DAAD RISE Professional 2026: Final Report

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Starting the internship

I am a master's student in Mechanical Engineering at the University of Saskatchewan in Canada. Through the DAAD RISE Professional program, I spent the summer of 2026 at Forschungszentrum Jülich in Germany. I joined the In-vivo Neuroelectronics group at the Institute of Biological Information Processing (IBI-3), where I worked under the supervision of Martin Kasavetov. My project was titled "Enhancing PEDOT:PSS Conductivity for Neuroprosthetic Applications." Coming from a mechanical engineering background, working in bioelectronics was new for me. This was one of the main reasons I found the internship so interesting.

My research experience

PEDOT:PSS is a conducting polymer that can be used as a thin coating on neural electrodes. My work examined how heat treatment and different solution treatments changed its electrical and electrochemical performance. I prepared thin films in the cleanroom facility using oxygen plasma treatment, spin coating and thermal baking. I then exposed the films to treatments such as deionized water, methanol, ethylene glycol, dimethyl sulfoxide and acid.

After preparing the samples, I measured their conductivity, thickness, surface structure and electrochemical response. This gave me practical experience with van der Pauw measurements, profilometry, atomic force microscopy, and cyclic voltammetry. Working in the cleanroom was completely new for me and honestly one of the most fascinating parts of the internship. It required careful planning because even a small change in sample preparation could influence the final measurements.

A typical day depended on the stage of the experiment. Some days were spent preparing and treating samples in the cleanroom. On other days, I performed measurements, compared the results and discussed them with my supervisor. This routine helped me understand the full process, from making a sample to interpreting the data.

What I learned

The experiments did not always give the result I expected. Some samples showed large differences between repeated measurements, and a treatment that improved one property did not necessarily improve another. At first this was frustrating, but it became an important part of the learning process. I learned to check each preparation step, repeat measurements when needed and avoid making conclusions from only one result. I also became more confident in troubleshooting equipment and discussing my findings with researchers from different backgrounds.

I found research environment in Germany very collaborative and supportive. I was given enough independence to plan experiments and think about the results myself but whenever I had a question, my supervisor and colleagues were willing to help. Their support made it easier to learn new techniques and adjust to a research area that was unfamiliar to me. The internship also showed me how mechanical engineering, materials science and neuroscience can come together in one project.

Living in Germany

Living in Germany was an important part of my internship experience. I was fortunate that my supervisor helped me arrange accommodation in Jülich. This made the process much easier, especially because finding short-term accommodation in a new country can be difficult. For students

who need to arrange housing themselves, platforms such as WG-Gesucht can be useful. I would recommend beginning the search early and asking the supervisor or host institute for help if needed.

One of my first experiences in Germany gave me a very positive impression of the people. While travelling from the airport to Jülich, I was carrying two suitcases and a backpack. At one of the railway stations, the elevator was not working, and I had to use the stairs. Several people noticed that I was struggling and offered to help me carry my luggage. These small acts of kindness made me feel welcomed, especially when I had just arrived and was travelling alone.

For banking and everyday payments, I used the Wise app, which worked smoothly throughout my stay. For transportation, I purchased the Deutschland-ticket, commonly called the D-Ticket. It cost €63 per month in 2026 and allowed me to use local and regional public transportation throughout Germany. However, it did not include ICE trains or most other long-distance trains. I found it very useful for daily travel and would recommend it to future interns who expect to use public transportation regularly.

I also enjoyed the view from the terrace of my room, which became a pleasant part of my daily routine. Although Jülich is a relatively small town, Forschungszentrum Jülich has a very international environment. People from around 120 countries work at the research centre. During my internship, I became friends with people from Egypt, the United States, India and Qatar. Meeting people from different backgrounds and learning about their cultures made the experience much more personal and enjoyable.



View from the terrace of my accommodation in Jülich.

Another thing I appreciated was the balance between work and personal life. Laboratory experiments and sample preparation required me to be present at the institute. However, when my work mainly involved literature review, data analysis or report writing, I could discuss the possibility of working from home with my supervisor. This flexibility helped me organize my work effectively while still completing the required experiments and measurements.

Final reflection

I would recommend the RISE Professional program to students who want to gain research experience outside their usual field and learn how research is carried out in another country. This internship gave me technical skills, but it also helped me become more patient, independent and confident in my work. I am grateful to DAAD for making this opportunity possible, to Martin for his supervision. I will carry both the research experience and the personal lessons from Germany into the next stage of my studies and career.

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