Transparent, Explainable and Affective AI in Medical Systems (TEAAM 2019) Workshop
http://geist.re/teaam:start
to be held atAIME 2019 http://aime19.aimedicine.info

Organizers:
Grzegorz J. Nalepa, AGH University of Science and Technology, Jagiellonian University, Poland
Gregor Stiglic, University of Maribor, Slovenia
Sławomir Nowaczyk, Halmstad University, Sweden
Jose M. Juarez, University of Murcia, Spain
Jerzy Stefanowski, Poznan University of Technology, Poland

Abstract: Medical systems highlight important requirements and challenges for the AI solutions. In particular, demands for interpretability of models and knowledge representations are much higher than in other domains. The current health-related AI applications rarely provide an integrated yet transparent and humanized solutions. However, from both patient's and doctor's perspective, there is need for approaches that are comprehensive, credible and trusted. By explaining the reasoning behind recommendations, the medical AI systems support users to accept or reject their predictions. Furthermore, healthcare is particularly challenging due to medicine and ethical requirements, laws and regulations and the real caution taken by physicians while treating the patients. Improving individual's health is a complex process, requiring understanding and collaboration between the doctor and the patient. Building up this collaboration not only requires individualized personalization, but also a proper adaptation to the gradual changes of patient's condition, including their emotional state. Recently, AI solutions have been playing an important mediating role in understanding how both medical and personal factors interact with respect to diagnosis and treatment adherence. As the number of such applications is expected to rapidly grow in next years, their humanized aspect will play a critical role in their adoption. This workshop will bring together researchers from academia and industry to discuss current topics of interest in interpretability, explainability and affect related to AI based systems present in different healthcare domains.

Topics of interest:

- explanation in medical systems
- comprehensive and interpretable knowledge representations
- interpretable machine learning in medical applications
- explanatory user interfaces and human computer interaction for explainable AI
- consequences of black-box AI systems in medicine
- ethical aspects, law and social responsibility
- emotion-based personalization and affective computing solutions in medicine
- human-oriented adaptation in medical systems
- patient behaviour change detection and explanation transparency in person-centered health care
- context-aware interpretable medical systems
- empowering patients and self-management through understandable AI

Motivation: The investment and development of AI in the clinical field offers huge societal benefits in the current era of digital medicine, with a significant amount of data around healthcare processes captured in the form of Electronic Health Records, health insurance claims, medical imaging databases, disease registries, spontaneous reporting sites, clinical trials, etc. This positive impact is put under the spotlight regarding the medical responsibilities, the potentially harmful use, the emerging interest in the regulation of algorithms and the need of explanations. Predictive modeling becomes increasingly necessary for both data analysts and health care professionals, as it offers unique opportunities for deriving health care insights. At the same time, these opportunities

come with significant dangers and risks that are unlike anything we have seen in the past. This controversial discussion provides a number of research challenges such as: 1) interpretability in Machine Learning/AI, 2) affective AI in medicine, 3) Data safety - patient data are highly sensitive and require appropriate safety measures and regulation, 4) Data heterogeneity - medical data comes in many forms including: structured, unstructured, text, images, continuous signals from sensors, etc., 5) Sparsity, imperfectness and data gaps – patient records maybe sparse due to infrequent clinical visits, and often, data are not equally collected at each medical encounter as well as they are affected by various sources of imperfectness.

Format: The proposed workshop will include paper presentations and invited talks related to the workshop topics listed above, as well as a panel discussion. All submitted papers will be subject to a review by the workshop Program Committee. Based on the number of high quality submissions we will define the length of the presentations that will be followed by time for questions and discussion from the audience.

Proceedings: We are aiming at proving CEUR WS proceedings containing all the papers presented at the workshop. Furthermore, we are considering a proposal of a special issue of a JCR indexed journal.

Program Committee (tentative)
Martin Atzmueller, Univeristy of Tilburg, The Netherlands
Piotr Augustyniak, AGH University of Science and Technology, Poland
Jerzy Błaszczyński, Poznań University of Technology, Poland
David Camacho, Universidad Autonoma de Madrid, Spain
Manuel Campos, University of Murcia, Spain
Alex Freitas, University of Kent, United Kingdom
Marcin Grzegorzek, Universität zu Lübeck, Germany
Giorgio Leonardi, University Piemonte Orientale, Italy
Peter Lucas Leiden University, The Netherlands
Agnieszka Ławrynowicz, Poznań University of Technology, Poland
Erini Ntoutsi, Leibniz University Hannover, Germany
Jose Palma, University of Murcia, Spain
Niels Peek, University of Manchester, United Kingdom
Petra Povalej Brzan, University of Maribor, Slovenia
John F. Rauthmann, Universität zu Lübeck, Germany
Myra Spiliopoulou, Otto-von-Guericke-University Magdeburg, Germany
Stephen Swift, Brunel University, United Kingdom
Allan Tucker, Brunel University, United Kingdom
Cristina Soguero Ruiz, Universidad Rey Juan Carlos, Spain
Juan Carlos Nieves, Umeå University, Sweden

Important Dates

Paper submission:	2019-04-15
Notification:	2019-05-13
Camera-ready:	2019-06-10
Workshop:	TBD

Paper submission: The Easychair installation at https://easychair.org/conferences/?conf=teaam2019 shoud be used for submissions. We encourage full (12pp) as well as short (6pp) pages. Springer LNCS format of PDF submissions is required.