

## IHP GmbH - Leibniz-Institut für innovative Mikroelektronik



Das IHP ist ein Institut der Leibniz-Gemeinschaft und betreibt Forschung und Entwicklung zu siliziumbasierten Systemen, Höchstfrequenz-Schaltungen und -Technologien einschließlich neuer Materialien. Es erarbeitet innovative Lösungen für Anwendungsbereiche wie die drahtlose und Breitbandkommunikation, Sicherheit, Medizintechnik, Industrie 4.0, Mobilität und Raumfahrt. Das IHP beschäftigt ca. 330 Mitarbeiterinnen und Mitarbeiter. Es verfügt über eine Pilotlinie für technologische Entwicklungen und die Präparation von Hochgeschwindigkeits-Schaltkreisen mit 0,13/0,25 µm-BiCMOS-Technologien, die sich in einem 1000 m<sup>2</sup> großen Reinraum der Klasse 1 befindetet.

### Research Assistant / PhD position (m/f/d) for Embedded Software Design for Heterogeneous AI Platforms

Job-ID: 3033/26 | Department: System Architecture | Working Time: 40h/week | Salary: E13 TV-L | Limitation: 2 years with option of extension | Entry Date: as soon as possible

City: Frankfurt (Oder); Starting date (earliest): At the earliest possible; Remuneration: TV-L

#### Tasks

The position:

We are looking for a motivated researcher to join the System Architectures. The research focus is on developing a software design flow for a heterogeneous embedded AI platform featuring RISC-V-based processors, FPGAs, and custom AI accelerators — including both CMOS-based and emerging non-conventional technologies. A key challenge is programming these heterogeneous accelerators and co-designing the HW/SW split at the system level. While RISC-V is our current baseline, the flow should not be limited to a single ISA or platform.

This position offers a deep insight into the programming of state-of-the-art hardware design. It is anticipated the candidate will work towards a PhD. Your detailed tasks will include:

- Application mapping and software development for embedded AI platforms including RISC-V (on bare-metal or linux-based systems)
- HW/SW partitioning, accelerator selection, and dimensioning
- Driver development for custom AI and signal-processing accelerators
- Integration of heterogeneous hardware accelerators into existing software stacks
- Flow development for continuous hardware integration and software deployment

#### Requirements

You have a solid understanding of embedded systems and HW/SW interfaces, and good programming skills in C/C++ and Python. Familiarity with hardware description languages (e.g. SystemC, VHDL, or Verilog) is a plus. You are comfortable working in Linux-based

environments and with version control. Most importantly, you are eager to dig into real hardware and understand systems end-to-end. Experience with AI inference frameworks, accelerator integration, or performance profiling on heterogeneous platforms is welcome. You will also be a strong team player. We are looking for a team member who can structure their own work and bring a well-organized and systematic approach to working with creative minds. You will be an ideal fit for this position if you have experimental, analytical, and problem-solving skills, very strong communication skills, and the ability to quickly learn how to use the latest technical equipment, including various software. You must be fluent in English.

German language skills are welcome. Further development of German language skills is expected and strongly encouraged, e.g. through in-house language courses and intensive courses.

### **What we offer**

Conduct research in a challenging, multinational environment giving you excellent career opportunities. You will have the chance to establish international reputation at the edge of top-notch technologies.

It is important to us to support the individual career developments (e.g. conferences, advanced trainings) as well as the personal needs of our employees by offering flexible working hours and the possibility to work off-site. The compatibility of work and family is highly valued. More information about our scientific excellence and the working environment at IHP can be found on our website.

IHP is TOTAL E-QUALITY-certified for equal opportunities for women and men at work and actively pursues the equality of all gender and all groups of people. We promote the professional development of women and strongly encourage them to apply. Disabled applicants, qualified according to the above criteria, will be given preference over other candidates with equivalent relevant qualifications.

### **Application**

Contact person: Markus Ulbricht

By internet: <https://www.ihp-microelectronics.com/career/vacancies/online-application-form?job=3033/26>

More information at <https://stellenticket.de/202411/TUB/>

Offer visible until 10/04/26

