Selected Papers from the MIE 2009 Conference, Sarajevo, Bosnia-Herzegovina

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It is quite a long tradition that the best papers presented at Medical Informatics Europe (MIE) conferences are selected and invited to submit as an extended paper to be published as journal article in a special issue. For the former years these selected papers have been published in the *International Journal of Medical Informatics*. Due to change of the publication policy, European Federation of Medical Informatics (EFMI) made an agreement with the editors to move to *Methods of Information in Medicine*. This applies first for MIE 2009 held in Sarajevo, Bosnia-Herzegovina.

This was not just a formal change, since the whole selection procedure had to be reshaped due to the stronger volume restrictions. From about 150 oral presentations more than 25 had been invited to submit an extended paper and finally four of them could be published. This is a really strong competition, which on one side is beneficial allowing to maintain a really high quality. On the other side this makes it very hard for the editor to give a representative picture about the ongoing research activity in the field.

Somewhat luckily, the finally selected four papers cover quite large part of our domain.

The group from UMIT (Universität für Gesundheitswissenschaften, Medizinische Informatik und Technik – Tirol) [1] asks a question about the justification of all activity in medical informatics: Can users accept the developed systems? At health policy level it is a commonplace that the use of electronic health records is essential for keeping the quality and cost effectiveness of health care delivery, also for evidence-based health system planning. But health policy makers rarely use EHR systems directly and the opinion of doctors working on the “battlefield” should not be disregarded. Systems that do not serve the real needs of their users are likely to fail. Hackl and his co-authors conclude however that the success of system implementation very much depends on the way how end users are informed about the system and how their concerns are treated.

For centuries, life science researchers had some reason to be jealous to the success of physics. The advantage of physics seems to be related – among others – to the relative easiness of the formalization of the descriptions of phenomena, because this made the deployment of the whole arsenal of mathematics possible. As biomedical ontologies appeared on the horizon just in the last decades, nowadays we more and more can believe that medical phenomena also can be formally described. While a number of theoretical and pragmatic problems are waiting for solution, the way towards practical applications is already open. In the second paper [2] Ceusters and his co-workers present the development of an ontology for adverse events. They used a number of “feeder ontologies”, that are already at the disposal of researchers, demonstrating that reuse and merging of ontologies is both desired and feasible but by no means an easy enterprise. But this paper also demonstrates that there is a quite long way ahead us. The authors cope with three levels of reality: what exists, what
is thought, and what is represented. The collected authoritative definitions for ‘adverse event’ show that such a term hardly can be defined without speaking about things like ‘unintended harm’ or ‘undesirable response’. These things really require the mentioned distinction of reality levels, but formalization of the second- and third-level phenomena seems to be even more challenging than formalization of the first.

Image processing is one of the very successful parts of our domain, where any small steps forward can be implemented into clinical practice for the benefit of patients. This is especially advantageous for diseases that have high public health importance, like stroke. The third paper [3] of this special topic combines two originally different fields: biomedical image processing and fuzzy logic reasoning. Forkert and his colleagues develop a method that is able to detect vascular malformations in small cerebral arteries. They found that fuzzy reasoning outperforms statistical classifiers (naive Bayes and joint Bayes classifiers).

The pioneering authors of the fourth paper [4] propose a new discipline, namely nanoinformatics, as a borderline discipline of informatics and nanomedicine. By a literature review they demonstrate that nanotechnology already invaded into medical research. After some rare publications on this from the 20th century, an increasing number of papers has been published from 2000, so this is really an achievement of the third millennium. What has informatics to do with nanomedicine? The authors identify the following main areas: ontology-terminology-knowledge management, data mining, text mining, standardization, interoperability, modeling and simulation—all these are well-known topics in “classical” medical and health informatics. Also the mentioned cultural, legal and ethical issues (data ownership, data anonymization, pseudonymization, etc.) are quite similar to those often mentioned in relation to “classical” patient data. These apparent similarities do not mean that the authors are wrong with proposing a new discipline. But either we consider nanoinformatics as an emerging new field or not, the real question is how to keep and maintain the integrity of our science. This is a matter of collaboration of various experts on different fields and domains. The collaboration efforts proposed by the authors in their conclusions should be interpreted in my opinion on a really wide scale, including experts working not only in nanoinformatics, but also on other fields of medical and health informatics.

Putting together these four articles the reader may ask whether these are pieces of a mosaic picture or just an accidental composition of various topics. I would say that there is obvious coherence among these papers. Most importantly all of them aim at benefit of patients. All of them use computer technology and all of them highlight different aspects of health information. And this last point is the essence of medical informatics. Of course four papers cannot give a complete picture of the domain; they are really just four small particles of a large mosaic image. Their heterogeneity in the actual research questions and the used methods allow us to feel the taste of this exciting and rich science.

References


