Postdoc within neuromorphic circuits and systems

Application number; ITN-2025-00510

We are now looking to appoint a postdoctoral scholar in organic nanoelectronics, placed in the Laboratory of Organic Electronics at the Department of Science and Technology, Campus Norrköping

Research area
We are seeking a highly motivated and talented individual to join our team in developing novel printed organic devices and circuits for next-generation neuromorphic processing. This position is based at the **Laboratory of Organic Electronics** at Linköping University, Sweden, where we aim to revolutionize decision-making circuits by developing evolvable circuitry that can be used to embed machine learning models in simple, standalone devices that are capable of advanced processing. Building on our work on solution-based neuromorphic classifiers (https://doi.org/10.1002/advs.202207023), this project leverages a new approach recently developed at LOE to fabricate the first fully solid-state devices.

The successful candidate will have strong problem-solving skills, be able to work effectively in a multi-disciplinary and international team and have excellent communication abilities. This is an exciting opportunity to work at the interface between chemistry, biology, and electronics in the highly collaborative and supportive Laboratory of Organic Electronics (https://www.liu.se/loe).

Your work will primarily be under the guidance of Dr. Jennifer Gerasimov, with additional guidance by Prof. Simone Fabiano, at the Laboratory of Organic Electronics

If you are passionate about advancing the field of organic neuromorphics and meet the qualifications, we encourage you to apply and become a part of this transformative research journey.

Duties and key responsibilities
As a postdoc, your responsibilities will include:

- Scaling up materials production
- Advancing the fundamental understanding of printed neuromorphic synapses
- Electrically characterizing integrated circuits containing both electronic synapses and electronic neurons.
- Designing circuits to mimic machine learning models trained in silico.

This work will involve various materials and electrical characterization methods (potentially including electrochemistry, multiple microscopy modalities, optical and IR spectroscopy, rheology) as well as surface modification and characterization methods.

You will also be tasked with producing comprehensive reports/presentations and contributing to manuscript preparation efforts as part of a highly motivated team.

As postdoc, you will principally carry out research. A certain amount of teaching may be part of your duties, up to a maximum of 20% of working hours.

Qualifications
The following education, experience, and expertise are required:

- A PhD in electrical engineering, physics, applied physics, materials science, chemistry (synthetic/analytical), or equivalent
- Electrical or electrochemical characterization of materials or devices
- Experimental design and electrical characterization of device performance and associated data analysis
- Peer-reviewed publication as first or lead author
- Demonstrated scientific presentation skills
- Written and oral proficiency in English (all activities at the Laboratory of Organic Electronics are conducting in English)

In addition, the following areas are of particular merit:

- Experience with electrochemical synthesis, organic electronics, machine learning, conducting polymers (ideally all areas of expertise listed)
- Experience with multiple electrochemical methods
- Experience with a variety of printing methods for electronics applications
- A thorough understanding of machine learning models and experience building and evaluating artificial neural networks

And the following areas are of additional merit:

- Experience in cleanroom facilities
- Experience with photolithographic microfabrication, additive manufacturing (*e.g.*, 3D printing)
- Strong written and oral communication skills, including experience in producing comprehensive, high-standard reports and data visualization, and contributing to manuscript writing

Great emphasis will be placed on personal qualities and suitability.

Specific Requirements
For being eligible you need to be non-Swedish citizen with a PhD awarded at a university outside Sweden. Your doctoral degree should have been awarded in the last three years, exceptions can be made for fellows who have special circumstances such as parental leave, sickness, or similar.

The workplace
This position will be at the Laboratory of Organic Electronics (LOE, liu.se/loe) where we explore electronic and optical properties of organic semiconductors, biomaterials from the forest, and hybrid organic materials. LOE shares a common interest in exploiting the combination of electronic and ionic charge for use in energy, internet-of-things, health care and biology applications. Research topics include synthesis, material science, theory and modeling, device physics, nanotechnology, biotechnology and system design, and span the range from basic research to commercialization. LOE currently has >150 researchers and research students divided into eleven units sharing an open lab environment for fruitful collaboration and information sharing.

You will formally be part of LOE's Organic Nanoelectronics group https://liu.se/en/research/laboratory-of-organic-electronics/organic-nanoelectronics), led by Prof. Simone Fabiano. LOE is part of Linköping University's Department of Science and Technology, located on the river Motala Ström at Campus Norrköping. You can read more about Norrköping here: https://visit-norrkoping-se.translate.goog/bo-studera-och-etablera?_x_tr_sl=sv&_x_tr_tl=en&_x_tr_hl=sv

For more general information on the Swedish academic landscape including some aspects of life as a postdoc, we strongly recommend skimming through the Young Academy of Sweden's "Beginner's Guide to Swedish Academia" https://sverigesungaakademi.se/en/publications/book-a-beginners-guide-to-swedish-academia-2/

Benefits
This development postdoctoral fellow position is initially for a 1-year timeframe with the possibility to extend for an additional year. The total time for receiving a scholarship from Linköping University can never exceed two years.

You will be given a tax-free scholarship of 29 000 SEK/month. You will receive the scholarship paid out as a lump sum twice during the first year. Travel costs to/from Sweden for a scholarship holder will be covered up to a maximum amount. Additional funding can be available to participate in conferences.

Note, scholarships will not give any pension rights, sick or maternity pay, or other work-related benefits. If you have any questions on the terms, please contact HR at the department of Science and Technology, hr@itn.liu.se

Application procedure
Your application comprises the following documents and information:

- Cover letter describing current and future research interests
- Curriculum vitae which should include a brief summary (max 3 pages) of previous research experience
- Names and contact information of at least two referees familiar with your previous research experience
- Copy of your PhD diploma
- Application form (see files)
- Copy of your passport

To apply, send your documents (ideally in PDF format) to **both** registrator@itn.liu.se and jennifer.gerasimov@liu.se no later than 19 December 2025. Mark your application with ITN-2025-00510.

Applications and documents received after the date above will not be considered.

We look forward to receiving your application!

Contact
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