Professorship for Computer Architecture and Operating Systems (CAOS)
TUM School of Computation, Information, and Technology
Technische Universität München

TUM Campus Heilbronn

Doctoral Researcher TVL E-13, 100% (m/f/d)

Neuromorphic AI Architectures for Edge Deployment in Automotive Systems

About us
The Professorship for Computer Architecture and Operating Systems at TUM Campus Heilbronn covers a broad range of research focus areas in computer architecture, parallel processing and hardware-oriented applications and optimisations as well as operating systems.

The project will be carried out in close cooperation with Audi in Ingolstadt and Neckarsulm, aiming to explore and develop AI algorithms, frameworks, and hardware architectures for efficient edge deployment in vehicles, with a focus on neuromorphic computing. You will be part of the scientific TUM HN Team of Prof. Carsten Trinitis as well as of the Audi Data & AI Team (Dr.-Ing. Benjamin Hadwiger and Dr.-Ing. Florian Meyer) in Neckarsulm.

Requirements
- MSc in Computer Science, Electrical Engineering, or a related discipline.
- Strong expertise in machine learning, spiking neural networks, and computer architecture.
- Excellent programming and research skills.
- Interest in translational research and interdisciplinary collaboration with the automotive industry.
- Ability to think and act in a networked manner and to work in a team.
- Experience in project coordination, supervision, or grant application is an advantage.
- Fluent in English.

Responsibilities
- Collaborate closely with colleagues at Audi to ensure clinical relevance and translational impact.
- Literature & Benchmarking: Review and evaluate state-of-the-art in neuromorphic computing.
- Algorithm Development: Design and train SNNs tailored to automotive tasks.
- Select and design appropriate edge hardware platforms for deploying SNNs in cars.
- Optimise AI training and inference algorithms for specific edge hardware platforms.
- Implement and test models on neuromorphic hardware.
- Contribute to research proposals and funding applications.
- Publish and present findings in international journals and conferences.

We offer
- A highly interdisciplinary environment combining academic and industrial research.
- Access to state-of-the-art infrastructure.
- Opportunities to develop an independent research profile.
- Flexible working hours, 30 days of holidays, childcare support.
- Salary according to **TV-L** plus attractive public-sector benefits.

Professorship for Computer Architecture and Operating Systems (CAOS)
TUM School of Computation, Information, and Technology
Technische Universität München

Application

Please send your **CV** and a brief **track record** (publications, projects, software, funding experience if applicable) to Michaela.Boxdoerfer@tum.de .

We appreciate your interest in the Technical University of Munich and your application for this position. By submitting your application, you provide us with personal data. Please note our data protection information according to Art. 13 of the General Data Protection Regulation (GDPR) on the collection and processing of personal data in the context of your application.

Severely disabled applicants will be given preferential consideration if equally qualified. Application costs cannot be reimbursed.