Dominik Klepl

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Linkedin

Work experience

Institute of Computer Science, Czech Academy of Sciences, Czech Republic

April 2024 – present ***Postdoctoral researcher in Complex Networks and Brain Dynamics Group***.
Development of deep learning methods for neuroimaging-based tools for psychiatry

Feb 2024 – April 2024 ***Doctoral researcher in Complex Networks and Brain Dynamics Group***.
Development of multi-modal models of brain networks aiming to predict the functional outcomes of schizophrenia.

Education

2020 – 2024 **PhD, Mathematical and Statistical Modelling**, *Cotutelle at Centre for Computational Science and Mathematical Modelling, Coventry University and A*STAR Institute for Infocomm Research*, Coventry, UK and Singapore, *Project title:* Network Inference and Graph Learning in Characterising Alzheimer's Disease.
Supervised by Dr Fei He (Coventry University) and Dr Min Wu (A*STAR).

2019 – 2020 **MSc, Data science and computational intelligence**, *Coventry University*, Coventry, UK.

2016 – 2019 **BSc, Cognitive science**, *Aarhus University*, Aarhus, Denmark.

Publications

Journal Articles

2024 **Dominik Klepl**, Min Wu, and Fei He. Graph Neural Network-Based EEG Classification: A Survey. *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, volume 32, pages 493–503, 2024.

2023 **Dominik Klepl**, Fei He, Min Wu, Daniel J. Blackburn, and Ptolemaios G. Sarrigiannis. Cross-Frequency Multilayer Network Analysis with Bispectrum-based Functional Connectivity: A Study of Alzheimer's Disease. *Neuroscience*, volume 521, pages 77–88, June 2023.

2023 **Dominik Klepl**, Fei He, Min Wu, Daniel J. Blackburn, and Ptolemaios Sarrigiannis. Adaptive Gated Graph Convolutional Network for Explainable Diagnosis of Alzheimer's Disease Using EEG Data. *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, volume 31, pages 3978–3987, 2023.

2022 **Dominik Klepl**, Fei He, Min Wu, Matteo De Marco, Daniel J. Blackburn, and Ptolemaios G. Sarrigiannis. Characterising Alzheimer's Disease With EEG-Based Energy Landscape Analysis. *IEEE Journal of Biomedical and Health Informatics*, volume 26, pages 992–1000, March 2022.

2022 **Dominik Klepl**, Fei He, Min Wu, Daniel J. Blackburn, and Ptolemaios Sarrigiannis. EEG-Based Graph Neural Network Classification of Alzheimer's Disease: An Empirical Evaluation of Functional Connectivity Methods. *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, volume 30, pages 2651–2660, 2022.

In Conference Proceedings

2022 **Dominik Klepl**, Fei He, Wu Min, Daniel Blackburn, and Ptolemaios Sarrigiannis. Bispectrum-based Cross-frequency Functional Connectivity: Classification of Alzheimer's disease. In *2022 44th Annual International Conference of the IEEE Engineering in Medicine & Biology Society (EMBC)*, pages 305–308, July 2022. ISSN: 2694-0604.

2022 Sivasharmini Ganeshamoorthy, Laura Roden, **Dominik Klepl**, and Fei He. Gene Regulatory Network Inference through Link Prediction using Graph Neural Network. In *2022 IEEE Signal Processing in Medicine and Biology Symposium (SPMB)*, pages 1–5, December 2022. ISSN: 2473-716X.

Research Activities and Grant Activities

January 2025 - December 2025 **Leader of research activity**, *Population-graph approaches for multi-modal modeling of schizophrenia*, CAS program Strategy AV21 "AI" AV21-VP34/2025, Supervised by Jaroslav Hlinka.

February 2024 – December 2024 **Team member**, *Predicting functional outcome in schizophrenia from multimodal neuroimaging and clinical data*, Czech Health Research Council Project No. NU21-08-00432.

Fellowships & Awards

January 2025 - December 2025 **Program podpory perspektivních lidských zdrojů (Program for supporting promising human resources fellowship)**, *Data-driven Simulation and Forecasting of Brain Dynamics*, PPPLZ - the Czech Academy of Sciences project PPLZ L100302451, Supervised by Jaroslav Hlinka.

Skills

Languages Czech, English, German

Programming Languages Python, PyTorch, R, MATLAB, Julia

Position of Responsibility

April 25, 2023 **Organiser and Co-chair**, *PGR Student Conference @ Centre for Computational Science and Mathematical Modelling*, Coventry University, Coventry, UK.

Reviewing for journals, *IEEE Transactions on Neural Systems and Rehabilitation Engineering, BioMedical Engineering OnLine, Scientific Reports, BMC Neuroscience*.

Teaching Assistantship

Spring, 2021 **7089CEM Introduction to Statistical methods for Data Science**, *Teaching assistant*, Coventry University, Coventry, UK.

Spring, 2021 **7088CEM Artificial Neural Networks**, *Teaching assistant*, Coventry University, Coventry, UK.