

CALL

NEXT – Neuromorphic Computing

Profile Area „Exploration“

Funding Framework „NEXT“

Deadline: August 16, 2022, 14.00 CET



1 Goals

This call aims at fostering collaboration and networking between scientists from the diverse research areas engaged in the field of “neuromorphic computing“ and other recent approaches beyond the mainstream von Neumann architecture. Being mostly addressed through a diversity of different scientific languages and frameworks right now, further advancing the field of computing requires tackling it in a more holistic, interdisciplinary and co-creative way – something that this call intends to encourage. To that end, the Volkswagen Foundation invites applications by early-career researchers (postdocs and assistant/junior professors) for an **Ideation Workshop** to be held on December, 5-8, 2022. The workshop offers an opportunity to exchange research ideas, get to know and network with potential partners as well as to develop creative new ideas for cooperative research projects. Subsequent to the workshop, the Foundation will offer participants of the workshop the opportunity to submit proposals for large-scale, **collaborative research projects**, which are characterized by an integration of multiple perspectives and approaches to neuromorphic/unconventional computing significantly beyond the state of the art.

With this call, the Foundation intends to respond to the fact that state of the art computing architectures based on von Neumann architectures will inevitably run into well-known problems such as increasing energy-consumption or the so-called “End of Moore’s Law”. Therefore, the need for alternative, unconventional concepts and computing paradigms is obvious. Goals of research on neuromorphic computing are diverse and comprise, among other things, a better understanding of the brain, emulating its functions in different physical substrates, developing neuromorphically inspired computational principles for processing data, developing new physical materials that inherently mimic functions such as found in biology, or fabricating practically useful neuromorphic microchips and devices. However, since in neuromorphic computing hardware and software are potentially merged and physical and computational properties are intertwined, many of these activities are subject to strong interdependencies. Hence, the need for the holistic approach that this call intends to stimulate.

2 SCOPE OF FUNDING AND GENERAL CONDITIONS

The application process consists of two phases: First, interested early-career researchers are invited to apply for participation in the Ideation Workshop in December 2022. The call aims at early-career researchers who are motivated to work on topics in the context of neuromorphic computing and to address key questions and challenges in a highly interdisciplinary manner. Interested scientists should be eager to combine perspectives of different disciplines and to collaboratively develop cutting edge research projects.

I. Ideation Workshop

The Foundation will organize a workshop in Einbeck, Germany, from December, 5-8, 2022, during which

- 1) early-career researchers from various disciplines will meet and get to know each other,
- 2) project ideas will be discussed, developed and
- 3) potential partners for collaborative projects can be identified.

In addition to intensive exchange and networking, the format will encourage and support the development of cutting-edge project outlines beyond established research approaches. Applications are open to early-career researchers (i.e. postdocs as well as assistant/junior professors) at European research institutions. The deadline for submitting short applications to participate in the workshop is August 16, 2022. Suitable candidates will be selected by a review committee and receive their official invitation in October. The invitation will include full coverage of travel and accommodation costs. It is mandatory to participate the whole four days of the workshop.

II. Collaborative research projects

After the workshop, groups of participants formed during the workshop will have the opportunity to submit full proposals for funding of interdisciplinary, collaborative projects, which involve up to four partners. Such projects should be characterized by an integration of different fields of research on neuromorphic computing, and demonstrate a potential for contributing to the field's overall development. If the successful realization of such a project requires expertise of a researcher who could not be found at the workshop, proposals may include other researchers as co-applicants. More specific details regarding the application process will be given at the workshop.

3 APPLICATION AND SELECTION PROCEDURE

All applications have to be submitted in English. Application documents include:

- a **letter of motivation** (please use the template provided)
- a short **CV**.

Please combine both documents into one file and submit them as a single .pdf document.

An international steering committee will assess all applications and recommend invitations to the workshop. Invitations will be extended at the end of October.

Please submit your application online via the Volkswagen Foundation's electronic application system. Information can be found in the document "Electronic Application System – Instructions and Tips" (see item 5). For technical questions regarding the use of the portal, please contact support@volkswagenstiftung.de.

4 BACKGROUND

PROFILE AREA „EXPLORATION“

With the profile area “Exploration”, the Volkswagen Foundation aims to support creative and bold scientists in advancing unconventional ideas and venturing into previously unexplored areas of research. The overall goal is to dare taking risks, to contribute to solving major science-driven challenges with unorthodox questions and experimental approaches, and to generate new knowledge driven by curiosity.

FUNDING FRAMEWORK “NEXT“

Within the funding framework “NEXT”, the Volkswagen Foundation intends to take up new or hitherto little-researched topics and research approaches in close exchange with the scientific community. The aim is to address topics and research approaches that, on the one hand, have a high degree of knowledge potential and relevance for the future, but, on the other hand, are currently not being pursued scientifically, or not sufficiently so. The funding framework is the overarching umbrella for various calls on different thematic areas, which are all intended to stimulate progress within the scientific landscape, and to direct the focus to what could be “next” as the title of the framework indicates.

5 CONTACT AND FURTHER INFORMATION

Further Information

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Additional Information

- [Webpage funding initiative](#)
- [Application Template](#)
- [Electronic Application System – Instruction and Tips](#)
- [Volkswagen Foundation Electronic Application System](#)