

Dutch research institute seeks European partners for co-development of neuromorphic demonstrators and applications

Summary

Profile type

Technology request

Company's country

Netherlands

POD reference

TRNL20251104009

Profile status

PUBLISHED

Type of partnership

Research and development cooperation agreement

Targeted countries

• World

Contact Person

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Term of validity

4 Nov 2025**4 Nov 2026**

Last update

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General Information

Short summary

A Dutch research centre specialising in neuromorphic computing is seeking partners to co-develop and test new demonstrators in e.g. health monitoring, mobility, intelligent sensing, and digital infrastructure. The goal is to prove how neuromorphic computing can enable faster, more adaptive, and energy-efficient data processing. Cooperation is sought through research and technical collaboration agreements with both technology providers and organisations bringing in real-world use cases.

Full description

Based in the Netherlands, the research institute focuses on neuromorphic computing, a new computing paradigm inspired by the way the brain works. The institute, affiliated with a large public university, brings together expertise from multiple domains, including mathematics, physics, materials science, computer science, artificial intelligence, electrical engineering, and robotics. The team works across all levels of the technological stack, from materials and components to chips, algorithms, and applications.

Neuromorphic computing represents a novel approach to both hardware and algorithms, applying principles derived from brain functionality to achieve highly efficient computational systems. The institute aims to build systems that apply one or more brain-inspired mechanisms that make biological cognition remarkably efficient.

by the dense interconnection of neurons (through synapses) and the close integration of memory and computation. These characteristics allow for substantial reductions in energy consumption.

As an emerging field, neuromorphic computing requires collaboration across various technological layers — from materials and chip design to algorithms and real-world applications — to transition from laboratory concepts to practical use.

The research centre is seeking partners who can contribute to this ambition through collaboration in a pre-competitive research setting. Specifically, the institute is interested in working with partners who can provide:

- Specific technologies, such as sensors, low-power electronics, edge computing solutions, or embedded artificial intelligence;
- Practical use cases in sectors such as health, mobility, sensing, or infrastructure, where local, adaptive computing could deliver tangible impact.

The objective is to jointly explore, design, and validate neuromorphic technologies, demonstrating their feasibility in real applications while integrating end-user requirements early in the design process.

Advantages and innovations

- Unique multidisciplinary stack: from cognitive/self-learning materials (e.g., novel ferro- and piezo-electric oxides) to neuromorphic circuits and systems. This enables end-to-end innovation rather than isolated component development.
 - Ambitious energy-efficiency goals: The centre targets chips/systems that are up to 10,000× more energy efficient than traditional processors.
 - Strong ecosystem and track record: CogniGron already participates in Horizon and MSCA projects and has established collaborations with industry.
 - Translation-oriented: Their approach explicitly aims at demonstrators and applications (edge AI, robotics, sensors) rather than pure theory — increasing attractiveness for industrial uptake.
 - Strategic national importance: Neuromorphic computing is a recognised national priority in the Netherlands, giving credibility and potential access to public funding and infrastructure.
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Technical specification or expertise sought

1. Technology or solution providers with expertise in areas such as materials science, device physics, in-memory or mixed-signal circuit design, sensor and edge computing hardware, neuromorphic algorithms, or system integration. These partners can contribute building blocks for the development and integration of neuromorphic demonstrators.
 2. End-user partners from sectors such as healthcare, mobility, robotics, or digital infrastructure who can define relevant use cases, provide real-world data or operating environments, and help validate prototypes under realistic conditions.
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Stage of development

Under development

Sustainable Development goals

- **Goal 11: Sustainable Cities and Communities**
- **Goal 9: Industry, Innovation and Infrastructure**

IPR Status

IPR granted

IPR Notes

Partner Sought

Expected role of the partner

For technology or solution providers:

Partners may be developers, researchers, or engineers active in materials science, device physics, circuit or chip design, neuromorphic algorithms, or system integration. They are expected to contribute specific technologies or expertise that can be integrated into shared demonstrators, such as new materials, components, hardware platforms, or learning algorithms. Tasks include but are not limited to co-design, hardware–software integration, and joint testing of prototypes at TRL 3–7.

For end-user partners:

Partners may be industrial developers, manufacturers, or operators in sectors such as health, mobility, robotics, or digital infrastructure. They are expected to define relevant use cases, provide access to representative data or test environments, and participate in evaluating the performance and applicability of neuromorphic demonstrators in real-world settings.

All partners should be willing to collaborate in a pre-competitive, research-oriented environment, contribute actively to system definition and validation, and share feedback that helps align the technology design with real operational needs.

Type of partnership

Research and development cooperation agreement

Type and size of the partner

- **Big company**
- **SME 50 - 249**
- **SME ≤10**
- **University**
- **SME 11-49**
- **R&D Institution**

Dissemination

Technology keywords

- **01002001 - Micro and Nanotechnology related to Electronics and Microelectronics**
- **06002006 - Synthetic Biology**
- **01002003 - Electronic engineering**
- **06002011 - Bionics**

Targeted countries

- **World**

Market keywords

- **04005 - Biochemistry / Biophysics**
- **04014 - Bioinformatics**
- **04010 - Microbiology**

Sector groups involved

- **Digital**