



PHD RESEARCHER/ POSTDOC

(m/f/d, 100%, E13 TV-L, temporary, initially for three years)

The University of Stuttgart represents outstanding, world-renowned research and first-class teaching in one of Europe's most dynamic regions. As a reliable employer, the university supports and promotes the academic careers of its researchers. It is proud of its employees, who currently come from over 100 different countries. The university is a partner for knowledge and technology transfer and focuses on multidisciplinary.

The project:

Using Continuation Methods to Synthesize Optimal Gaits for Legged Systems

In terms of legged locomotion, humans and animals are remarkably agile, versatile, and efficient. By using a broad repertoire of different gaits, they can readily adapt to travel at various speeds, prey, escape danger, or avoid obstacles. In each of their gaits, humans and animals cleverly exploit the mechanical dynamics of their bodies to minimize energy waste and maximize energetic economy.

The goal of this project is to apply these principles to robotic systems. In particular, we postulate that the different gaits that a legged system can exhibit are a manifestation of the unforced or natural dynamics of its mechanical structure. To find them, we will study passive motions that do not require any actuator inputs and use them as templates to find energetically efficient gaits for robots. The underlying methods are based on numerical continuation techniques, which allow us to explore the solution space in an automated & systematic fashion.

You will be a member of [Prof. Dr. David Remy's](#) group at the [Institute for Nonlinear Mechanics](#)

In addition to work on this research project and the scientific dissemination of its results in high-impact publications, we expect a strong commitment to the research group and institute and a participation in the institute's teaching for up to 2 SWS.

Your qualifications:

- You are a talented, independent and driven person with an excellent Master's degree in the areas of robotics, dynamics, or control.
- You have a broad range of interests, ranging from mathematical theory to hands-on hardware implementation.
- You are motivated to work in an interdisciplinary project team.
- We search for an open-minded person with excellent communication skills.
- Proficiency in English is required, knowledge of German is welcome but not compulsory.

We offer:

- An established, inspirational and supportive research environment at the Institute for Nonlinear Mechanics.
- An excellent training opportunity towards becoming an independent researcher. This includes the exposure to the academic field via conference visits, research exchanges, as well as training programs to support your first steps as an early career scientist

How to apply:

Please submit your application (motivation letter, curriculum vitae, transcript of records and names of 2 references) until **April 3rd, 2024** via email to david.remy@inm.uni-stuttgart.de. If you have any questions, do not hesitate to contact us. Please be aware that we cannot reimburse any costs arising from the application or job interviews.

At the University of Stuttgart, we actively promote diversity among our employees. We have set ourselves the goal of recruiting more women scientists and employing more people with an international background, as well as people with disabilities. We are therefore particularly pleased to receive applications from such people. Regardless, we welcome any good application.

Women who apply will be given preferential consideration in areas in which they are underrepresented, provided they have the same aptitude, qualifications and professional performance. Severely disabled applicants with equal qualifications will be given priority.

As a certified family-friendly university, we support the compatibility of work and family, and of professional and private life in general, through various flexible modules. We have an employee health management system that has won several awards and offers our employees a wide range of continuing education programs. We are consistently improving our accessibility. Our Welcome Center helps international scientists get started in Stuttgart.

Information in accordance with Article 13 DS-GVO on the processing of applicant data can be found at https://careers.uni-stuttgart.de/content/privacy-policy/?locale=en_US