Medizinische Universität Graz

Symposium

AI & Machine Learning for Digital Pathology

From Biobanks to Knowledge Banks

Thursday, June 6, 2019, 10:00 – 16:00

Where: Medical University Graz New Med Campus, Neue Stiftingtalstrasse 2, Graz

Venue: Hörsaal MC 5 (MC 1.A.EG.021)

The symposium is co-organized by the Institute of Pathology and the Institute for Medical Informatics, Statistics and Documentation of the Medical University of Graz.

Participation is free, pre-registration via e-Mail to: penelope.kungl@medunigraz.at

AI in pathology is very promising, e.g. deep learning even exceeds human performance in specific cases. However, in the context of medicine it is important for a human expert to validate the outcome and/or to interact with the AI. Current AI models lack an explicit explanation component that allows a human to understand the results. There is a need for transparency and thus traceability of such solutions to make them usable for medicine. The combined use of human intelligence and AI for context understanding should bring important insights and new methodological solutions.

Machine learning requires big training data sets that well cover the spectrum of a variety of human diseases in different organ systems. Data sets have to meet quality- and regulatory criteria and must be well annotated for machine learning at patient-, sample- and image-level. Here biobanks play a central role providing large collections of high-quality well-annotated samples and data. The main challenges are finding biobanks containing ‘‘fit-for-purpose’’ samples, providing quality related meta-data, gaining access to standardized medical data and annotations, and mass scanning of slides including efficient data management solutions.

Session Morning (10:00 – 12:00)

Peter REGITNIG (Med Uni Graz): Expectations and Challenges of AI in Pathology

Klaus-Robert MÜLLER (TU Berlin): Explainable AI meets Digital Pathology

Karine SARGSYAN (Biobank Graz): Biobanks as Basis Infrastructure for AI in Medicine

Peter HUFNAGL (Charité, Berlin) : EMPAIA -Ecosystem for Pathology Diagnostics with AI Assistance

George DAGHER (INSERM, Paris): Science and Society: The Future of European RI

Session Afternoon (13:00 – 15:00)

Michael HUMMEL (Charité, Berlin): High-quality Biobanks are Enablers for Meaningful AI-based results

Craig MERMEL (Google AI, Mountain View): Supervised & Unsupervised Machine Learning in Pathology

Markus PASTERK (ADSI, Innsbruck): Management Training for Leaders of Biobanks

Richard RÖTTGER (South Denmark University, Odense): Privacy Preserving Federated Machine Learning

Petr HOLUB (BBMRI-ERIC, Graz): Building and using large-scale Data Resources for AI as a part of a European medical Research Infrastructure (RI)

For further enquiries contact the local organizers: heimo.mueller@medunigraz.at andreas.holzinger@medunigraz.at