Your Tasks
The advertised vacancy is (conditioned on the final project approval) located within the Neuromorphic Behaving Systems Group of the Faculty of Technology and the Cluster of Excellence Cognitive Interaction Technology (CITEC) at Bielefeld University. Within the scope of this position and the EU project "BioFemtoSynaptic", new neuromorphic circuits will be designed, which will be smaller in size and able to model biologically inspired learning.

research tasks (100 %)
• research on computer simulations, design and characterization of neuromorphic circuits in analog VLSI Hardware
• design of novel hybrid CMOS-FET-FET neuron circuits with minimum size
• design of novel hybrid CMOS-FET-FET CMOS-FET learning circuits for neuro-synaptic cores for modeling biologically inspired learning algorithms
• contribute to the implementation of a real-time ultra-low-power neuromorphic processor suitable for adaptive close-loop signal processing with high potential for monitoring and control applications
• publication of project results and presentations at national and international conferences
• assistance with the acquisition of third party funding

Your Profile
We expect
• completed PhD in computer sciences, engineering, electrical engineering, physics, mathematics, neurosciences, or related disciplines
• experience in analog and digital CMOS design
• very good knowledge in the fields of neural networks and computational neuroscience
• very good programming knowledge and proficiency in the development of algorithms in Python or C++ and knowledge of the relevant frameworks e.g. Brian2, SpiNNaker, pyNN
• fluent written and oral communication skills in English
• interest in the design and development of VLSI circuits and bio-inspired systems for information processing
• interest and willingness to participate in international and interdisciplinary collaborations
• self-driven, goal-oriented and systematic approach to new topics
• high degree of commitment and initiative as well as being able to work closely and communicate effectively with a diverse group of scientists and technical staff

Preferable qualifications
• knowledge of event-based information processing
• experience with
  • neuromorphic hardware
  • learning in spiking CMOS neural networks
  • attractor neural networks
  • brain-inspired computation
  • synaptic plasticity models based on memristive devices
  • physical models of integrate-and-fire neurons
  • chip characterization and system level integration
• knowledge of Linux-based IT environments
• fluent written and oral communication skills in German

Remuneration
Salary will be paid according to Remuneration level 13 of the Wage Agreement for Public Service in the Federal States (TV-L). As stipulated in § 2 (1) sentence 2 of the WissZeitVG (fixed-term employment), the contract will end after three years. In accordance with the provisions of the WissZeitVG and the Agreement on Satisfactory Conditions of Employment, the length of contract may differ in individual cases. The employment is designed to encourage further academic qualification. In principle, the full-time position may be changed into a part-time position, as long as this does not conflict with official needs.

Bielefeld University is particularly committed to equal opportunities and the career development of its employees. It offers attractive internal and external training and further training programmes. Employees have the opportunity to use a variety of health, counselling, and prevention programmes. Bielefeld University places great importance on a work-family balance for all its employees.

Application Procedure
For full consideration, your application should be received via either post (see postal address below) or email (a single PDF) document sent to chicca@cit-ec.uni-bielefeld.de by January 5th, 2020. Please mark your application with the identification code: wiss19301. Applications must be in English and include the following documents (maximum two pages for points 1-4): 1. a cover letter, 2. a meaningful description of your research area (topics and methods), 3. research statement covering personal research interests, planned research goals and how they fit into the research carried out in the Neuromorphic Behaving Systems group, 4. a CV outlining prior education, research experience, skills and publications, 5. two letters of reference, 6. academic transcripts (bachelor and master/diploma and PhD). Please do not use application portfolios and send only photocopies of original documents because all application materials will be destroyed at the end of the selection procedure. Further information on Bielefeld University can be found on our homepage at www.uni-bielefeld.de. Please note that the possibility of privacy breaches and unauthorized access by third parties cannot be excluded when communicating via unencrypted e-mail. Information on the processing of personal data is available at https://www.uni-bielefeld.de/universitaet/aktuelles/beratungszentrum/2753-ke-freiheits-englisch.pdf

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