Interdisciplinary PhD position in Computer Science, Plant Cell Biology & Genetics

The position is open within the DFG-funded **Collaborative Research Center CRC 1644 "Phenotypic Plasticity in Plants - Mechanisms, Constraints, and Evolution"** within the Emmy-Noether research group led by Dr. René Schneider at the University of Potsdam, Germany.

The focus of the research group lies in investigating the development and functionality of the xylem using Arabidopsis as a model system. Xylem tissue exhibits thick secondary cell walls arranged in orderly, genetically controlled patterns. Although the significance of the xylem in transporting water to aboveground organs to sustain photosynthesis and growth is acknowledged, our comprehension of **the genetic and molecular mechanisms underlying xylem cell wall formation and its contribution to plants' drought resistance is still limited**.

Our lab uses novel genetic tools, robotic phenotyping platforms, and super-resolution imaging techniques to monitor seedling and cellular growth with unprecedented spatial and temporal accuracy. The advertised position is geared towards developing novel analytical methods for the detection and dynamic tracking of growing seedlings. The goal is to measure their response to water-limiting conditions with high throughput and precision to obtain reliable quantitative descriptors which will be used to identify genes that impact drought responses. As a common feature of all labs within the research center, we use the genetic variability within globally distributed Arabidopsis accessions to correlate differences in their xylem architecture, cell walls, and growth performance upon water limitation with the environmental and climatic conditions typical for the respective habitats. These analyses aim to **uncover the genetic factors that determine the adaptability of this tissue to drought stress and thus pave the way for the development of drought-resistant plant varieties through novel approaches.**

The successful candidate will have an excellent MSc degree in Computer Science/Bioinformatics, or the Life Sciences, and proven experience in integrating methods from both disciplines. The candidate should be familiar with imaging and/or quantitative computer-aided image processing methods, e.g., via ImageJ/Fiji, MATLAB, R, or other programming languages. Proficiency in working with big data, artificial intelligence, and machine learning is helpful but not a requirement to apply for this position. Although the project involves mostly computer-based work, a basic interest in learning wet lab and microscopy skills is desired. The working language of the group is English. Research experience with plants is desirable but not required.

The University of Potsdam offers …

- an **international, stimulating, and diverse working environment** that encourages the exploration of new scientific directions (e.g., through the group's links to the nearby Max Planck Institutes and others Collaborative Research Centers).
- a lively **scientific exchange with fellow PhD students** within the research center and with national and international researchers.
- the opportunity to gain academic independence and benefit from the soft skills courses offered through membership in the **Potsdam Graduate School (POGS)**.
- vicinity to **Berlin**!

The position is financed from now on until December 31, 2027, and offered according to the German pay-scale TV-L E13 (65%). You can find more information on the websites of the **CRC1644** ([LINK](#)) and the **Schneider Lab** ([LINK](#)).

The application should contain a CV, copies of certificates, names and contact email addresses of at least two referees, and a 2-page motivation letter that highlights the candidate's abilities concerning the advertised position. **Please submit your documents as one combined PDF to René Schneider** (rene.schneider@uni-potsdam.de).

The application deadline is April 30th, 2024.