NETHERLANDS INSTITUTE FOR NEUROSCIENCE
Master the mind

The Netherlands Institute for Neuroscience and the Centrum Wiskunde & Informatica (CWI) are looking for

3 **PhD student position**

or

3 Postdoctoral researcher position

to work on Architectures and learning methods for hierarchical cognitive processing

Project description

Our recent theoretical insights have allowed a preliminary understanding of how animals learn to represent and memorize the key features of sensory stimuli for the guidance of action based on reinforcement learning (Rombouts et al. PloS Comp Biol 2015; Holtmaat & Roelfsema, Nature Reviews Neuroscience, 2018). The present project focuses on the hierarchical learning of cognitive subroutines, which can be incorporated into larger routines, by trial and error. We aim to develop a biologically plausible learning rules that endow neural networks with the possibility to learn hierarchical task structures and learn and execute cognitive tasks.

Topics of interest include - the role of learnable/flexible working memory models in learning and executing hierarchically structures routines. The project is a collaboration between in the Vision & Cognition group (Dr. Pieter Roelfsema) at the Netherlands Institute for Neuroscience and the Machine Learning Lab at the Centrum Wiskunde & Informatica in Amsterdam (Dr. Sander Bohte).

We expect from you:

You are highly motivated, have a solid computational background, an interest in cognitive neuroscience and good programming skills.

You should expect from us:

The position involves a temporary appointment for 3-4 years. The first appointment is for one year with extension for the remaining period pending on an evaluation. We offer a competitive salary with excellent secondary benefits and friendly taxes, and also an extremely friendly, interactive and international working environment. Amsterdam is one of Europe's most beautiful and livable cities where almost everybody speaks and understands English, so that candidates need not be afraid of the language barrier.

Environment

About the NIN

The Netherlands Institute for Neuroscience (www.nin.nl) is the country's leading fundamental neuroscience research institute. It provides a critical mass of scientists and neuroscience technologies, together with a highly interactive, dynamic, multi-cultural environment. English is the working language of all research groups. Amsterdam is an internationally oriented city and an

attractive, progressive and easy-to-integrate environment. The research groups have members from more than 27 nations with backgrounds ranging from philosophy to engineering. For more information about the Vision & Cognition groep visit our [website](#).

About Centrum Wiskunde & Informatica

Centrum Wiskunde & Informatica (CWI) is the Dutch national research institute for mathematics and computer science and is part of the Institutes Organisation of NWO. The mission of CWI is to conduct pioneering research in mathematics and computer science, generating new knowledge in these fields and conveying it to trade, industry, and society at large. CWI is an internationally oriented institute, with 160 scientists from approximately 27 countries. The facilities are first-rate and include excellent IT support, career planning, training, and courses. CWI is located at Science Park Amsterdam that is presently developing into a major location of research in the natural sciences in The Netherlands, housing the sciences of the University of Amsterdam and of the Vrije Universiteit as well as several other national research institutes next to CWI. For more information about the CWI ML research group at CWI, please visit our website.

Appointment

We offer an exciting job at a dynamic research institute and an attractive package of fringe benefits. The position is for a period of 3 or 4 years in total for a postdoctoral researcher or PhD-student, respectively. The first appointment is for one year with an extension for the remaining period pending on an evaluation.

Salary

The salary will be commensurate with experience and institutional guidelines based on the Collective Labour Agreement for Dutch Universities; CAO NU). Full time monthly salary for a PhD student is € 2.325,- in the 1st year to € 2.979,- in the 4th year before taxes. The starting salary for a postdoctoral researcher depends on experience and ranges from € 3.123,- to € 4.274,-.- before taxes. A 8% holiday allowance and 8.3% year-end bonus are excluded. A 8% holiday allowance and 8.3% year-end bonus are excluded. We offer travel expenses, paid parental leave, flexible working hours, 30 days paid leave per year and help by finding a house.

Starting date

The position is available from April 2020.

To apply

Please, send your application to l.van.der.vecht@nin.knaw.nl including:

1. A Curriculum Vitae
2. An application letter
3. Two reference letters

Evaluation of candidates will begin immediately, and continue until the position is filled. We aim to fill the position between April and July 2020.

All qualified applicants will receive consideration for employment without regard to race, religion, sexual orientation, nationality, disability, etc.

Any acquisition further to this advertisement will not be appreciated.