

Technische Universität Braunschweig - Institut für Neuromorphic Computing



Technische Universität Braunschweig is one of Germany's leading universities of technology. With more than 15,000 students and around 3,800 employees in research, teaching, and administration, it offers an exciting and diverse working environment. Our research focuses on mobility, engineering for health, metrology, and the city of the future. Everyone is talking about artificial intelligence — but who is developing the necessary chips? We are, for example! By merging logic and memory elements, cost and wafer area can be minimized and, above all, energy efficiency and speed can be maximized. Analog compute-in-memory executes AI algorithms from the field of deep learning directly within resistive crossbar structures — with extremely low power consumption and high speed. For this purpose, we use, among others, novel non-volatile memory technologies such as ferroelectric memories (FeFET). The Institute of Neuromorphic Computing (head: Prof. Dr. Thomas Kämpfe) designs and optimizes analog, mixed-signal, and digital integrated circuits in advanced CMOS technologies (e.g., FDSOI) for highly energy-efficient, brain-inspired computing systems. In close collaboration with renowned German and European partners from science and industry, including Fraunhofer IPMS, we take our designs all the way to fabricated silicon (tape-out) and demonstrate them in edge sensor-data-processing applications. Starting from the earliest possible date we are looking for a Research associate (m/f/d) focusing on analog/mixed-signal circuit design for analog compute-in-memory accelerators

Research associate (m/f/d) focusing on analog/mixed-signal circuit design for analog compute-in-memory accelerators

(EG 13 TV-L - full-time/part-time) The position is suitable both for PhD candidates (with the clear goal of obtaining a doctorate) and for postdoctoral researchers. The position is initially a two-year fixed-term contract, with the intention of extending it. The fixed-term employment relationship is governed by the German Academic Fixed-Term Contract Act.

City: Braunschweig; Starting date (earliest): At the earliest possible; Duration: 2 Jahre;
Remuneration: EG 13 TV-L; Closing date: 06/08/26

Tasks

- Research and design of analog and mixed-signal circuits for analog compute-in-memory macros (e.g., resistive crossbar arrays based on FeFET, RRAM, or SRAM cells)
- Design of the associated interface and peripheral circuits: digital-to-analog and analog-to-digital converters (DAC/ADC), sense amplifiers, current- and charge-based MAC units, reference, bias, and calibration circuits
- Circuit and layout design in advanced CMOS technologies (e.g., Cadence Virtuoso, Spectre/AMS), including verification (DRC/LVS, PEX) as well as variability, corner, and Monte Carlo analyses
- Analysis and optimization of the accuracy/energy trade-offs of analog computing (noise, mismatch, non-linearity, quantization) in interplay with neural networks
- Integration of the compute-in-memory macros into accelerator systems together

with the institute's digital design teams, including system-level mixed-signal verification

- Tape-outs as well as lab-based characterization and evaluation of fabricated chips
- Preparation of design documentation and publication of results in peer-reviewed journals and at international conferences
- Contribution to the institute's teaching activities (exercises, lab courses, supervision of student theses); as a postdoc, additional involvement in project acquisition and co-supervision of PhD candidates.

Requirements

- Completed scientific university degree (Master's or Diplom) in electrical engineering, electronics, microelectronics, information technology, or a comparable field; for an appointment as a postdoc, additionally an excellent doctorate in a relevant area
- Experience in transistor-level analog and/or mixed-signal circuit design, ideally using the Cadence design environment (Virtuoso, Spectre)
- Knowledge of data converter design (ADC/DAC), sense amplifiers, or memory periphery is an advantage
- Expertise in at least one of the following areas is a plus: compute-in-memory, emerging memory technologies (FeFET, RRAM, MRAM), deep learning, edge AI
- Strong problem-solving and analytical skills with the ability to independently drive complex design efforts
- High motivation to publish scientific results in peer-reviewed journals and to present at international conferences
- Good written and spoken English as the basis for working in an international team; German language skills are an advantage.

What we offer

- Varied and topical research work at one of Germany's leading technical universities with access to state-of-the-art EDA tools and regular tape-out opportunities
- The opportunity to pursue a doctorate with intensive scientific supervision or — as a postdoc — to further develop your scientific profile
- Remuneration in accordance with salary grade EG 13 TV-L, including an annual special payment and occupational pension scheme (VBL), plus 30 days of vacation per year
- Flexible working hours, part-time models, and the option of mobile working
- A family-friendly university culture (audited as a family-friendly university since 2007)
- A wide range of internal and external professional development opportunities and an extensive university sports program.

Application

We welcome applicants of all nationalities. We also welcome applications from severely disabled persons, who will be given preference in the case of equal suitability. Please indicate this in your application and enclose appropriate proof. TU Braunschweig works to fulfill its equality mandate on the basis of the Lower Saxony Equal Rights Act (NGG);

applications from women are therefore particularly welcome.

By submitting your application, you consent to your personal data being stored and processed for the purpose of the selection procedure.

Unfortunately, application costs cannot be reimbursed.

Application and Contact

Please send your complete application (cover letter, CV, transcripts/certificates, and — if applicable — a list of publications) by 06 August 2026, quoting the keyword "AnalogCIM", as a single PDF file by email to:

Prof. Dr. Thomas Kämpfe
thomas.kaempfe(at)tu-braunschweig.de

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Institute of Neuromorphic Computing
Spielmannstr. 11a
38106 Braunschweig, Germany

For questions regarding the position, please contact Prof. Dr. Thomas Kämpfe.

More information at <https://stellenticket.de/205907/HAWK/>
Offer visible until 06/08/26

