Friedrich-Alexander-Universität
Institute of Autonomous Systems and Mechatronics | ASM

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Postdoctoral researcher for DFG-funded project "FossilGaitSim"

The Biomechanical Motion Analysis and Creation (BioMAC) group at the Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU) invites applications for a postdoctoral position with the goal to investigate postural transitions in the evolution from synapsids to mammals using movement simulations. This position is part of the project FossilGaitSim, which is funded by the German Research Foundation (DFG, Deutsche Forschungsgemeinschaft).

Background:

The BioMAC group has strong expertise in movement simulations. So far, these simulations have been applied to understand human movement through predictive and reconstructive simulations. In 2022, the group started a collaboration with Dra. Krapovickas, an ichnologist from the University of Buenos Aires, with the goal to investigate fossil footprints using such movement simulations. FossilGaitSim aims to continue this research and investigate the major postural transitions in the evolution from synapsids to mammals from a sprawling to a more cursorial gait.

We are looking for a postdoctoral researcher to work on this project. The postdoctoral researcher will develop a multibody dynamics model that is suitable to simulate different types of animals, and use this model to investigate the relationship between morphometry, gait, and posture, theoretically and based on trackways of extinct animals from the early Permian through the middle-late Miocene. Furthermore, they will validate their methods using extant animals. They will also set up collaborations with researchers in the GeoZentrum Nordbayern.

Work Environment

The BioMAC group is part of the Chair of Autonomous Systems and Mechatronics (ASM) at the Faculty of Engineering at FAU, one of the largest universities in Germany. FAU has faculties in humanities, law, science, medicine, and engineering. FAU's mission statement "Moving Knowledge" reflects the close collaboration between these faculties. The BioMAC group currently consists of the PI and 8 doctoral researchers, who work on projects related to human biomechanics. Detailed information on the group's ongoing projects is available on our website, via our publications and upon request.

Requirements:

Candidates for this position should have a doctoral degree and should have done research in a related field (e.g., human/animal movement simulations, ichnology, mammalian evolution). Knowledge of optimal control simulation or multibody dynamics is desired. The ideal candidate shows strong enthusiasm towards research, can work independently, and has excellent teamworking abilities.

Program details and contact for application/questions:

The position's start date is flexible. Funding is available for 3 years. Applicants should apply to the email address listed above with a cover letter, academic CV and a short (max 1 A4) proposal on the research that they would be interested in pursuing in this position. Applications will be processed from **January 7th**, but accepted until the position is filled.