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Sano Computational Medicine Seminars
Monday, 22 March 2021, 14:00-15:30 (CEST)

Join us via Zoom: https://seminar.sano.science/

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How to Train a Machine Learning Model without Transferring Patient Data out of Hospital –

Introduction to Federated Learning for Medical Applications

Abstract

Development of Artificial Intelligence solutions for medicine using Machine Learning require addressing the problems of data access and analysis of distributed medical datasets, which are subject to privacy and security constraints. An interesting approach to these issues is federated learning and federated data analysis, which allow operating on distributed data sets without transferring them out of their sources. These new methods, combined with differential privacy and multi-party or secure computation, can provide promising solutions to the analysis of medical data, but there are numerous challenges around performance and security trade-offs, which require further research. This talk will provide an introduction to the challenges outlined above, as well as an overview of selected solutions and recent projects on application of federated data analysis in medicine.

Dr. hab. Maciej Malawski, prof. AGH Holds a PhD in computer science and an MSc in computer science and physics. In 2011-2012 he was a postdoc at the University of Notre Dame, USA. Currently an associate professor at the Department of Computer Science AGH and a senior researcher at ACC Cyfronet AGH. His scientific interests at Sano include parallel and distributed computing, including distributed computing, data science, including large-scale data analysis, cloud technologies, resource management and scientific applications.