

We currently have an opening for a

**Postdoc (m/f/d)**  
**(TV-L 13, full time, 2 years)**

## **AUTONOMOUS DRIVING AND PASSENGER INJURY RISK: EXPERIMENT AND SIMULATION**

The Cluster of Excellence "Data-Integrated Simulation Science" (EXC 2075) is an interdisciplinary research center with more than 200 scientists performing research towards a common goal: We target a new class of modeling and computational methods based on available data from various sources, in order to take the usability, precision and reliability of simulations to a new level.

### **THE PROJECT**

Autonomous driving increases the risk of injury due to changed occupant positions (e.g. rotation of the head and trunk) and the distraction of occupants from the driving situation (e.g. by conference calls). This project aims to enhance the existing human models in driving simulations by implementing realistic head and body rotations. Therefore, experiments (muscle activation via EMG, 3D motion analysis) in a driver-in-the-loop setup (driving simulator) need to be performed to determine model parameters and to validate the human body model. Based on these data, the influence of head rotation on injury risk during accidents will be assessed in silico by human model simulations (digital human twin).

### **YOUR TASKS**

The position offers a diverse collaborative working environment in close cooperation with SimTech researchers at all career levels. In addition, it provides excellent opportunities to enhance the candidate's personal research profile with additional novel topics. In collaboration with other SimTech researchers, you will enhance an existing human model to analyse the influence of head rotation on injury risks during simulated car accidents. A part of the position is dedicated to designing a experimental setup for measuring muscle activity and 3D motion during car accidents in a driving simulator. In particular, this includes data processing and analysis. Based on these data, the finite element human model will be validated.

### **WE ARE LOOKING FOR**

We seek applicants with a Doctorate in computer science, engineering, natural science or related research areas.

Preference will be given to candidates with a PhD in fields related to simulation science. Applicants must have a strong proven background in the following areas:

- Internationally visible research in computational science (e.g. FE modelling), biomechanics; ideally combined with data-driven methodologies such as machine learning
- Broad skills in the development, maintenance, and use of simulation software (e.g. LS-Dyna)
- Experience in the use of experimental methods such as electromyography and motion analysis would be an asset.

### **WE OFFER**

If you work with us,

- you will enter into a team of motivated and supportive colleagues

- you will work in the dynamic environment of the Cluster of Excellence SimTech and be part of the largest research alliance at the university
- An inspirational and supportive research environment at the Cluster of Excellence SimTech
- Diverse and responsible tasks in a dynamic and friendly team

The position is fully funded (100%) and is available to applicants of any nationality. You will contribute to the leadership of ongoing projects, will have the opportunity to advise undergraduate and graduate students, and contribute to the teaching activities of the group.

Please submit your complete application by e-mail with one pdf attachment comprising a cover letter, academic CV, a full publication list, names and contact addresses of two referees, as well as academic certificates and transcript of records to [jobs@simtech.uni-stuttgart.de](mailto:jobs@simtech.uni-stuttgart.de).

If you have any questions regarding this application, please contact Prof. Tobias Siebert ([tobias.siebert@inspo.uni-stuttgart.de](mailto:tobias.siebert@inspo.uni-stuttgart.de)).

We cannot reimburse any costs arising from the performance of job interviews.

The University of Stuttgart has been awarded “family-friendly employer”. Flexible working hours, regular child care services, and family-networks allow for a better combination of professional and family life. The University of Stuttgart also offers a range of services to enhance social equity (<https://www.uni-stuttgart.de/en/university/profile/equality-diversity/>). Additionally, a dual career program is in place to offer assistance to partners of those moving to Stuttgart. For more information, please visit <https://www.uni-stuttgart.de/universitaet/arbeitgeber/dualcareer/>

The University of Stuttgart is an equal opportunity employer. Applications from women are strongly encouraged. Severely challenged persons will be given preference in case of equal qualifications.

Information on the collection of personal data in accordance with Article 13 of the GDPR can be found via the following link: <https://www.uni-stuttgart.de/en/privacy-notice/job-application/>