

# Ph.D. Student Computational Imaging in Electron Microscopy (m/f/x)

FAU Kompetenzzentren, Erlangen, TV-L E 13, Vollzeit, Befristete Anstellung, Bewerbungsschluss: 31.08.2024

## Ihre Aufgaben

- Develop and test new approaches and algorithms for large-scale multi-dimensional (3D/4D/5D), multi-modal reconstruction of electron-microscopy datasets at the atomic-, nano-, and microscale
- Design, optimize, and execute multidimensional Scanning Transmission Electron Microscopy experiments
- Publish and present the results of these studies to the community.

## Ihr Profil

### Notwendige Qualifikationen:

- M.Sc. in computer science, computational engineering, physical sciences, materials science, applied mathematics or a related discipline.
- Proficiency in scientific Python programming.
- Experience with machine learning frameworks such as PyTorch, TensorFlow, Jax
- Excellent communication and interpersonal skills to be able to interact effectively with a diverse group of scientists and technical staff.
- Self-motivated and able to work in a team environment.

### Wünschenswerte Qualifikationen:

- Background in diffraction physics, crystallography, or modern microscopy methods
- Data acquisition at aberration-corrected STEMs
- Developing and deploying AI models.
- Background in Computer Vision or Computational Imaging
- Demonstrated record of collaborative software development, especially in distributed teams.

## Stellenzusatz

Our group develops advanced algorithms for efficient processing, reliable reconstruction, and automated information extraction from multidimensional microscopy datasets, predominantly in electron and X-ray microscopy. We have expertise in deep learning, large-scale optimization, signal and image processing, and experimental design for advanced X-ray and electron microscopy experiments.

We have for the first time reconstructed large phase-contrast volumes at atomic resolution beyond the traditional limits of electron microscopy. Your project will revolve around further developing the

algorithms and applying them to image challenging materials systems, like metal-organic frameworks and other beam-sensitive materials. We offer access to state-of-the-art aberration-corrected electron microscopes and a lab-based x-ray microscope at the Center for Nanoanalysis and Electron Microscopy, access to high-performance computing resources at the Erlangen National High-Performance Computing Center, and the enthusiastic support of an early-career principal investigator. For informal inquiries, please get in touch with Philipp Pelz ([philipp.pelz@fau.de](mailto:philipp.pelz@fau.de)). Applications from underrepresented minorities are particularly welcome. Your application (in English or German) must include a motivation letter and your CV. Applications will be accepted until the position is filled.

## Interessiert?

Die vollständige Stellenausschreibung sowie alle Infos zum Bewerbungsverfahren finden Sie hier:

