Report on Participation in the DAAD Eastern Partnership Scholarship Program

My name is Anastasiia Lytvyn, and I am a student at Kharkiv National University of Radio Electronics, studying Biomedical Engineering. For five months, I participated in a research internship at the Institute of Multiphase Processes (IMP) within the Faculty of Mechanical Engineering at Leibniz University Hannover as part of the DAAD Eastern Partnership project.

My internship project aimed to develop a virtual cryo-laboratory, which includes photogrammetric 3D models of equipment from the Institute of Multiphase Processes and to implement an artificial intelligence-based recognition system for these devices. This approach enables the creation of an accessible and interactive environment for training specialists who, for various reasons, do not have direct access to laboratory equipment.

Experience During the Internship

The work on the project took place at two main locations: the Institute of Multiphase Processes in Garbsen and the NIFE laboratory in Hannover. I worked according to a standard schedule from 9:00 to 16:00. Supervisors and project coordinators were always available to support and regularly monitored progress.

This internship was significantly different from my previous research experience, especially considering that education in Ukraine has been conducted remotely due to the war. One of the main challenges was adapting to a new work environment and independently organizing my work in the laboratory. However, with the support of professors and colleagues, I was able to integrate into the research team quickly. The multicultural and tolerant nature of the team was an important aspect. My colleagues helped me not only with the technical aspects of the project, such as working with

equipment and programming, but also with adaptation issues, including document processing and social activities.

Additionally, I had the opportunity to participate in offline seminars and cultural meetings with students and researchers, which focused on international collaboration and knowledge exchange.

As a result of the internship, I developed several important skills:

Practical: laboratory work, 3D photogrammetric modeling, neural network development, artificial intelligence applications, and the use of technologies such as Detectron2 and Colmap

Academic: conducting research in an international environment, preparing publications, and developing educational materials

Communication: professional communication in English, the ability to explain complex technical concepts in simple terms, and strengthening argumentation and presentation skills

Impact on My Career

This experience significantly broadened my perspective on future scientific activities. The internship allowed me to apply my knowledge to a real research project and gain new professional experience in an international academic setting. It reinforced my motivation for further research and defined my next step—pursuing a PhD. Meeting the team at IMP and working with the institute's professor contributed to our continued collaboration within my upcoming PhD project.

Language Improvement

Before this internship, I had no experience in long-term communication in English in an academic and professional environment. However, five months of working in an international team significantly improved my language skills, especially in scientific communication. I overcame the language barrier and learned to express my thoughts effectively, even when I did not know the exact translation of technical terms. Additionally, being in a German-speaking environment motivated me to start learning German.

Adaptation to the Academic Community

The DAAD scholarship not only provided me with a unique experience but also helped me integrate into a new academic environment. I gained access to new learning resources, modern laboratory technologies, and the opportunity to work under the guidance of highly qualified specialists. Furthermore, participating in seminars and conferences allowed me to better understand current trends in biomedical engineering and expand my professional network.

Overall Impressions of the Program

The internship within the DAAD Eastern Partnership program was a significant milestone in my professional development and student life. It enabled me to engage in international scientific research, acquire new skills, and define my next academic steps. I highly value this experience and consider it invaluable for my future.

Acknowledgment to DAAD

I express my sincere gratitude to DAAD for the opportunity to be part of this project. The program provided me not only with financial support but also with favorable conditions for my professional and personal growth. I am grateful to all the organizers and coordinators who facilitated the successful completion of my internship, as well as to the professor and the team at the Institute of Multiphase Processes for their support and mentorship. This experience has been extremely valuable to me, and I hope to apply the knowledge I gained to further research and the advancement of biomedical engineering.