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Master thesis in GLM-driven AI analysis of fMRI data

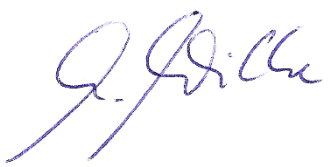
My name is Marko Wilke [Link], I am a consultant in Pediatric Neurology and have been involved in MRI research for some time. I have developed several toolboxes [Link] for image data processing and analyses.

I now propose to explore an approach to analyze functional MRI data using AI. The idea is to initially segregate all available data into “uninteresting” and “potentially interesting” data, using information from structural MRI and initial conventional fMRI analyses. For the latter “potentially interesting data”, an artificial intelligence approach shall be identified and employed to find patterns to further segregate voxels into “truly uninteresting” and “truly interesting” datapoints.

A pipeline for data processing and initial GLM-based analyses in SPM25 will be made available. The aim of the master thesis will the identification and implementation of an AI-based approach for independent final classification into “activated” and “not-activated” voxels in Matlab. The initial target will be the individual case, but potentially with transfer-of-information also onto other cases, depending on the stability and transferability of the patterns found. Training data from healthy adults is available, as well as independent validation data also from children.

Do not hesitate to contact me [Link] if you have any questions.

Sincerely



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