



Bachelor Thesis / Internship in Deep Network Architecture Visualization

Institution: Computer Assisted Clinical Medicine, Heidelberg University, Germany

Start date: flexible

Duration: flexible

Profile:

Applicants will be B.Sc. candidates in computer science or a related field; basic knowledge of a programming language is required, ideally Python; experience with Tensorflow is a plus;

Project Description:

Deep Learning is a machine learning field that became essential to the field of image processing in the last years. A wide variety of different architectures have been developed. While tools such as [TensorBoard](#) offer the possibility of a detailed interactive visualization, figures seen in scientific publications are often still made by hand. They differ vastly in presented information and depiction style. A common tool to generate intuitively understandable visualizations would enable easier comparison of the different architectures. Keypoint is the balance between presented information and visual clutter. The candidate will develop and implement a visualization directly based on the Tensorflow graph. The project can be executed in German or English.

Working Environment:

Our group is composed of more than thirty scientists from physics, electrical engineering, medicine and computer science and is working in close co-operation with the local medical departments. We are developing new imaging techniques and translate them with our clinical partners into daily practice. In particular, we are doing basic research on the development of novel MR-techniques for measuring perfusion, diffusion, BOLD + oxygenation, and sodium in the human brain or other organs like lung, liver or heart. Tasks include the implementation of novel MRI techniques at whole body MRI systems (Siemens) at different field strengths (3x 1.5 Tesla; 2x 3.0 Tesla) with transfer to a small bore animal system 9.4 T (Bruker) for mice and rats. Beside this we are developing molecular innovative imaging technologies by fusion of several imaging modalities (CT, MRI, PET) to enable image-guided, high-precision interventions using high-end CT and robotic systems (ZEEGO, Siemens). Ongoing collaborations with other researchers involve the Central Institute of Mental Health (ZI, Mannheim), the German Cancer Research Centre (DKFZ, Heidelberg), and across Europe with multiple opportunities to visit leading international laboratories and to attend taught schools.

Interested?

If you enjoy working in an interdisciplinary, young, creative and open team, we are looking forward to your application! For more information on the project or for application please contact:

Project leader:

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