



Friedrich-Alexander-Universität  
Erlangen-Nürnberg



## PhD position for “Biomechanical Assessment of Big Wave Surfing”

The Biomechanical Motion Analysis and Creation (BioMAC) group in the Machine Learning and Data Analytics Lab (MaD Lab) at the Friedrich-Alexander-University Erlangen-Nürnberg (FAU) invites applications for a **doctoral position** in biomedical engineering in collaboration with Siemens Healthineers and a German big wave surfer. This research project focuses on the biomechanical assessment of big wave surfing.

### Position:

We are looking for a doctoral candidate (Dr.-Ing.) to work on a new research project with the goal of developing biomechanical assessment and simulation methods for big wave surfing. They will then use this assessment tool to understand the external and internal forces that the body experiences while surfing big waves, to understand how these forces relate to the size of the wave, and what training would be recommended in order to prepare for surfing of larger waves. The doctoral candidate will develop experimental protocols for measurements in the field, participate in these measurements, validate the developed measurement approaches, and analyze data towards investigating the aforementioned parameters. The interdisciplinary project will be conducted in close collaboration with partners from industry and sports.

### Work Environment

The BioMAC group is part of the Machine Learning and Data Analytics Lab at the FAU, which is one of the largest universities in Germany. With its five faculties, FAU offers a scope of subjects ranging from the Humanities to Law and Economics as well as Sciences, Medicine and Engineering. FAU's mission statement “Knowledge in Motion” reflects the close collaboration between the single disciplines. FAU has been ranked the third year in a row the most innovative University in Germany (Reuters ranking). The BioMAC research group aims to use machine learning and physics-based models to improve knowledge of human movement, and use this knowledge to improve and optimize movements. Detailed information on ongoing projects is available on our website, via our publications and upon request.

### Requirements:

The ideal candidate shows strong enthusiasm towards research and has excellent teamwork abilities with an affinity for sports. Candidates for this position should have a master or comparable degree in Biomedical Engineering or a related discipline (e.g., Computer Science, Electrical Engineering, Mechanical Engineering). Knowledge or experience in one or several of the following areas is desired:

- Biomechanical motion analysis
- Dynamic simulation
- Wearable sensor technology
- Sensor fusion
- Biomedical signals

### Program details and contact for application/questions:

The project start date is March 1, 2022 or later. Funding is available through a **scholarship** for at least 3 years, an extension is possible. Prospective applicants should apply with a cover letter and academic CV, and include the names of 2 references. Applications will be accepted until January 16<sup>th</sup>, or until the position is filled.

Contact: Prof. Dr. A. Koelewijn ([anne.koelewijn \(a t\) fau.de](mailto:anne.koelewijn@fau.de))

Website: <https://www.mad.tf.fau.de>