



The **Group “4D Crop Reconstruction”** at the University of Bonn (Germany) seeks to employ, beginning August 2020 (or as soon as possible) **until the maximum end date December 31, 2023**

## 2 Doctoral Students (100%, TV-L 13)

The Cluster of Excellence **PhenoRob – Robotics and Phenotyping for Sustainable Crop Production** is a large-scale research initiative that has been funded in the context of the Excellence Strategy of the German Federal and State Governments since January 1, 2019. The main objective of the cluster is to maximize harvest yields and decrease environmental footprint of agricultural production. The technology-driven novel approach of PhenoRob is characterized by the integration of autonomous robots, digitalization, and machine learning on one hand, and modern phenotyping, modeling, and crop production on the other.

Starting from 3D scans taken at different times, our group will be responsible for developing 4D models of growing plants and facilitating analysis in the time domain. To accomplish this challenging task, we will implement and extend existing methods like non-rigid registration, correspondence estimation, pattern matching, inverse procedural modelling, or direct reconstruction from (multi-view) recordings. Results will be evaluated on the basis of real data captured by field robots, thus fostering innovative applied research and contribute to future food security.

Your tasks:

- Develop cutting edge technology at the intersection of computer graphics, agriculture, and computer vision
- Publish and present results at international top conferences (SIGGRAPH, CVPR, etc.)
- Collaborate with project members of diverse backgrounds
- Constantly improve your personal skills in project related areas

Your profile:

- A motivated and independent scholar with persistence and a can-do mentality
- Proficient in programming (C++, Python) in combination with numerical optimization, machine learning or (inverse) procedural modelling
- A master’s degree in computer science, mathematics, agriculture or similar
- Interest in interdisciplinary research with global impact on food production
- Fluent in English, German language skills are a plus

We offer:

- An open, stimulating, and interdisciplinary work environment where good and unconventional ideas are encouraged and supported
- Know-how and support to conduct highly visible research
- A commitment to agile principles: welcome change, reflect and adjust, etc.
- An advanced learning and development program to support your career
- Full-time salary (TV-L E13), 30 days paid vacation and family health coverage
- Institutional support for women and applicants with families

To apply, please submit: (1) a curriculum vitae, (2) the names and contact details of two referees (position, professional address and e-mail), (3) a letter of motivation (max. 1 page), and (4) a copy of your master’s degree. We encourage you to include samples of your work (code samples, technical reports, or demo videos) with your application.

The University of Bonn is committed to diversity and equal opportunity. It is certified as a family-friendly university and aims to increase the number of women employed in areas where women are under-represented and to promote their careers. To that end, it urges women with relevant qualifications to apply. Applications will be handled in accordance with the *Landesgleichstellungsgesetz* (State Equality Act). Applications from suitable candidates with a certified disability or equivalent status are particularly welcome.

If you are interested in this position, please submit your **complete application documents by 31<sup>st</sup> July 2020** to the Cluster Office (administration@phenorob.de), reference **“4D Crop Reconstruction – PhD Application” with the application code 44/20/3.202**. Please do not hesitate to contact Dr. Eduard Zell (mail@eduardzell.com) if you have any further questions.