

RISE Germany 2023 Report by Shruthi Chakravarthy

During my internship at Universität Rostock, I had the opportunity to contribute to the development of the second version of OSS-DBS, a software that computationally models deep brain stimulation. In the past couple of months, I worked on preprocessing neuroimaging data, adding new features to the software, and fixing bugs. At the start of my internship, I worked on developing a pipeline for processing DWI data and documenting the softwares and dependencies required. This included preprocessing, image registration, segmentation, and fiber tractography. I then moved on to work on the software's electrode models by restructuring the electrode classes, renaming which edges were defined in the model, and implementing a new electrode model for the Medtronic SenSight electrode. I also documented my work on the electrodes using Sphinx, modified and added pictures of the models, and created examples for users to learn how to interact with the electrodes.

After that, I worked on developing a function modeling the volume of tissue activated in the brain by deep brain stimulation. This estimated volume was based on thresholding the software's output of the potential in the brain. Lastly, closer to the end of my internship, I worked on transforming MRI image data from real space into voxel space and extracting matrix components of a tensor image for DTI data processing.

Throughout the summer, I also gained skills valuable for developing software in a team. For example, I've learned how to use git specifically for creating feature branches to work on collaboratively in order later to integrate them into the main branch of our software.

I highly recommend the RISE program. I had a wonderful experience this summer at my internship, and I've been so grateful to be able to live in Europe for nearly three months and travel almost every weekend. I've loved meeting and connecting with strangers from all over the world in hostels, trains, and coffee shops while having incredible eye-opening conversations. As someone who has lived in the same town my whole life, it was a great learning experience to live somewhere outside my comfort zone where I didn't know the language or the culture.

I was also very grateful that everyone in my office was incredibly helpful. My supervisor was very kind and went out of his way to help me with getting set up in Rostock. It was also a pleasure getting to know my colleagues as we would often eat our lunches together in the cafeteria. I always had someone to ask questions to, whether it was about public transport, where to find something in a store, or what a word in German meant.

I agree that my report and accompanying pictures may be used by the DAAD in printed materials, presentations, and on websites in order to inform funding organizations, sponsors, and students about the RISE program.





