CALL FOR POSTER ABSTRACTS

2nd International Workshop on Neuromorphic and Brain-Based Computing Systems (NeuComp 2015)

Friday March 13, 2015, Grenoble, France

held in conjunction with DATE'15 conference
(http://www.date-conference.com/conference/workshop-w03, http://www.date-conference.com)

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Description
Biological neural systems are well known for their robust and power-efficient operation in highly noisy environments. Biological circuits are made up of low-precision, unreliable and massively parallel neural elements with highly reconfigurable and plastic connections. Two of the most interesting properties of the neural systems are its self-organizing capabilities and its template architecture. Recent research in biologically-plausible neural networks has demonstrated interesting principles about learning and neural computation. Understanding and applying these principles to practical problems is only possible if large-scale neural simulators or circuits can be constructed. This workshop will outline key modelling abstractions for the brain and focus on recent neural network models. Aspects of neuronal processing and computational issues related to modelling these processes will be discussed. Hardware and software solutions readily usable by neuroscientists and computer scientists and efficient enough to construct very large networks comparable to brain networks will be presented.

Target Audience
NeuComp 2015 is the second edition of a DATE workshop designed to attract both newcomers to neuromorphic computing, as well as neuromorphic researchers who wish to interact with the DATE community to stimulate new ideas, topics and collaborations. Since this is a hot area but one that is probably new to a large segment of the DATE community, half of the workshop will be devoted to a comprehensive introduction to Neuromorphic and Brain-Based Computing, where the audience will be exposed to basic definitions, key concepts, abstractions, design flows, and design constraints; also some highly visible research projects will be presented as exemplars to provide an overview of existing and emerging solutions in this domain. The other half of the event will create a forum for interactive discussion and exchange of ideas and experiences between researchers through posters and demonstrations, with the goal of highlighting details on applicability, performance, and strengths of current solutions. Our aim is for attendees to learn about emerging Neuromorphic and Brain-Based computing techniques, highlight publicly available modelling and simulation tools, and view directions for longer term research.

Topics of interest
Authors are invited to submit original unpublished works on topics from a wide range of Neuromorphic and Brain-Based computing areas, including but not limited to:

- Formal models
- Hardware architectures
- Software tools
- Systems and applications
- Simulation Infrastructures

Submission
Submissions are invited in the form of 2-page extended abstract describing the novelties and advantages of the work.
Submissions must be done through Easychair at https://easychair.org/conferences/?conf=neucomp2015
All submissions will be evaluated with regard to their suitability for the workshop, originality and technical soundness. Selected submissions will be accepted for oral presentation and/or poster/interactive presentations. This workshop does not require blind submissions. Informal proceedings with accepted papers will be made available at the workshop as detailed below.

Important dates

- Submission deadline — October 30th, 2014
- Notification of acceptance — November 30th, 2015
- Final program — December 15th, 2015

Informal Workshop Digest
NeuComp 2015 will distribute an informal workshop digest to all workshop participants. NeuComp 2015 presenters are encouraged to submit papers for inclusion in this informal workshop digest.
Note that since the informal workshop digest is only distributed to workshop participants (and is not archived as part of DATE or ACM/IEEE digital libraries), authors are free to submit their work to other archival conferences and journals.

Proceedings
Selected results of the two first editions of Neucomp will be published in form of an edited book by Springer.

Workshop format
The workshop will combine oral and interactive sessions (posters and demonstrations) together with invited talks representing major neuromorphic research projects. The event will be designed to be highly interactive, with ample time for discussion and cross-disciplinary engagement.

Invited speakers
- Romain Brette (ENS, FR)
- Kristofor Carlson (UCI, US)
- Jörg Conradt (TU Munich, DE)
- Steve Furber (Manchester Univ., UK)
- Todd Hylton (Brain Corporation, US)
- Giacomo Indiveri (ETHZ, CH)
- Anders Lansner (KTH, SW)
- Rajit Manohar (Cornell Univ., US)

Preliminary program

Session	Presentation title	Speaker	Company	Start	End	Duration
	Welcome and introduction	N. Dutt / Ph. Coussy	UCI / UBS	08:30	08:35	00:05
Session 0	Neuromorphic Computing and the Brain: Insights, Challenges and	Todd Hylton	Brain Corporation, US	08:35	09:00	00:25
Session 1				09:00	10:00	01:00
	On-line learning in real-time behaving neuromorphic systems	Giacomo Indiveri	ETHZ, CH	09:00	09:30	00:30
	The Brian simulator	Romain Brette	ENS, FR	09:30	10:00	00:30
Break & Poster/demo session 1				10:00	11:00	01:00
Session 2				11:00	12:00	01:00
	Digital Neuromorphic Systems	Rajit Manohar	Cornell Univ., US	11:00	11:30	00:30
	Computational Neuroscience for Technology: Event-based Vision Sensors and Information Processing	Jörg Conradt	TU Munich, DE	11:30	12:00	00:30
Lunch				12:00	13:00	01:00
Session 3				13:00	14:00	01:00
	The SPiNNaker Project	Steve Furber	Manchester Univ., UK	14:00	14:30	00:30
	Biological inspiration, functionality and hardware implementation aspects of BCPNN	Anders Lansner	KTH, SW	14:30	15:00	00:30
	Tools and Frameworks for Constructing Spiking Neural Network Models of Brain Circuits	Kristofor Carlson	UCI,US	15:00	15:30	00:30
Break & Poster/demo session 2				15:30	16:30	01:00
	Wrap up and close		UCI / UBS	16:30	16:35	00:05

General Co-chairs
Philippe Coussy — Université de Bretagne-Sud/Lab-STICC, FR
Nikil Dutt — University of California – Irvine, Irvine, CA USA

Preliminary Technical Program Committee
Jeff Krichmar — University of California – Irvine, Irvine, USA (Program Co-Chair)
Philippe Coussy — Université de Bretagne-Sud/Lab-STICC, FR (Program Co-Chair)

Angelo Arleo — Université Pierre et Marie Curie, FR
Romain Brette — ENS Paris, FR
Gert Cauwenberghs — UCSD, USA
Yiran Chen — University of Pittsburgh, USA
Jorg Conradt — TU Munich, GER
Nikil Dutt — UC Irvine, USA
Steve Furber — Manchester University, UK
Karlheinz Meier — Heidelberg University, GER
Vijaykrishnan Narayanan — Pennsylvania State University, USA
Narayan Srinivasa — HRL, USA
Massimiliano Versace — Boston University, USA

If you have any questions about the workshop, please contact philippe.coussy@univ-ubs.fr

Previous edition
For more information about Neucomp 2013 program, see http://www-labsticc.univ-ubs.fr/~coussy/neucomp2013/