Postdoctoral Position: Neuromorphic and In-Memory Spintronic Systems for Secure AI Hardware

Are you interested in neuromorphic spintronic and can you contribute to the development of the project? Then the Department of Electrical and Computer Engineering invites you to apply for a one year postdoctoral position.

Applications are invited for a one year postdoctoral position in the field of Neuromorphic Spintronics at the Department of Electrical and Computer Engieering, Aarhus University, Denmark.

Expected start date and duration of employment
This is a one–year position from 1st March 2026 or as soon possible.

This is a fixed-term position to end on 28th February 2027.

Job description

- Developing **device-to-architecture level models** of emerging nanoscale devices (spintronic, resistive, or hybrid) for in-memory and neuromorphic computing.
- Exploring **hardware-level security** mechanisms based on the intrinsic stochasticity and non-volatility of nano-devices.
- Implementing **simulation frameworks and experimental validation** through lab characterization of devices and circuits.
- Designing and evaluating **energy-efficient, secure computing systems** for AI and edge applications.
- Contributing to **collaborative research proposals**, dissemination activities, and joint publications in leading international venues.
- Guiding and working with Master and Ph.D. students at ECE and collaborators as needed.

Your profile
Applicants should hold a PhD in Electrical Engineering, Electronics Engineering, Materials Science, Physics, or a closely related field or similar.

- Experience in the use of/carrying out/handling EDA tools, device characterisation, data analysis and/or numerical simulations/validation
- Spintronics, memristors, or nanoscale devices
- Device or circuit modeling (SPICE, Verilog-A, or equivalent)
- VLSI/architecture (or, Spintronic-CMOS) design for AI systems
- Hardware-based security primitives
- Communication and/or language skills
- Personal skills
- Other skills like Teaching experience, Publication experience , Collaboration and/or management skills, will be an advantage

Who we are
The selected candidate will be helping build a new research group in the **Spin-Electronics Neuromorphic Engineering** at Biomedical Engineering Section, Electrical and Computer Engineering Department, Aarhus University, equipped with advanced infrastructure including magnet systems, probe stations, source-meters, oscilloscopes, and signal analyzers for spintronic and memristive device characterization.
The candidate will collaborate with **national and international partners** across device physics, circuit design, and system security domains. The project encourages an interdisciplinary approach bridging **materials (or device)-to-systems-level innovation**.

What we offer

Application Deadline:
05 January 2026

Institute/Faculty:
Department of Electrical and Computer Engineering

Faculty:
Faculty of Technical Sciences

Academic contact person:
Sonal Shreya
Tenure Track adjunkt
sshreya@ece.au.dk
+4593522648

Vacant positions:
1

Number of months:
12

Hours per week:
37

Expected date of accession:
01/03/2026

- a well-developed research infrastructure, laboratories and access to shared equipment
- Opportunities for career development, networking, and collaboration through European, Nordic and Global research networks.
- an exciting interdisciplinary environment with many national, international and industrial collaborators
- a research climate encouraging lively, open and critical discussion within and across different fields of research
- a work environment with close working relationships, networking and social activities
- a workplace characterised by professionalism, equality and a healthy work-life balance.

Place of work and area of employment

The place of work is Department of Electrical and Computer Engineering (Biomedical Engineering Section), Finlandsgade 22
Building 5125, 8200 Aarhus N, Denmark, and the area of employment is Aarhus University with related departments.

Contact information

For further information, please contact: Tenure Track Assistant Professor, Sonal Shreya, +45 93522648, sshreya@ece.au.dk.

Deadline

Applications must be received no later than 5th January 2026.

Application procedure

Shortlisting is used. This means that after the deadline for applications – and with the assistance from the assessment committee chairman, and the appointment committee if necessary, – the head of department selects the candidates to be evaluated. All applicants will be notified whether or not their applications have been sent to an expert assessment committee for evaluation. The selected applicants will be informed about the composition of the committee, and each applicant is given the opportunity to comment on the part of the assessment that concerns him/her self. Once the recruitment process is completed a final letter of rejection is sent to the deselected applicants.

Letter of reference

If you want a referee to upload a letter of reference on your behalf, please state the referee's contact information when you submit your application. We strongly recommend that you make an agreement with the person in question before you enter the referee's contact information, and that you ensure that the referee has enough time to write the letter of reference before the application deadline.
Unfortunately, it is not possible to ensure that letters of reference received after the application deadline will be taken into consideration.

If you wish to add a referee **after** you have submitted your application, you must send this person's details (name, job title, place of work, and email address) as well as the name of the position you have applied for to: HR.Nattech@au.dk

Formalities and salary range

Technical Sciences refers to the Ministerial Order on the Appointment of Academic Staff at Danish Universities under the Danish Ministry of Science, Technology and Innovation.

The application must be in English and include a curriculum vitae, degree certificate, a complete list of publications, a statement of future research plans and information about research activities, teaching portfolio and verified information on previous teaching experience (if any). Guidelines for applicants can be found here.

Appointment shall be in accordance with the collective labour agreement between the Danish Ministry of Taxation and the Danish Confederation of Professional

Associations. Further information on qualification requirements and job content may be found in the Memorandum on Job Structure for Academic Staff at Danish Universities.

Salary depends on seniority as agreed between the Danish Ministry of Taxation and the Confederation of Professional Associations.

Aarhus University's ambition is to be an attractive and inspiring workplace for all and to foster a culture in which each individual has opportunities to thrive, achieve and develop. We view equality and diversity as assets, and we welcome all applicants.

Research activities will be evaluated in relation to actual research time. Thus, we encourage applicants to specify periods of leave without research activities, in order to be able to subtract these periods from the span of the scientific career during the evaluation of scientific productivity.

Aarhus University offers a broad variety of services for international researchers and accompanying families, including relocation service and career counselling to expat partners. Read more here. Please find more information about entering and working in Denmark here.

Aarhus University also offers a Junior Researcher Development Programme targeted at career development for postdocs at AU. You can read more about it here.

The application must be submitted via Aarhus University's recruitment system, which can be accessed under the job advertisement on Aarhus University's website.

Aarhus University

Aarhus University is an academically diverse and research-intensive university with a strong commitment to high-quality research and education and the development of society nationally and globally. The university offers an inspiring research and teaching environment to its 38,000 students (FTEs) and 8,300 employees, and has an annual revenues of EUR 935 million. Learn more at www.international.au.dk/