, Chair yEFMI WG, yEFMI Officer EFMI Board**

The session included five papers addressing different aspects of biomedical data presentation including ontological presentation and vocabularies, as well as creation of relevant methodologies and methods.

Two presentations were related to COVID-19, one was focused on integration of research data for COVID-19 studies and relevant structured searches which this required use of established, standardized vocabularies, terminologies or ontologies such as SNOMED CT. The presented study shows that SNOMED CT can be utilized for COVID-19 cohort browsing. Another COVID-19 related paper analyzed knowledge graph representation as an appropriate structure framework to analyze published literature to identify and represent underlying mechanistic associations that aggregate chronic conditions due to COVID-19.

One presentation was focused on terminology maintenance issues (which is also highly relevant to new terminology created during COVID-19 pandemic), proposed new framework for merging and adaptation of two static theoretical frameworks that consisted of criteria relating to using a terminology, divided among relevant stakeholders. The framework was applied to the health-care terminology maintenance process in the Netherlands.

Related to data interoperability and standardization, there were two presentations describing concrete experience from Canada and Germany, respectively. One presentation described first release of Canadian drug ontology (OCRz), which is built upon two public databases: Health Canada’s Drug Product Database (DPD) and the Canadian Clinical Drug Dataset (CCDD) to provide a normalized and standardized description of drugs that are authorized to be marketed in Canada.

On the other side, presentation was focused on mapping clinical data on rare diseases to Observational Medical Outcome Partnership Common Data Model (OMOP CDM) by importing the terminologies and making use of the data to provide a dashboard for physicians and visualization of relevant indicators.

**Session 31--Biomedical data, tools and methods--Data interoperability and data, Mikhail Shifrin By Mikhail Shifrin, National Representative of Russia in the EFMI Council**

Six papers were presented at the session. Five of them were devoted—in one sense or another—to the problem of data integration. It could be integration of patients’ data from different hospitals, or integration of data from different research project, or integration of data received from different devices working in different modes. One presentation was devoted to generating synthetic clinical data—an interesting attempt to avoid the problem of corrupting the security of personal data. All presentations were original and interesting. The audience was rather active; there were many questions during the discussion.

Despite the variety of topics, they also had something in common. This is the situation that biomedical informatics has faced in recent years: we see a huge amount of clinical data that is growing rapidly, but it is very heterogeneous and it is often not so simple to find the required number of cases for concrete investigation. It seems that we are faced with one of the main challenges of biomedical informatics: data redundancy and lack of data at the same time.

**Session 32--Biomedical data, tools and methods--Data interoperability and data integration, Chair: Patrick WEBER By Patrick Weber, EFMI President (2013-2014)**

This session focuses on how the integrate data collected with the help of different devices or documents. Were presented Endoscopy data, Ambulance and emergency data, pathogen collection also eHealth in Iran, security for personalized data, and help for clinical research document.

**Keynote: Harnessing AI to deliver a personalised and efficient health and wellness journey, Chair: Lacramioara Stoicu-Tivadar, Speaker: Konstantina Nikita By Lacramioara Stoicu-Tivadar, EFMI President (2019-2020), EFMI Representative in IMIA**

The First keynote session of the day welcomed Prof. Konstantina Nikita, a complex personality and an inspiration for combining the technical background and the medical one, with great accomplishments in projects, publications, participations in prestigious biomedical and technical organizations. Konstantina Nikita is a full Professor at the School of Electrical and Computer Engineering, National Technical University of Athens, director of the Mobile Radiocommunications Laboratory and founder and director of the Biomed-
The session (33) “Biomedical data, tools and methods” was composed of five presentations, with contributions from France, Denmark, Switzerland, and Germany. A sixth presentation from Finland was not given, and the speaker was not present. The topics addressed in the session focused on visualization and integrated data analysis. For instance, in substitution of Venn diagrams, Mouzer et al. suggested to use the RainBio tool from gene expressions to visualize the similarity between different guidelines, which turns particularly useful when comparing five or more sources. And to visualize food and drug interactions, Lalanne et al. applied edge diagrams. Liakopoulou et al. provided a smart dashboard for assessing longitudinal data (several datapoints all 10 ms). In biomedical record linkage, Sariyar and Holm explained the differences between identity and similarity, while Stauemmler identified the differences between identity and apoints all 10 ms). In biomedical record assessing longitudinal data (several dat-
It is certainly desirable to record as much health data as possible in a structured form so that it can be processed further. Not least because structured recording is often impractical, a lot of data is available in unstructured form in natural language. This applies to both clinical documents and scientific texts.

This session was mainly devoted to the question of how structured data can be extracted from unstructured texts using NLP. The first presenter explained how the minutes of multidisciplinary team meetings on cancer patients can also be used to extract the detailed parameters needed to include patients in precision medicine trials. It was exciting to discuss that certain text analysis procedures offered commercially free of charge are very powerful but questionable whether they can be reconciled with patient privacy claims.

A procedure presented for replacing identifying data with pseudonyms also serves to ensure the confidentiality of patient data. Another presentation was devoted to the question of how clinical documents in Spanish and English can be analyzed. But also the FAIR provision of structured data with OpenEHR was discussed. Even though the focus was on the analysis of clinical texts, the discussion was complemented by a contribution on the automatic annotation of preprints related to the Covid-19 pandemic, which supports the fast and easy retrieval of such preprints—essential for medical progress!

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Session 40—Biomedical data, tools and methods—Natural language processing; Chair: Alfred WINTER By Alfred Winter, EFMI Board Secretary

"Knowledge Acquisition and Construction of a RDF-Ontology for Computer-assisted Surgery" presented by Niclas Hagen. The paper presented demonstrate the knowledge acquisition and construction of an RDF-ontology for surgical knowledge representation and as example was used mandibular reconstruction. The ontology can be used for automatic reconstruction of reconstruction proposal in the virtual planning system using an interface based on SPARQL.

"Using Knowledge Graphs to Plausibly Infer Missing Associations in EMR Data" presented by William Van Woensel. In this paper, authors presented a knowledge-based reasoning method that plausibly infers missing causal EMR associations, together with a semantic Extract-Transform-Load pipeline for preparing and EMR Knowledge Graph.

"DeIDNER Corpus: Annotation of Clinical Discharge Summary Notes for Named Entity Recognition using BRAT Tool" was presented by Mahanazuddin Syed. The objective of the paper is to create a high quality annotated clinical corpus for training Named Entity Recognition models. The methodology presented involves training, refined guidelines and discussions in iterations ensured high-quality annotation that was quantified using Inter Annotator Agreement metric.

"Fine-grained Simplification of Medical Documents" was presenter by Anaïs Koptient. In this paper, the authors proposed a rule-based system to simplify technical texts in French from the medical domain that performs both syntactic and lexical simplification. It was performed fine-grained transformation for adjusting and checking the grammaticality of the simplified sentences. The system was evaluate using three metrics: simplicity, adequacy, and grammaticality.

"Disambiguation of Medical Abbreviations in French with Supervised Methods" presented by Anaïs Koptient. The paper presented a work in disambiguation of medical abbreviations in French. It proposed a method based on supervised categorization.

"Inter-Rater Reliability of Unstructured Text Labeling: Artificially vs. Naturally Intelligent Approaches" was presented by Gleb Danilov. The authors presented a study to assess the agreement between experts who judged on the fact of pulmonary embolism in neurosurgical cases retrospectively based on electronic health records and assess the utility of the machine learning approach to automate this process.

Keynote Address, of Carina Dantas "Data to citizens: the variants of trust for health data sharing", Chair: Lâcrămioara Stoiciu-Tivadar. By Lâcrămioara Stoiciu-Tivadar, EFMI President (2019-2020), EFMI Representative in IMIA

The afternoon keynote session of the day introduced Carina Dantas,
EFMI inside

a great personality and an expert in management and cooperation. Carina Dantas is International Project Manager at ECHAlliance, Chair of NET4Age-Friendly, Vice-President of the European Covenant on Demographic Change and Coordinator of the Stakeholder Network SHAFe–Smart Healthy Age-friendly Environments. Carina has over 20 years of experience in the social and health care sector, and a great project management and implementation experience. She is active under CEN/CENELEC to build and validate the European Professional Ethics Framework for the ICT Profession and contributes to The AAL Programme Guidelines on Ethics, data security and privacy. The keynote presentation “Data to citizens: the variants of trust for health data sharing” presented ideas on how to enhance citizen participation and ownership of the digital revolution, essential for further developments in the data sharing landscape, based on the work of several projects and initiatives such as Digital Health Europe, the Digital Health Society, NET4Age-Friendly, and All policies for a healthy Europe. The Q&A session was great, alive and created the need for future events on the raised topics.

yEFMI community initiatives:

All the Young Scientists in the field of Medical and Health Informatics across the Globe are invited to help EFMI to develop an innovative program to support the young scientists and professionals, by expressing their interests and expectations from yEFMI and completing the survey available at following link.

All the National Societies in the field of Medical and Health Informatics are invited to contribute to yEFMI activities and help in aligning joint activities involving young researchers and professionals. The survey is open for interested representatives of the national societies and available at following link.

All the EFMI Institutional members are invited to contribute in aligning joint activities involving young researchers and professionals, by expressing their interests and potentials for cooperation with yEFMI. The survey is available at following link.

yEFMI page: https://efmi.org/working-groups/yefmi-young-efmi/
MIE2021 Awards – Reflections on yEFMI

The 31st Medical Informatics Europe Conference (MIE) was organised by the European Federation for Medical Informatics (EFMI) as online conference on 29-31 May 2021. During the conference, several awards were given to MI/HI students and young professionals, such as Best Paper Award, Best Student Award, Best Poster Reward. In the following sections, awarded students and young professionals are introduced by focusing on their MI/HI careers, recent research activities that are presented through awarded paper/poster, as well as key messages to future generations and yEFMI membership.

IVANA OGNJANOVIC
yEFMI Officer, EFMI Executive Board

BEST PAPER AWARD
Title: Image Processing of Conventional Computer Tomography Images for Segmentation of the Human Cochlea
Authors: Jenny STRITZEL, Dominik WOLFF, Klaus-Hendrik WOLF, Tobias WELLER, Thomas LE-NARZ, Andreas BÜCHNER, Michael MARSCHOLLEK

Jenny Stritzel, PhD student
Research Associate at the Peter L. Reichertz Institute for Medical Informatics of TU Braunschweig and Hannover Medical School, Hannover, Germany

Short introduction about Jenny's career in medical and health informatics: Jenny Stritzel is a PhD student at Hannover Medical School. Her education started at Computational Life Science in Lübeck, where after graduation she also completed her master’s degree with specialization in image and signal processing.

Presentation of awarded paper. Did the authors encounter obstacles and challenges during the research?

The paper is focused on describing how it is possible to segment the human cochlea, which is a very small structure in the human skull when you have conventional CT images which were recorded in the past. Different methods are being used in the literature. If you are looking for methods relevant to cochlea segmentation in CTs or the examination of cochlea features, you will mostly find that they have used micro CTs for ex vivo imaging or at least ultra-high resolution CTs for in vivo imaging.

On the other side, key challenge facing the research is in big data base with data obtained retrospectively. Mostly the field of view is the whole skull, and the resolution is not ideal. So, the challenge is to process the data to such an extent that segmentation of the cochlea is possible. Therefore, authors rotated the data in a way you can identify the
typical snail shape structure of the co-
chlea which is followed by an adapted
image processing for an easier segmen-
tation. Presented approach is just an es-
sential step in reaching the overall goal
of the project: identification of features in
the human cochlea, which lead to
to better or worse hearing results after a
cochlea implant operation.

yEFMI is EFMI WG devoted to
young professionals. What do
you expect from yEFMI membership?

Jenny: From yEFMI membership I
expect an interesting exchange about
existing projects in medical informat-
ics and further project ideas as well as
networking, perhaps for future collab-
orations.

Why do you suggest MI/HI as a profes-
sion for future genera-
tions?

Jenny: Medical and health informatics are very future-oriented and, more-
over, the interface between medicine and IT. For the future, I would like to
see more extensive data provision and exchange. This is especially relevant for
research project in which we usually spend half of the time is spent acquiring
data or generating it yourself, all accom-
panied with regulatory issues which
must be taken into consideration. This
could be a point for joint actions within
yEFMI that we can work on.

As a suggestion for new generations
in the field, I would like to recommend
everyone to always focus on the user
of the application: in medical informatics
we don’t need “solutions that only work
for spherical chickens in a vacuum”.

BEST STUDENT PAPER AWARD

Authors: Charalampia SOILEMEZI,
Joseph LIASKOS and John MANTAS
Title: A Smartphone App for Bed-
side Recording of Nursing Handovers in
Haemodialysis Units

Charalampia SOILEMEZI, MSc
Faculty of Nursing, School of Health Sciences, National and Kapodistrian
University of Athens, Athens, Greece

Short introduction about Jenny’s ca-
reer in medical and health informatics:
Charalampia (Hara) Soilemez has a
master’s degree in medical informatics
from the University of Athens. She has
been interested in medical informatics
since her first job as a renal nurse while
working and using a custom-made web
application to record patients’ data.
Since then, she decided to start learning
programming languages and attending
several seminars. Firstly, she started
working on designing web-applications
as a part-time job and then she started
designing applications on android and
then on iOS. Currently she is working
as a school nurse specializing in diabe-
tes.

Presentation of awarded paper. Did the authors encounter
obstacles and challenges during the research?

The paper was aimed on the develop-
ment of a smartphone app for record-
ning nursing handovers in haemodialy-
sis units. Haemodialysis patients have
a higher risk of infection, they need to
be connected with a haemodialysis
machine through a fistula which is a
surgical connection between a vein and
an artery. This procedure is very dif-
cult to be done in the first place and if
there is an infection, it needs to be done
again in another place. Therefore, these
patients have to be monitored very well
not to avoid infection. For these rea-
sons, authors developed a smartphone
app to help nurses communicate with
each other more efficiently with stan-
dardized data features. The most im-
portant phase is the ability to take pho-
tos of a possible infection and compare
it from shift to shift. This helps with the
patient’s treatment care plan and overall
wellbeing.

Congratulation for MIE2021
Best Student Paper award! What
does this award mean to you?

Hara: Best student paper award is a
great recognition for me as it gives me
the opportunity to be known amongst
the people in the medical informatics
community. Also, it gives me the moti-
vation to further my research.

MIE2021 was for the first time
organized as fully online event.
What is your experience of par-
ticipation?

Hara: My experience with the
MIE2021 conference was unique. Even
though it was an online event, it was
made in a way to resemble a real one
which made us feel very comfortable. I
decided to attend and really enjoyed every segment that had
to do with the use of applications or ar-
tificial intelligence in the medical field
as for me they seem as the most innova-
tive and intriguing ones.

yEFMI is EFMI WG devoted to
young professionals. What do
you expect from yEFMI member-
ship? Even if you have just start-
ed your career in medical informatics,
what can you suggest to
the new generations?

Hara: YEFMI brings young scientists
together and it gives you the opportu-
nity to work under a common goal with
people from different countries and dif-
ferent expertise. This is very important
to me, as you can learn and exchange
tips. Medical informatics is an innovative
field. Technology is ever grown and
so someone who can devote time and
effort can make a big difference, not
only academically, but he/she can also
change people’s lives.

BEST POSTER AWARD

Authors: Cyril R. ZGRAGGEN, Se-
bastian B. KUNZ, Kerstin DENECKE
Title: Crowdsourcing for Creating a
Dataset for Training a Medication
Chatbot

Cyril R. ZGRAGGEN, BSc student,
Bern University of Applied Sciences,
Bern, Switzerland
Sebastian B. KUNZ, BSc student,
Bern University of Applied Sciences,
Bern, Switzerland
Kerstin DENECKE, Professor, Bern
University of Applied Sciences, Bern,
Switzerland

Short introduction about students’ ca-
reers in medical and health informatics:
Cyril Zgraggen and Sebastian Kunz
are both medical informatics students
at the Bern University of Applied Sci-
cences (BFH) in Switzerland. They start-
ed their studies at the same time in 2017
and are expected to graduate in sum-
mer 2022. Both complete their studies
in a part-time format and work in par-
allel in different employment sectors.

Before Cyril started studying and
during the first two years, he worked as
a chef in gastronomy and was an em-
ployee in quality management at a food
producer. It was clear to him from the
beginning, that he wanted a new pro-
fessional challenge in the healthcare
sector. So that what they learn in theory
at the BFH can also be used in practice
during daily business life. Since 2019, Cyril
has been working alongside the studies
as a research assistant at the Federal Of-
Obstacles and challenges during research

The work that won the Best Poster Award was originally a student project that was supervised by Prof. Denecke. The objective of this work was to collect experiences on how datasets for training a chatbot can be created through crowdsourcing. Finally, a medication chatbot—which should be able to answer patients’ questions about their medication—was defined as a use case. The main interest for the work was in how patients would formulate their questions for the chatbot.

The students created an entity-intent model and based on that they were defined 90 different tasks for the crowd worker. In a period of 7 days, they received over 4,000 answers from 560 crowd workers. They received a broad variety of possible user needs and linguistic variants. The formulated sentences also contain spelling errors, which could help to make a chatbot more robust against linguistic variations, and errors. We learned that it is important to formulate simple tasks in a very clear manner and to limit the difficulty of a task. In conclusion, we believe that digital solutions also work across borders.

Medical informatics can improve patient safety, especially concerning avoiding preventable adverse events. The potential in the field of medical informatics is enormous, and can—with consideration of the analogue processes—bring about many things. Sebastian specifies that the existing processes can be simplified. But the development does not stop here. Through the continuous development of the existing infrastructure as well as the integration of new technologies, new use cases can arise in the future to solve problems that are hardly considered today or are triggered by existing processes.

Cyril is convinced that medical informatics can improve professional strength. The essential thing is never to forget to cooperate with industry and/or with healthcare professionals when having ideas and developing applications in medical informatics; integration of health professionals and patients when developing software is crucial for successful implementation and use in practice. yEFMI can play a very important role in student’s professional career development in building up a network, thus benefiting for running new projects, for getting support during specialized studies, and further for finding a job. Last, but not having the least importance is providing opportunity for students for publishing at conferences, participation in conferences, meeting and get in contact with different kind of researchers, but also with people from industry.

Full interviews are available at yEFMI LinkedIn page: https://www.linkedin.com/showcase/youngefmi-yefmi/
EFMI as partner in EU projects – HosmartAI

HosmartAI project will result in building a common open Integration Platform with the necessary tools to facilitate and measure the benefits of integrating digital technologies, robotics, and AI, in the healthcare system.

LĂCRĂMIOARA STOICUTIVADAR
Past President EFMI

HosmartAI main goal is to boost a strong, efficient, sustainable, and resilient European healthcare system. The Consortium gathers 24 partners – large enterprises, SMEs, hospitals, universities, research centers and 2 professional associations, one of which is the European Federation of Medical Informatics—from 12 European countries, has a 10-mil euro funding and its duration is 2021-2024. HosmartAI will use the co-construction with stakeholders and citizens for the best real-world solution. 8 Large-Scale Pilots will implement and evaluate improvements in medical diagnosis, surgical interventions, prevention and treatment of diseases, and support for rehabilitation and long-term care in several Hospital and care settings involving 3000 patients, 300 healthcare professionals, 600 stakeholders from 5 EU regions. The objectives view 3 areas: business – focusing on the pre-commercial solution evaluation and validation, technical – targeting the delivery and deployment in the real environment of the HosmartAI platform, and scientific and innovation – focusing on the research to deliver a rigorous and self-standing methodology to drive the implementation and define its operational principles. EFMI is leading 2 tasks in WP6, Task 6.3 – Standardization and Legislation, and Task 6.4 Certification, Staff training & education and alignment with existing practice, and has a strong contribution for WP2, Task 2.1 using the EFMI Medical Informatics multilingual thesaurus (MIMT). The STC2021 organized 22-24 November 2021 adds a satellite event presenting HosmartAI and inviting the community to contribute with valuable information and be a part of a great project.
Interview with Gjuro Dezelic, Former President of the Yugoslav Association of Medical Informatics, 1990-1992, and Honorary President of the Croatian Society for Medical Informatics

Gjuro Dezelic, academician and full professor of Medical informatics at several universities in former Yugoslavia is one of pioneers of Medical informatics in Europe and the world.

IZET MASIC
Editor-In-Chief

With pioneers of Medical informatics professors Stefan Adamic in Slovenia, Rajko Vukasinovic in Serbia and Izet Masic in Bosnia and Herzegovina in the late 80s of the last century he formed Yugoslav Association of Medical informatics, which became official member of EFMI and IMIA in 1990. This interview has been realized by two pioneers of Medical informatics in South Eastern Europe, but, also, as some kind of interview of learner and teacher. Interview is realized during May 2020.

I.M.: This interview was planned for the first issue of „EFMI Inside“, but your health condition prevented it. The reason for making this interview was a picture, from your collection, from the MIE ’79 Congress in Berlin, published in the first issue of EFMI Inside (on page 14), in which you actively participated. The details from that and the following MIE congresses are, unfortunately, modest, and you are one of the few living participants from that period. Can you list some events and describe their actors whose contribution to the development of MI is illustrative, so that the younger generations of MI experts and professionals can experience them, at least through this text?

G.D.: The Congress of „Medical Informatics Berlin 1979“ (September 17-20) was the second EFMI congress, held in West Berlin (a part of Belin then governed by France, the United States and Great Britain, and the remaining part of which was the capital of the then Democratic Republic of Germany). At that time, as early as 1970, as a professor at the Faculty of Medicine in Zagreb, I taught medical informatics as a compulsory subject to undergraduate and postgraduate students—future doctors. At the same time, I led the project of creating the Health Information System of the City of Zagreb (ZIS), which was based on the application of medical informatics methods. When EFMI organized its first congress in Cambridge, UK (September 4-8, 1978), the health authorities of the Croatian capital considered it important that ZIS designers, under my leadership, participate in that congress, because health information systems were one of the theme of the congress. This is how the first contacts of Croatian medical informatics with the leading people of EFMI came about. It was especially important to me that I met there the colleagues who were engaged in education in medical informatics. When the panel on education in medical informatics was includ-
EFMI inside

ed in the program "MI Berlin 1979", I was invited to participate in that panel as a long-term teacher of medical informatics to medical students. The topic of my paper was "Educational Problems in Teaching Health Informatics to Medical Students", and it was published in the congress proceedings. The panel was led by John Anderson, and also featured Francis Roger France, Klaus Peter Adlassnig, Cristopher J. Dickinson and Jochen R. Möhr. Of the EFMI leaders, I have continued to maintain contacts in particular with Hans Peterson, Barry Barber, Rolf Hansen, Peter Reichertz, Francois Grémy, Jean-Raoul Scherrer and Stellan Bengtsson. All of them have contributed to the development of medical informatics, and our younger generations will find a lot of information about them in the "Biographical Lexicon of Medical Informatics" which you wrote.

I.M.: I was one of yours students among several thousand whom you taught at universities throughout the former Yugoslavia, just in the years of the aforementioned MIE congresses, which you described above. In your lectures, we acquired the first and for that time period, comprehensive and essential contents on MI, but also the aspects nurtured by the main "schools of MI"—Anglo-Saxon (Abbot, Anderson, etc.), French (Greym, Remond, etc.), German (Reichertz, et al.), American (Collen, Green, et al.), whose terms "Health Informatics" (Abbot) and "Medical Informatics" (Greym and Reichertz) have entered the European and world medical literature. Why did you decide in those years to use the term Health more than Medical informatics in the former Yu spaces (your first lecture notes and first textbook were with that title). What was the difference.

G.D.: Part of the answer to your question can be found in the text of my paper at the 1979 MIE Congress in Berlin mentioned in the answer to your previous question. In the part of the text entitled "The Development of Curricula in Medical Informatics at the Medical Schools in Yugoslavia" it literally reads (on p. 77): "In 1970 the Medical Faculty in Zagreb introduced compulsory appreciation courses in medical informatics at the undergraduate and postgraduate levels for all medical students. A very strong impetus to the development of medical informatics on both teaching and research was given by setting up the University Computing Center in Zagreb in 1972 operating a UNIVAC 1110 Computing System with the installation of interactive terminals at the School of Public Health. (in Zagreb) "...." Since in Zagreb a health information system is planned in the near future, a proposal for a two-year postgraduate program in "Health Informatics" has been made". From such formulations it clearly follows that the terms Medical informatics and Health informatics were considered synonymous, but in the former Yugoslavia areas (with a socialist society organization, in which there was no private medical practice) the adjective "health" was preferred.

With the appearance of the international associations IMIA and EFMI, the name Medical Informatics finally prevailed in our country. This can be well seen in the titles of university textbooks that I am the author of. The first of them, issued with the approval of the Publishing Committee of the Assembly of the University of Zagreb in 1976, has a "neutral" title "Fundamentals of Informatics" and was published in several editions. The second was published as the 10th volume in the Library of Textbooks and Manuals of the Faculty of Medicine, University of Zagreb in 1986, entitled "Health Informatics" and by 1989 had three editions. The last textbook under my name was published by the Croatian Society for Medical Informatics in Zagreb in 1997 and is entitled "Medical Informatics". Today, a modern university textbook of the same title "Medical Informatics" (the official text-book of the universities of Zagreb, Rijeka, Osijek and Split) can be obtained on the market in Croatia. It was published by Medicinska naklada in Zagreb in 2009, edited by Josipa Kern and Milad Petrovecki. The authors are 42 Croatian medical informatics (and I am one of them) experts, and you were one of the four reviewers. The description of that book on the internet portals reads as follows: "The textbook deals with medical informatics issues relevant to students of medicine, dentistry, nursing and similar medical and health fields. It is intended for all current and future health professionals—doctors, dentists, medical biochemists, pharmacists, sanitary engineers, nurses and technicians, and all other health professionals and health professionals who encounter the use of information technology on a daily basis."

I.M.: In the late 1980s, you led a team from the former Yugoslavia republics that, after founding societies/associations in those republics that brought together qualified people in the field of health informatics, founded the Yugoslav Association for Medical Informatics—YAMI. YAMI organized the First MI Congress in Belgrade in 1990 with an impressive participation of over 500 participants. This scientific meeting of MI left positive effects on the later development of MI in Europe and the World. Can you recall any details about this?

G.D.: YAMI was founded in 1989...
in Osijek by the Republic Societies for Medical Informatics in Bosnia and Herzegovina, Croatia and Slovenia, and the Section for Medical Informatics within the Serbian Medical Society. It was decided that the headquarters of YAMI would be in Zagreb, and I was elected as president. At the time of the 1990 MIE Congress in Glasgow at a meeting of the EFMI Council and the IMIA Annual Assembly, YAMI was admitted to the membership of both international medical informatics organizations, but this did not last long. After this, this is described in detail on p. 54. It should be noted here that in the fall of 1991, both MI associations–Slavonian and Croatian–withdrew from YAMI, followed by the MI association of Bosnia and Herzegovina.

A few months later. After the Republic of Croatia and other republics of the former Socialist Federative Republic of Yugoslavia (SFRJ) were internationally recognized in January 1992 and became members of the UN in May of the same year, the conditions were met for medical informatics companies of the former three Yugoslav republics–Bosnia and Herzegovina, Croatia, and Slovenia–to become members of IMIA and EFMI. This happened during the 1992 MEDINFO congress in Geneva.

As the war in Slovenia was relatively short, the Slovenian Society for Medical Informatics was able to quickly organize its first national symposium in the autumn of 1992, and after being admitted to EFMI, it managed to organize the 1999 MIE Congress in Ljubljana. In Croatia, the war lasted longer, so the Croatian Society for Medical Informatics (CSMI) could hold its first national symposium only in 1993, but had to abandon plans made during YAMI to run for the 1998 MEDINFO congress in Zagreb. It was only with the efforts of my successor in leading CSMI, Josip Kern, that the EFMI Special Topic Conference was organized in the Brijuni Islands in 2007. The worst time was for the Medical Informatics Society of Bosnia and Herzegovina (BHSMI), because the armed conflict lasted between March 1992 and November 1995, with the siege of the capital Sarajevo. But even in such a terrible situation, BHSMI, which you lead, has had a fruitful activity, amazing in such circumstances, managing to organize professional gatherings, produce numerous publications and launch the graphs, among them the first Croatian textbook on medical informatics. In the post-war period, BHSMI organized national symposia and applied for the MIE Congress, which was held in 2009. In my keynote lecture at MIE 2009 in Sarajevo (Proceedings of XXII International Congress of the European Federation for Medical Informatics, MIE 2009, Sarajevo, 2009, Amsterdam-Berlin Tokyo Washington, DC: IOS Press, 2009, 3-7) I wrote: "We should consider the mandate to organize the MIE 2009 Congress in Sarajevo as one of the most efforts of Prof. Music struggling for network of terminals in all Croatian university centers of that time (Osijek, Rijeka, Split, and Zagreb). In this center he served from 1980 to 1983 as head of its Sector for research, teaching and development. Gyuro Dezelic published more than 150 scientific and professional papers as well as several textbooks and monographs, among them the first Croatian textbook on medical informatics. In 1975 he was awarded with the "Ruzic Boskovic" prize for scientific achievements. After being elected in 1991 associate member of the Croatian Academy of Medical Sciences, since 1994 he is its full member. He is the founder of the Croatian Society for Medical Informatics (CSIHIMA 1994), being its first president and a representative to the European Federation for Medical Informatics (EFMI) and the International Medical Informatics Association (IMIA). Since 2004 he is elected honorary president of CSMI. After the retirement he was mostly devoted to the problems of standardization in medical informatics, and was one of the initiators of the founding in 2002 the Croatian HL7 International Affiliate, serving as its first president until 2008, when he was elected as its honorary president. At the 22nd International EFMI Congress "Medical Informatics Europe 2009" in Sarajevo (August 30 – September 2, 2008), as a participant of the first EFMI Congress in Cambridge (1978) and longtime member of the EFMI Council, he was invited to present a keynote lecture.
EFMI inside

it for a long time... ". I added that the credit should be given to EFMI, which, by choosing Sarajevo, supported the construction of new medical, biomedical and health-information bridges between the western and eastern parts of the European world.

I.M.: You have been a participant in numerous scientific conferences in the field of MI in Europe and the World. Many have remained in your memory. Which in this case would like to mention and for what reasons?

G.D.: Regarding my previous answers, it is clear that I most fondly remember my participation as a keynote speaker at MIE 2009 in Sarajevo. Apart from the fact that I can consider it a great recognition of my then 40-year work in medical informatics, I certainly want to point out that, apart from Zagreb, where I was born and where I spent most of my life, Sarajevo is the city of my youth. I lived there for 7 years—from 1949, when I was 14, until 1956 when I returned to my native Zagreb. During that period, I finished high school and began a college degree in chemistry (which I completed with a doctorate in science, as it says in my resume that you published in your popular Biographical Lexicon of Medical Informatics). I made many dear friends in Sarajevo, including you.

I.M.: You come from a respectable Deželic family. Your late great-grandfather Gjuro Stjepan Deželic was an important figure in Zagreb and Croatia. Your late father Mladen Deželic was the initiator of chemical science in BiH and one of the founders of the Academy of Sciences and Arts of BiH in 1966. Yours, ten years diplomatic activity in two European countries has been fruitful. Do you think that the future at the global level, when it comes to socio-political and economic aspects, has gone into a kind of downfall and that the events related to the current events surrounding the COVID-19 pandemic will significantly affect the future of world science globally, so then Biomedical Informatics (a term proposed by Ted Shortliffe in Pisa during MIE 2012 for use).

G.D.: In answer to question 4, it is stated that I am a doctor of chemical sciences. As I was still in high school among those students who loved science subjects and excelled in mathematics, I wanted to become a theoretical physicist. But there was no university to study physics in Sarajevo at that time, so my father advised me to enroll in chemistry, since I would later be able to do research in the field of physical chemistry, which itself has all the features of a theoretical profession based on mathematical methods. When, almost a decade later, as an assistant professor at the Faculty of Medicine in Zagreb, I was on postdoctoral training at Indiana University in the USA, I had the opportunity to work in the computer center of that university and thus enter the „world of informatics“. From all the above, it is clear that my way of thinking through schooling in the natural sciences is primarily related to matter (its chemical composition and structure, and the physical laws that govern it, including information describing the events that take place in it).

When one wants to think about what will happen in the world in the future from a socio-political and economic point of view, it is good to be an expert in the social sciences. Therefore, to your specific question how much the events related to the COVID-19 pandemic will affect the future of world science as a naturalist, I cannot give an argumentative answer, but only express how I believe that, as before in the history of mankind, science will progress, but with a change in the dynamics of that progress and the extent of its funding.

Since you mention my ancestors at the beginning of this question, it is necessary to mention that my way of thinking consists not only of what I acquired through schooling (that it is primarily related to matter), but also on my ancestors nurturing (there I will use a quote from my father from his memoirs) „implanted in the heart and soul: with respect for human dignity and the knowledge that only honest work, and with love for neighbor and homeland one can gain full satisfaction in this world".

COVID-19 pandemic asks the engagement of all experts in different medical fields to help in solving consequences such an overwhelming success that we follow it with COVID-19 Management, including Medical Informatics experts.

IZET MASIC
Editor-in-Chief

The European Federation for Medical Informatics (EFMI) organized the 31st Medical Informatics Europe Conference (MIE) in Athens, Greece from 29th to 31st May 2021, according to EFMI Council decision held in Lyon on August 30th, 2019. Due to the continuous serious pandemic situation across the globe at the time it was decided for the safety of MIE 2021 participants to be held as a Virtual event.

The Conference was organized by the “MCO Congress” and the Scientific Programme Committee is chaired by Professor John Mantas, Honorary Fellow of EFMI and President of the Greek Biomedical and Health Informatics Association (GBHI).

The current pandemic situation emphasized the importance of Health Informatics into the scientific process of evidence-based reasoning and decision making at all stages of healthcare. It was reason that Scientific Program Committee of EFMI decided to use motto of 2021 MIE Conference “Public Health and Informatics”. Why? Because COVID-19 Pandemic changed the world and almost whole countries worldwide their health care systems modified according Corona consequences and influence on daily life and work, including use application of Health information systems and Information and Communication Technologies (ICTs) as servis for all levels of health care systems which has been completely changed during almost last two years.

MIE ’21, was fully digital Medical Informatics Europe on-line conference which has included 410 participants. Program of the conference covered: 203 full papers, 32 communications, 26 posters, 15 workshops, 5 panels, 6 demos, and 6 amazing keynotes.

During Opening ceremony of MIE 21 the amazing walk has done in the memory lane prepared by Jacob Hofdijk with pictures from going back to the early eights and the first MIEs and the video of Izet Masic about historical background of EFMI from establishing in 1976 until today. The first time in the history of EMI all participants have had possibility to follow on-line presentations of lectures on every session and to read small reviews of them during the same day. At the Closing session, we had possibility look again at the highlights of the last three days, the virtual conference environment, and the booth of EFMI where you can fill out the yEFMI surveys.

It is important to say how eHealth applications and the Digitalization became influential and fundamental paradigm changer in the era of Health Informatics and Public Health during last two decades. Massive amount of data from the molecular biology associated with massive data about the environment, behaviour and lifestyle, exposition factors and personal records, the rise of unprecedented processing power in health information systems and ar-
ti/ficial intelligence as well as health analytics methods and tools empowered Medicine, Nursing and Healthcare sciences are facing the Public Health challenges.

The MIE ’21 conference was a unique opportunity to meet experts from all involved fields, from deep learning or genomics, up to human factors, ethical and societal aspects. The MIE conferences was not only attract senior researchers and top notchied experts of the field. It was also, and mostly, a place where young scientists have had chance and possibility to present their works, to meet peers, to network, to seek job and career opportunities.

Also, important part of MIE 2021 Conference was organizing a special tracks with European initiatives and projects, including special tracks with European projects, such as FAIR-4HEALTH and standardizing organizations, such as HL7, and discuss the building of global frameworks to improve data usability to support life science research across borders, systems, and languages. Specific tracks devoted to encryption, blockchain and privacy-conscious data sharing, along with ethical and legal experts, will investigate and propose practical way to support innovation to alleviate the burden of diseases such as COVID-19, cancers and promote bio-surveillance networks for example.

Finally, in the Program of MIE 2021 LOC, chaired by Professor John Mantas and his team, special attention was given to involving patients and citizens at the centre of the debates, along with European projects, patients’ organizations, and patient-partners’ groups, to discuss innovative ways to reach an active involvement and participation that can leverage the field. Involving private partners also has been included in the special sessions regarding the prolific results of the public-private convergence, with the presence of the whole range of public organizations to private partners, from young start-ups recently born from talented young entrepreneurs to global companies and other non-profit international organizations active in the field of life science and information technologies.

It is possible to look on EFMI web site (www.efmi.org) all events realized by LOC of MIE ’21 as complete the “three days survey”. All presented papers were published by IOS Press in Proceedings and deposited on Pubmed web site and visible during the conference, but also revisited as the video presentations from the last three days of the conference in the video library, thanks to the generous sponsorship of SNOMED International.

In the Closing session, John Mantas, chair of Local Organizing Committee of MIE ’21 and Lacramiora Stoicu Tivadar, Former President of EFMI and Co-chairs of the Scientific Program Committee announced the awards, for presenters of the best papers of MIE 2021 Conference. Catherine Chronaki, new EFMI President, announced next EFMI STC which will be held in Sevilla, Spain in November 22-24 2021.
Obituary for Peter Pharow

This obituary is dedicated to acknowledging and honoring our unforgettable friend and colleague Peter Pharow, Co-Chair of the EFMI WG Cards and its successor EFMI WG Personal Portable Devices (PPD), active member of different other EFMI WGs, and heavily engaged in the pHealth community and its EFMI-supported pHealth conference series, who suddenly and unexpectedly passed away on 4 July 2020.

BERND BLOBEL

Peter Pharow was an extraordinary personality, who decisively influenced the development and improvement of the health informatics and pHealth domains.

Starting with an educational background in Cybernetics and Automation received at the Technical University Ilmenau and early employments in companies with the focus on safety and security, Peter joined the healthcare arena when entering my department Medical Informatics at the Medical Faculty of the Otto von Guericke University Magdeburg in 1995. Here, he was engaged in several projects within the European Commissions’ 5th and 6th Framework Programs, focusing on mechanisms, technologies and infrastructures for security in health information systems, such as DIABCARD or TrustHealth, confronting him among others with cards as security tokens, but also with privacy concerns. This engagement has strongly benefited from Peter’s technical competence, but also from his extraordinary organizational and communications talents, making him indispensable when administering projects or organizing scientific and other events. Having always been a trustworthy, competent and structured personality and reliable friend, I was happy about Peter’s decision to join me when moving from Magdeburg to the Fraunhofer Institute for Integrated Circuits in Erlangen, where I launched the Health Telematics Group, and thereafter to the Medical Faculty of the University of Regensburg, where I launched the German National eHealth Competence Center (eHCC). In all those institutions, Peter’s role was far more than my “right hand”. Many of the achievements wouldn’t be possible without his invaluable support. When the eHCC came to an end with my retirement, he moved to the Fraunhofer-Institute for Digital Media Technology (IDMT) in Ilmenau. As before, also here he was very successful in the acquisition of national and international projects, first continuing the engagement in the health area, followed by a move to digital media in education and training including adaptive systems, machine learning, etc. All this engagement resulted in a big number of acknowledged papers and a series of edited books.

The projects work was always accompanied by engagements in national and international bodies such as our scientific associations GMDS (national), EFMI (international) or the German Standards Institute DIN, but also the German Association for Security and Privacy (GDD), where he brought me in. After engaging as member in the Security WGs of GMDS (later also acting as my Co-chair), EFMI and IMIA, he launched together with other international experts and co-chaired the EFMI Cards WG, which has later turned to the EFMI WG Personal Portable Devices (PPD). All those WGs have been Sponsors of the pHealth Conferences all time.

Peter’s energy was amazing, lasting until a few days before he passed away. Peter was always a trustworthy, competent and structured personality and reliable friend. It has been indeed an honor to have been counted to his friends. The EFMI and the pHealth community will always commemorate Peter Pharow.
Obituary of Ragnar Nordberg (1936-2020)

This is the Obituary Testimony of Ragnar Nordberg born 1936 and died at the age of 84 years on 9th of October 2020. The Sea was important for Ragnar, and the freedom to sail without seeing any borders.

LARS LINDSKÖLD

And that describes Ragnar. He were able to see further than many others, he found always a way how to cross a border and his eyes were always lifted to the knowledge horizon. Finishing his PhD in atomic physics at the age of 32 in the field of Electron spectroscopy. At Uppsala University. His supervisor Professor Kai Siegbahn got later the Nobel prize in 1981, some of the ground work were done by Ragnar. The year 1968-1969 he spent in USA (Hewlett Packard) he turned some of his ideas to patents, and work closely with Hewlett Packard. The store tells that he has a letter from a young Bill Gates that wrote to Ragnar and applied to be a member of the HP User club that Ragnar was the Chair of 1970 back to Sahlgrenska University hospital, were he became the operational manager for the Clinical Chemical Central Laboratory and ended up as the IT Director of the hospital 1990 until his retirement 2001. His interest for developing IT Systems and have them to talk with each other, lead to representation as a Swedish delegate in GEN TC251 WG 3 and ISO TC 215.

WG4 1997 - 2010. But we all remember Ragnar on the frontline on sharing knowledge, not only for the academic domain, but how technology could support the professional’s workday. His engagement in the Swedish association that he was one of the founders of in the beginning of the 70ties has been important for the curriculum in Informatics in Sweden. Local Chair of MIE 2008 and later my supervisor in MIE 2018. Engaged in EFMI and functioned as EFMI’s treasurer from 2015 to 2019. Ragnar’s capacity to connect people and build networks between them was remarkable.
In Memory of Francis Roger France (1941-2021)

It is with great sorrow that we share the news about the passing of Dr. Francis Roger France with the International Medical Informatics Association (IMIA) community.

IZET MASIC
Editor-in-Chief

IMIA shares the loss of Dr. Roger France with our good friends, the Belgium Medical Informatics Association (mim), and the European Federation for Medical Informatics (EFMI). We extend our thoughts to all his colleagues and to his family during this time.

Dr. Roger France was born in Etterbeek (Brussels), Belgium in a family that contributed to open his mind to health, economics and information processing. He worked as Associate Chief of Service for General Internal Medicine (St Luc Hospital in Brussels (1988-2006) and President of the School of Public Health of the U.C.L. (1995-2001). As Professor, Francis was a teacher of the first courses of medical informatics in Belgium (since 1968, at the Faculty of Medicine, University of Louvain, U.C.L.).

He was an author of a book “Médecine et Informatique” (Maloine, Paris, 1979), largely diffused in French speaking countries, a basis for students notes and an introduction for the public. Also he was author of recommendations issued by the Council of Europe in 1984 for education and training in Medical informatics in Europe. Professor Francis contributed to the Development of Electronic Health Records (EHR) in the Center for Medical Informatics, (UCL), and trials for archiving medical records on computerized systems, using a unit record by patient. He was an author of the European MBDS (Minimum Basic Data Set) allowing to register all diagnoses by hospital stay and by patient, enabling to link diagnoses to activities and costs, to estimate severity of cases and to measure quality of care. (document EUR 7162, EEC 1981) (Thèse d'agrégation de l'enseignement supérieur).

He was the president of the AIM (Advanced Informatics in Medicine) Requirements Board of the European Commission that led to a large number of AIM international projects. He contributed to the development of an infrastructure for research in Medical Informatics in Europe (FRF and G. Santucci, Springer Verlag, Berlin, New York, 1991). He participated to EEC research projects: (EHR, security, DRGs, telemedicine) and Information analysis of the diagnostic process (from case studies of the NEJM) in order to apply it in Internal medicine, in association of a modified version of the “Problem oriented medical record” proposed by L. Weed; Methods and issues for security in health informatics. His special interest was for applications of Telemedicine, especially in case of major disasters (Tsunami) and – How to organize health practice in future? Professor Francis was a founding member and President of Scientific Societies in Medical Informatics; the MIM (Belgium), EFMI past President and Honorary Fellow; IMIA founding member and Vice President; Expert to Ministers of Health and Social Security in Belgium who introduced a new financing system for hospital inpatients;

He was the president of the AIM (Advanced Informatics in Medicine) Requirements Board of the European Commission that led to a large number of AIM international projects. He contributed to the development of an infrastructure for research in Medical Informatics in Europe (FRF and G. Santucci, Springer Verlag, Berlin, New York, 1991). He participated to EEC research projects: (EHR, security, DRGs, telemedicine) and Information analysis of the diagnostic process (from case studies of the NEJM) in order to apply it in Internal medicine, in association of a modified version of the “Problem oriented medical record” proposed by L. Weed; Methods and issues for security in health informatics. His special interest was for applications of Telemedicine, especially in case of major disasters (Tsunami) and – How to organize health practice in future?

President of the Commission Norms for informatics in the health care sector; International expert for governments (Ireland, Italy, Portugal, etc.); member of Committees (CNEH in France, Swiss Parliament, etc.); as well as in most Eastern European countries and in Asia (Japan) mainly for security issues and health economics. Also, he was Expert to EEC, WHO, Council of Europe and the World Bank for the development of indicators of quality of care, for the use of terminology in EHR and statistical, ethical or educational issues.

He was an Honorary Fellow of EFMI, the European Federation of Medical Informatics, and was elected to IMIA’s Academy, the International Academy of Health Sciences Informatics (IAHSI), as part of the Inaugural Class of Fellows in 2017.

Jacob Hofdijk, EFMI President (2006-2008) represented EFMI and IMIA in the funeral of Prof. Francis Roger France in Brussels and conveyed the sorrow of our community.
Meet EFMI Luncheon

Meet EFMI Programs and Initiatives Luncheon

Saturday May 28, 12.00-12.30, Models 9-2

Preliminary Program

1. Welcome to EFMI Catherine Ochronak, EFMI President, 5'
2. EFMI Programs
   1. EFMI accreditation and certification (AG2) Committee, Professor John Mantas, Chair AG2, 10'
   2. EFMI WGs
      - eEFMI WG, Professor Ioana Opgurmanu, Chair eEFMI, WG Chair, 5'
      - CIHS Health WG, Maria Haggland, Chair CIHS WG, 5'
   3. European Projects and Today
      - EuropeanAL, Professor Lacramioara Stoiciu-Tivadar, Past EFMI President, 5'
      - EABCHealth and DSIC, Carlos Para Calderon, EFMI Treasurer, 5'
      - eHealth, Catherine Chronaki, EFMI President, 5'
   4. New EFMI Board announcement, Izet Masic, EFMI Honorary Fellow, 5'

*Lunch boxes will be available at the entrance.

Speakers

Catherine Ochronak
EFMI President (2020-2022)

John Mantas
AG2 Chair
Post EFMI President

Ioana Opgurmanu
EFMI Officer and WG Chair

Maria Haggland
CIHS WG Chair

Lacramioara Stoiciu-Tivadar
Past EFMI President

Carlos Para Calderon
EFMI Treasurer 2018-2020

Izet Masic
EFMI Honorary Fellow

NICE
CHALLENGES OF TRUSTABLE AI AND ADDED VALUE ON HEALTH
27TH - 30TH MAY, 2022

This event is organized within the framework of the French Presidency of the Council of the European Union.