

Organization For Computational Neurosciences

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@CNSorg



CNSorg

Contact us if you have comments or information to include in the newsletter.

newsletter@cnsorg.org

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OCNS, Inc is a US non-profit, 501(c)(3) serving organization supporting the Computational Neuroscience community internationally. We seek sponsorship from corporate and philanthropic organizations for support of student travel and registration to the annual meeting, student awards, and hosting of topical workshops. For more information about how you can contribute, please email sponsorship@cnsorg.org.

OCNS President Astrid Prinz



Those of us enjoying the hospitality of the University of Antwerp in the historical center of Antwerp, Belgium from July 15 to July 20 were challenged to think deeply about perception and coding by several of our plenary speakers. Many of us experienced vivid sensory processing while dancing the night away at the Havn Church. A very special thank you is needed for our local organizers, Michele Giugliano of the University of Antwerp and Daniele Marinazzo of the University of Ghent, for providing the support for a rich meeting full of impactful science and meaningful networking opportunities. Planning for CNS 2018 is well underway, as you will see from the update included in this newsletter. It looks to be an exciting and scientifically rewarding meeting, and we hope to see many of you in Seattle, USA for the 27th Annual Computational Neuroscience Meeting.

But many of you who are involved with OCNS know that it's about more than just running an annual meeting. The goal is to provide an inclusive scientific and educational forum to advance computational neuroscience. Your membership supports Travel Awards for attendance at computational neuroscience training programs and courses and at the annual CNS meeting for students, postdocs, and members from developing countries. Like other scientific organizations, our members also get large discounts on registration fees for the annual meeting, reduced subscription fees for journals, book discounts, and access to additional online resources. We are looking to expand the benefits of membership for OCNS. If you have ideas about ways to enhance our contributions to the community, contact one of your officers or Board members with your ideas. You can find contact information at <http://cnsorg.org>. We also welcome contributions or ideas for future newsletters. Send us feedback at newsletter@cnsorg.org.

Astrid Prinz

OCNS Newsletter

Editor: Sharon Crook

Contributors: Thomas Nowotny, Eric Shea-Brown, Ankur Sinha, Christina Weaver, Daniel Wójcik

Congratulations Newly Elected

OCNS Directors

Peter Jedlicka

Goethe University Frankfurt
Frankfurt, Germany



William Lytton

SUNY Downstate
Brooklyn, NY, USA



Sharmila Venugopal

University of California Los Angeles
Long Beach, CA, USA



Martin Zapotocky

Czech Academy of Sciences
Prague, Czech Republic



We want to express our sincere gratitude to the Board members who are leaving the Board at the end of 2017: Jaeseung Jeong, Nicoladie Tam, Benjamin Torben-Nielsen, Eleni Vasilaki, and Daniel Wójcik. For a complete list of the current members of the Board of Directors and information about how they serve you and all of the OCNS community, go to <http://www.cnsorg.org/board-of-directors>.

CNS 2017 Student Poster Awards

Each year at the Annual Meeting of OCNS, there is a Poster Award Competition open to all Student Members presenting posters about their work. At the 2017 meeting in Antwerp, 82 of the 314 posters were eligible for the competition. Voting was open to all meeting attendees at the Faculty level or equivalent. All winners received books generously donated by Springer. The 2017 winners were:

Alexa Chatzikalymniou (advisor Frances Skinner), University of Toronto, Canada. *Deciphering the contributions of oriens-lacunosum/moleculare (OLM) cells during local field potential (LFP) theta rhythms in CA1 hippocampus.*

Jaeson Jang (advisor Se-Bum Paik), Korea Advanced Institute of Science and Technology, Republic of Korea. *Regularly structured retinal mosaics can induce structural correlation between orientation and spatial frequency maps in V1.*

Lida Kanari (advisor Henry Markram), Blue Brain Project, École polytechnique fédérale de Lausanne, Switzerland. *Representation of Neuronal Morphologies.*

Daniel Levenstein (advisor John Rinzel), New York University, USA. *Synchronized neocortical dynamics during NREM sleep.*

Scott Rich (advisor Michal Zochowski), University of Michigan, USA. *Cellular and network properties of interneuron networks dictate variable clustering patterns in both strictly inhibitory and E-I neural networks.*

Maria Luisa Saggio (advisor Viktor Jirsa), Institut de Neurosciences des Systèmes - Aix-Marseille Université, France. *A taxonomy of seizures based on dynamics.*

Alina Schiffer (advisor Udo Ernst), University of Bremen, Germany. *Integration of orientation and*
Simon N. Weber (advisor Henning Sprekeler), Berlin Institute of Technology and Bernstein Center for Computational Neuroscience, Germany. *A grid score for individual spikes of grid cells.*

If you know any of these hard-working students, please congratulate them!

Christina Weaver, on behalf of the OCNS Program Committee

In 2017, the Board of Directors voted to decrease membership fees. Login at cnsorg.org to pay your OCNS dues. Please consider renewing with a multiple year membership.

Member Type	One year	Two years	Three years
Student	10 USD	15 USD	20 USD
Post-doc	20 USD	30 USD	40 USD
Faculty and other	50 USD	75 USD	100 USD

Report on Travel Awards

One of the benefits of being an OCNS member is the right to apply for a Travel Award for the annual meeting. The goal is to facilitate CNS meeting attendance for PhD students, postdocs, and occasionally young faculty, especially from developing countries. We encourage you to use this mechanism to attend the CNS meeting if your personal or lab circumstances make it financially difficult.

To provide a perspective on your chances, here are some data on the application process for CNS 2017. This year OCNS received 51 travel applications with 28 from PhD students and the remainder mainly from postdocs. 30 of the applicants were male and 21 were female. Selection for funding is based primarily on scores of applicant abstracts, which are determined by the peer review process for the meeting and range from 2 to 6 out of 6. The threshold for funding usually falls around 4 in selecting applicants, but varies from year to year. This year all application with a score of 3.75 and above were funded. As a consequence, OCNS funded 43 people, including 19 out of 21 female applicants and 24 out of 30 male applicants.

Award amounts were determined by estimated travel costs. Applicants from Europe were awarded

\$200 each. All other applicants were awarded \$800 due to comparable travel costs from most places in Asia, North and South America, and Australia. The financial plan for 2017 allocated \$30,000 for Travel Awards in the OCNS budget. We are very grateful for support from Brain Corporation, which supported four oral presenters. Altogether \$18,200 was awarded in regular Travel Awards. Additionally, \$3,800 was awarded in Workshop Travel Awards (8 attendees). The relatively low use of available funding was related to the meeting location in Europe and the short distances traveled by many attendees; however, the number of travel grants awarded was comparable with previous years. We encourage you to keep this funding mechanism in mind for future meetings.

OCNS also supports student attendance at annual training courses. A gift of \$4,000 to the Marine Biological Laboratory from OCNS supported two students in the 2017 Methods in Computational Neuroscience Course.

*Daniel Wójcik, Board of Directors
Travel Award Coordinator*



CNS 2018

27th Annual Computational Neuroscience Meeting
July 13-18, 2018
Seattle, USA



Local Organizers:

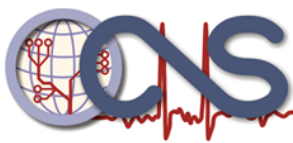
Christof Koch, Allen Institute for Brain Science
Adrienne Fairhall, University of Washington
Eric Shea-Brown, University of Washington

Invited Keynote Speakers:

Eve Marder, Brandeis University
Nancy Koppell, Boston University
Daniel Wolpert, University of Cambridge
Rajesh Rao, University of Washington



Main Meeting:
University of Washington



Organization For
Computational Neurosciences

Workshops and Tutorials:
Allen Institute for Brain Science



2018 Program Committee

CNS Program Chair: Thomas Nowotny, University of Sussex, UK

CNS Publications Chair: Ingo Bojak, University of Reading, UK

Sacha van Albada, Research Centre Julich, Germany

Maxim Bazhenov, University of California at San Diego, USA

Cliff Kerr, SUNY Downstate Medical Center, USA

Tomoki Fukai, RIKEN Institute, Japan

Dieter Jaeger, Emory University, USA

Arvind Kumar, KTH Royal Institute of Technology, Sweden

Sukbin Lim, New York University Shanghai, China

Christoph Metzner, University of Hertfordshire, UK

Yaroslav Molkov, Indiana University – Purdue University, USA

Tatyana Sharpee, Salk Institute, USA

Tatjana Tchumatchenko, Max Plank Institute for Brain Research, Germany

We would like to thank outgoing Chair, Anthony Burkitt, and committee members Wim van Drongelen, Michael Hawrylycz, Krasimira Tsaneva-Atanasova, Christina Weaver, and Si Wu for their exceptional service on the Program Committee. OCNS is a member-run organization and the time and engagement of the members on the Program Committee is critical for the success of the meeting.

2018 CNS Calendar

8 January 2018	Registration Opens
9 January 2018	Abstract Submission Opens
28 February 2018	Latest Safe Date for Member Applications before Abstract Submission Closes
5 March 2018	Abstract Submission Closes (11 pm Pacific Time USA)
5 March 2018	Travel Award Applications Due
10 April 2018	Notification of Abstract Acceptance
1 May 2018	Notification of Oral/Poster Selection
7 May 2018	Early Registration Closes for Non-Members (11 pm Pacific Time USA)
7 May 2018	Travel Award Notification
9 May 2018	Latest Safe Date for Member Applications before Early Registration Closes for Members
16 May 2018	Early Registration Closes for Members (11 pm Pacific Time USA)

New Format for Future OCNS Meetings Starting in 2019

Meeting will be shorter with one day of the main meeting integrated with the workshops.

With 25 years under the belt, the OCNS meetings have a tradition of an established structure that works well for members in many ways. However, some participants feel that it could be improved. At the recent meeting of the OCNS Board of Directors in Antwerp, the pros and cons of different formats for the meeting were discussed. Here we briefly cover some of the challenges pointed out by participants, and the way we will address them at the 2019 meeting.

The main challenges are the length of the meeting and resulting separation between the main meeting audience and the workshop participants. Currently, we start with one day of tutorials which ends with the first keynote presentation. This is followed by three days of the single track main meeting then two days of multiple track workshops. This totals in a six-day meeting, which is too demanding for many participants. A common complaint is that participants would like to attend the entire meeting but can't afford to come for the entire time so they only come to the main meeting or only attend the workshops. Indeed, a look at the structure of participation shows that the intersection of the participants of the main meeting and the workshops could be higher. This is an opportunity lost. Even bringing the workshops audience to the posters could significantly improve the quality of discussion at the meeting and directly benefit students and postdoc poster presenters. Further, we value providing speaking opportunities to students and postdocs, but speaking slots are limited since most of the presentations during the main meeting are selected based on the submitted abstracts.

A way to overcome this is to introduce parallel sessions throughout the meeting and to interlace the workshops with the main meeting. A good example is provided by the international neuroscience meetings such as SfN or FENS, as well as national neuroscience society meetings, which commonly have parallel sessions. Since the board is divided over how such changes should be implemented, there was a decision to start by shortening the meeting overall by one day. The first three days (tutorial day and the first two days of the main meeting) and the last day of workshops will remain largely unchanged. However, the last day of the main meeting and the first day of the workshops will be integrated, with parallel sessions shared between the regular presenters and the workshops. There will be a poster session on that day to encourage interaction between the people coming just for the workshops with those coming to the main meeting. We will continue to provide an option of registration for the two workshop days only, but there will not be an option to register for only the final day of stand-alone workshops. To present a poster at the poster session, you will have to register for the main meeting.

We calculated the demands on time by the longest workshops, and the new structure will not compromise the longest and very successful two-day workshops which have taken place at the OCNS meeting for several years now. The main change for the workshop organizers is that they would apply for a number of fixed-length blocks of time, as needed to accommodate the requirements of their workshop. It is too late to introduce these changes for the 2018 meeting, so we plan that the 2019 meeting will have this new experimental structure. If feedback from participants in 2019 is positive, further integration may take place in future years.

Firmer constraints on workshop structure will be imposed so that the breaks are respected by all the organizers to facilitate mingling and interactions between participants attending different parallel tracks. A further measure that might be implemented is a rule that you can speak at the meeting only once, perhaps with the exception for keynote invited speakers. Currently, it is common to have people speaking at multiple workshops and sometimes also at the main meeting. We feel that imposing this constraint would allow for more presenters, while facilitating shortening of the meeting.

We realize some of these changes may be controversial. What are your feelings? If you have strong views, write the Board. Even better, apply for a Director position for the OCNS, so that you can shape the future of the Organization and its meetings.

Featured Tool *for Computational Neuroscience*



NEST: The Neural Simulation Tool

NEST is a well-established platform for modeling spiking neuronal networks. Since its initial release in 1994 as SYNOD, NEST has grown under the guidance of a core team—the NEST Initiative. The most recent release, version 2.14.0, saw 700 contributions from over 30 developers—many of them PhD candidates. With a Python API that enables quick prototyping, an active community of users and maintainers, and an Open source development model that encourages collaboration while maintaining software standards, NEST is now considered one of the go-to simulators for modeling spiking neuronal networks.

NEST provides a high-level API in the Python programming language that presents a simple, unified interface for researchers with different levels of technical expertise to build their models. The API exposes more than 50 built-in neuron models and many synapse models to the user, and includes efficient methods to create networks and helper functions to modify and inspect the states of simulation entities. Detailed documentation and example scripts further supplement the API. In cases where these are insufficient, an active mailing list allows users to communicate with the NEST community. As an added feature, the simulator-independent PyNN framework also supports NEST. NEST is designed to take advantage of increasing access to parallel hardware. The distribution of computing tasks over the available hardware resources is handled internally by NEST so that users need not have any knowledge of parallel programming. The development team is in the process of making further optimizations to improve performance and extend usability—these will be all part of the next NEST release—NEST 3.0.

As an open source software project, NEST is developed openly on Github. Users can engage in the development process—expose bugs, discuss and test new features, provide feedback on changes, and even make additions to the simulator themselves. The development team also holds open NEST development video conferences to provide developers with a channel for face-to-face discussion. Not only does this development model keep users aware of changes, it provides a great platform for students and early researchers to get involved with the larger neuroscience community. It also helps researchers understand the underlying work that goes into the creation of a high performance computational modeling tool.

The increasing use of computational modeling as a tool for understanding neural mechanisms make software such as NEST critical for the computational neuroscience community. The steadily increasing number of users and developers suggests that NEST will continue to remain a key simulator for models in neuroscience research.

*Ankur Sinha
PhD Student, University of Hertfordshire*

NEST is available at <http://nest-simulator.org>. Documentation, examples, and links to other resources such as the mailing list can also be found there.

Do you have a favorite software tool or online resource? Users and developers are welcome to contribute short articles of broad interest to OCNS members. Contact us at newsletter@cnsorg.org.