

PhD on the topic: Adaptive Mixed-Signal Neuromorphic Hardware Accelerator

The REACT MSCA DN Project: Self-awareness in humans is an innate capability, arising from the brain's ability to process a multitude of sensory inputs. Emulating this functionality in electronic systems—commonly referred to as neuromorphic computing—holds the potential to create highly intelligent machines capable of supporting a wide range of everyday applications, from autonomous vehicles to smart navigation systems. However, realizing neuromorphic computing in practice presents significant challenges, particularly in the areas of energy efficiency, reliability, and security.

The REACT MSCA Doctoral Network addresses these challenges by developing a neuromorphic platform that is inherently self-aware in terms of energy consumption, secure operation, and system reliability. As part of this initiative, 15 early-stage doctoral candidates (DCs) will be trained through a comprehensive, interdisciplinary program spanning material science, device physics, computer architecture, hardware prototyping, compiler design, simulation and emulation tools, as well as cybersecurity, reliability, and system verifiability.



REACT offers a uniquely structured training environment, combining academic excellence with industrial collaboration. DCs will benefit from close mentorship by leading researchers and industry experts, while also developing essential skills in scientific writing, research ethics, time management, and entrepreneurship.

By the conclusion of the REACT project, participants will be well-equipped to pursue impactful careers across academia and industry, with the REACT program serving as a strong foundation for their future success.

Organization:

For more than a century, the Technion - Israel Institute of Technology has been Israel's primary technological university and the largest center of applied research in Israel, and a main. For 2024, the Technion has been ranked 85th on the list of the top 100 academic institutions worldwide, according to the Academic Ranking of World Universities (ARWU) published by Shanghai Ranking. Viterbi Faculty of Electrical and Computer Engineering, the premier engineering school in Israel, plays a pivotal role in shaping the startup nation's high-tech industry and leads groundbreaking research in fields ranging from hardware to artificial intelligence.

Within the Faculty of Electrical and Computer Engineering (ECE), a four-year PhD position is available in the Analog/Mixed-Signal Research Group (AMSG) led by Dr. Nicolás Wainstein. AMSG conducts cutting-edge research at the intersection of analog/mixed-signal integrated circuits, in-memory computing, and ultra-dense die-to-die communication.

The candidate will join a dynamic and collaborative research environment focused on addressing fundamental challenges in AI hardware, computing, memory, and networking. The position is funded by MSCA DN for 36 months and the remaining 12 months will be covered by other funding sources. The project will involve both circuit design (custom analog/mixed-signal and/or digital IC design) and

system-level architectural innovation. The candidate is expected to undertake secondment(s) during the first three years of the project.

Qualification & Eligibility:

- Mobility Rule: Candidates must not have resided or carried out their main activity in “**host country**” for more than 12 months in the 3 years immediately before the recruitment date.
- PhD Rule: Applicants must not already possess a doctoral degree at the date of recruitment.
- M.Sc. degree or equivalent in Electrical Engineering, or related fields with excellent grades.
- Sound knowledge of analog, AMS circuit design, computer hardware design and/or synthesis tools.
- Proven experience in CMOS IC design.
- Excellent English communication, presentation, and writing skills.
- Must be a team player.
- Knowledge of in-memory computing is an added advantage.
- Knowledge of emerging non-volatile memory technologies is an added advantage.

Conditions of employment:

We offer you:

- A scholarship of approximately € 3600 per month.
- A Mobility/Family Allowance ranging from €600 to €1,260/month, based on your family status.
- An option for additional salary through research project supervision.
- A PhD training programme is part of the agreement.
- **Intended start date:** November 1, 2025

Application:

Please submit the following material, concatenated in a single PDF file and upload this file as your ‘CV’ by means of the application form at [Vacancies – project-react.eu](https://vacancies-project-react.eu).

- A cover letter motivating your application and detailing the motivation to apply for this specific PhD project (1 page max).
- An academic CV.
- A research statement (2 pages max) describing your personal research interests and previous research projects.
- A certified list of grades from your undergraduate degree(s) up to the moment of application (in case your MSc degree has not yet been awarded).
- The names and e-mail addresses of 2 academic referees who are willing and able to write recommendation letters for you, including the supervisor of your MSc research project.

You may apply for this position until 31 October 11:59pm / before 1st November 2025 Dutch local time (CET) by means of the project website [Vacancies – project-react.eu](https://vacancies-project-react.eu) Applications will be evaluated as received.

A beacon of coexistence and diversity – Today, with over 15,000 students, 17 faculties (and one academic department), and 60 research centers, the Technion encourages its students and faculty to break paradigms and fuse creative thinking with technology. A diversity of viewpoints and origins is key to the Technion’s success, with a diverse student body of all religions and backgrounds.

Unsolicited marketing is not appreciated.

Information

For information you can contact:

- Dr. Nicolás Wainstein, nicolasw@technion.ac.il

Please do not use the e-mail address(es) above for applications.