



Human Brain Project
Education Programme

3RD HBP CURRICULUM WORKSHOP SERIES
SPIKING NEURAL NETWORKS:
APPLICATIONS TO COMPUTING,
ALGORITHMICS, AND ROBOTICS

18 SEPTEMBER 2019
TECHNICAL UNIVERSITY
OF MUNICH, GERMANY

APPLICATION DEADLINE:
21 AUGUST 2019

**APPLICATION DEADLINE
EXTENDED UNTIL
4 SEPTEMBER 2019!**



 @HBP_Education

 @hbpeducation

 HBP Education

 hbp_education

 HBP Education Programme

WORKSHOP INFORMATION

Spiking neural networks (SNN) are a special class of artificial neural networks (ANN), in which the information is transmitted by means of pulses (or spikes) rather than by firing rates. As SNNs have shown to be excellent control systems for biological organisms, they have the potential to produce good control systems for autonomous robots. This workshop aims to bring together neuroscientists with roboticists and computational researchers developing biologically inspired learning algorithms for scientific and industrial applications. In order to enrich the discussions of SNN and its applications to computing, algorithmics and robotics, there will be a hands-on session on spiking neural networks on the Neurorobotics Platform.

CONFIRMED TOPICS AND SPEAKERS

This may be subject to change.

The basics of spiking neurons: Biological facts, models and computational properties | 30 min

Fabrice Morin (Technical University of Munich)

Lessons from the brain for enhancing computing and learning capabilities of spiking neural networks | 40 min

Wolfgang Maass (University of Technology Graz)


Application of neuromorphic control principles towards closed loop SNN-based sensomotoric robot controls | 40 min

Rüdiger Dillmann (Karlsruher Institut of Technology)

Neuromorphic hardware for real-time-real-worlds robots | 40 min

Jörg Conradt (KTH Royal Institute of Technology)

Hands-on session: Spiking neural networks on the Neurorobotics Platform | 120 min



Application information

Application is open to the entire student community and early career researchers, regardless of whether they are affiliated with the Human Brain Project or not.

A maximum of 30 participants will be selected by the Scientific Chair and the HBP Education Programme. It is aimed to offer equal opportunities for all early career researchers regardless of gender, age, origin, etc. Applicants are required to submit a CV and a motivation letter with their application.

Application deadline: **21 August 2019**

Participation fee: 90 €

The fee does not include travel and accommodation. Fees will be collected after participants have been selected.

A limited number of fee waivers are available, participants can apply for fee waivers prior to the application deadline by sending an email to **curriculum.edu@humanbrainproject.eu**.

ECTS information

Participants have the possibility of taking an exam related to the content of the HBP Curriculum online courses on the day before the workshop. Upon successful completion, up to **12 ECTS credits** can be awarded. The credits are awarded by the Medical University of Innsbruck/Austria (MUI). Further information on how to receive ECTS credits: www.humanbrainproject.eu/en/education/participatecollaborate/curriculum/

Scientific Chair:

Alois Knoll | Technical University of Munich

Organisers:

Sylvia Aßlaber | Medical University Innsbruck
Judith Kathrein | Medical University Innsbruck
Fabrice Morin | Technical University of Munich

Technical
University
of Munich



Contact:

curriculum.edu@humanbrainproject.eu



Human Brain Project

Co-funded by
the European Union



Further information and application:

http://bit.ly/ICT_SNN2019



This project has received funding from the European Union's Horizon 2020 Framework Programme for Research and Innovation under the Specific Grant Agreement No. 785907 (Human Brain Project SGA2).

humanbrainproject.eu/education