Organization For Computational Neurosciences

@CNSOrg   @cns_ocns   @ocns9820   @OCNS

Message from the President

Thomas Nowotny, Professor of Informatics, University of Sussex, UK

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See pictures from CNS*2024 Natal here: **https://www.cnsorg.org/cns-2024-photo-album**.
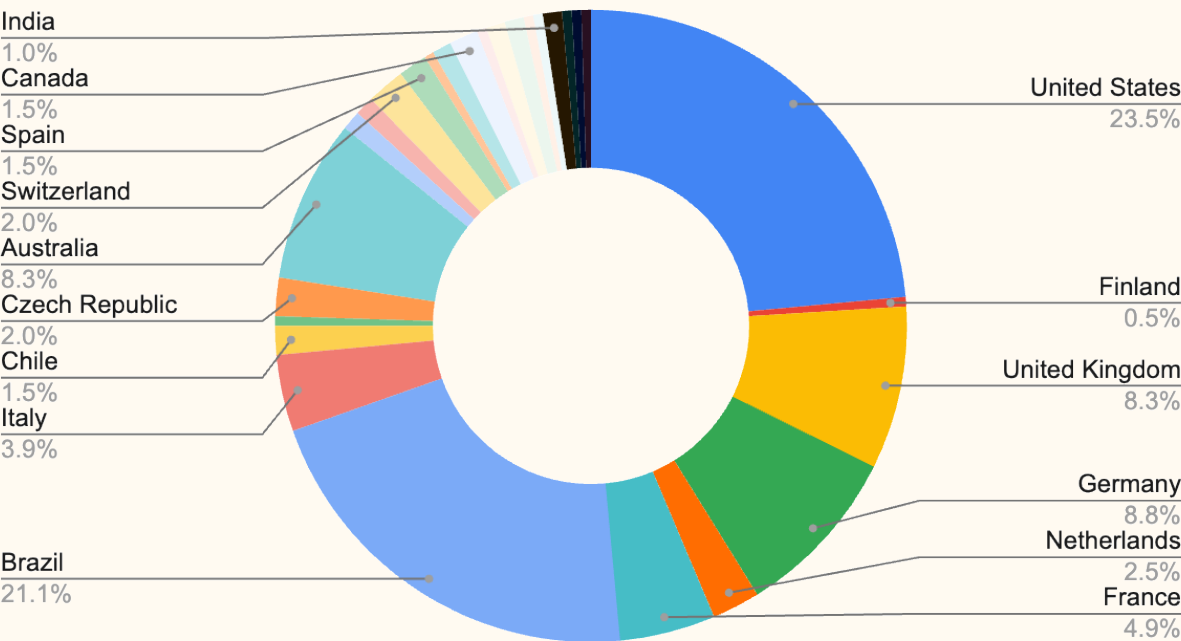
CNS*2024 Natal: From the Program Chair
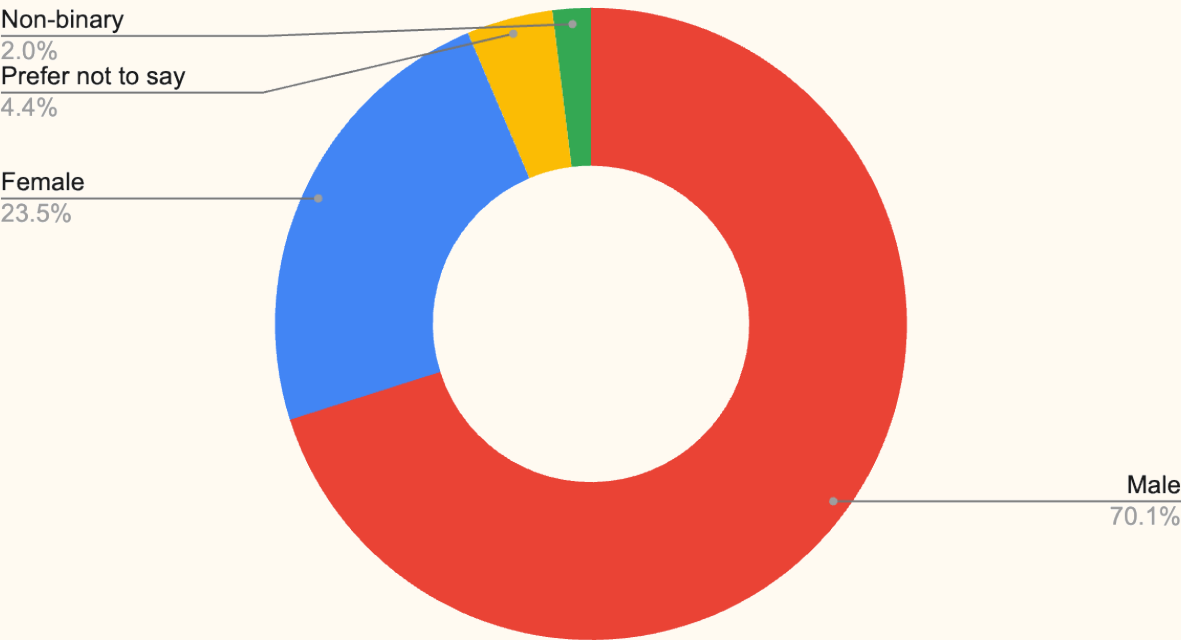
Program Chair: Julie Haas, Lehigh University, USA

Many thanks to Axel Hutt (Deputy Chair), Sang Wan Lee, Ian Stevenson and Nassi Papoutsi for their service on the Program Committee, and extend a warm welcome to Andre Peterson, Masanori Shimono, Yunliang Zang and Arezoo Alizadeh. We're currently working on selecting keynotes for CNS*2025 Florence, and look forward to a robust round of abstract reviewing in spring.

CNS*2024 Natal: in charts
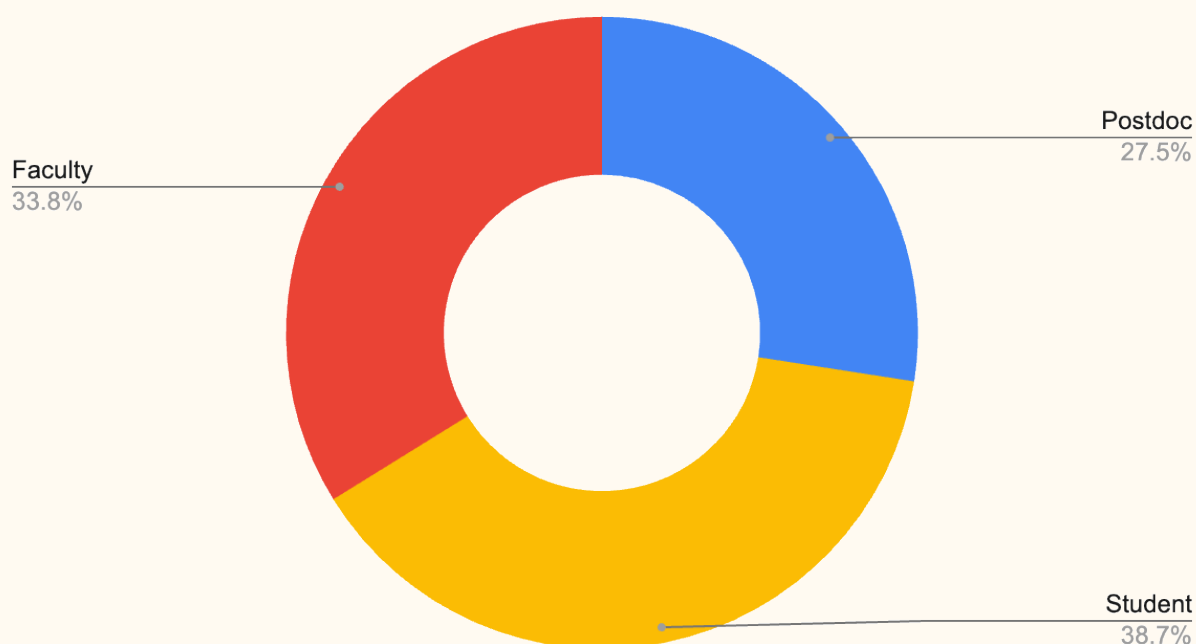
CNS 2024 - Distribution By Country

India 1.0%
Canada 1.5%
Spain 1.5%
Switzerland 2.0%
Australia 8.3%
Czech Republic 2.0%
Chile 1.5%
Italy 3.9%
Brazil 21.1%
United States 23.5%
Finland 0.5%
United Kingdom 8.3%
Germany 8.8%
Netherlands 2.5%
France 4.9%

CNS 2024 - Distribution By Gender

Non-binary 2.0%
Prefer not to say 4.4%
Female 23.5%
Male 70.1%

CNS*2024 Natal: in charts

CNS 2024 - Distribution By Category

Postdoc
27.5%

Faculty
33.8%

Student
38.7%

CNS 2024 - Distribution By OCNS Membership

Non-Member
37.3%

Member
62.7%
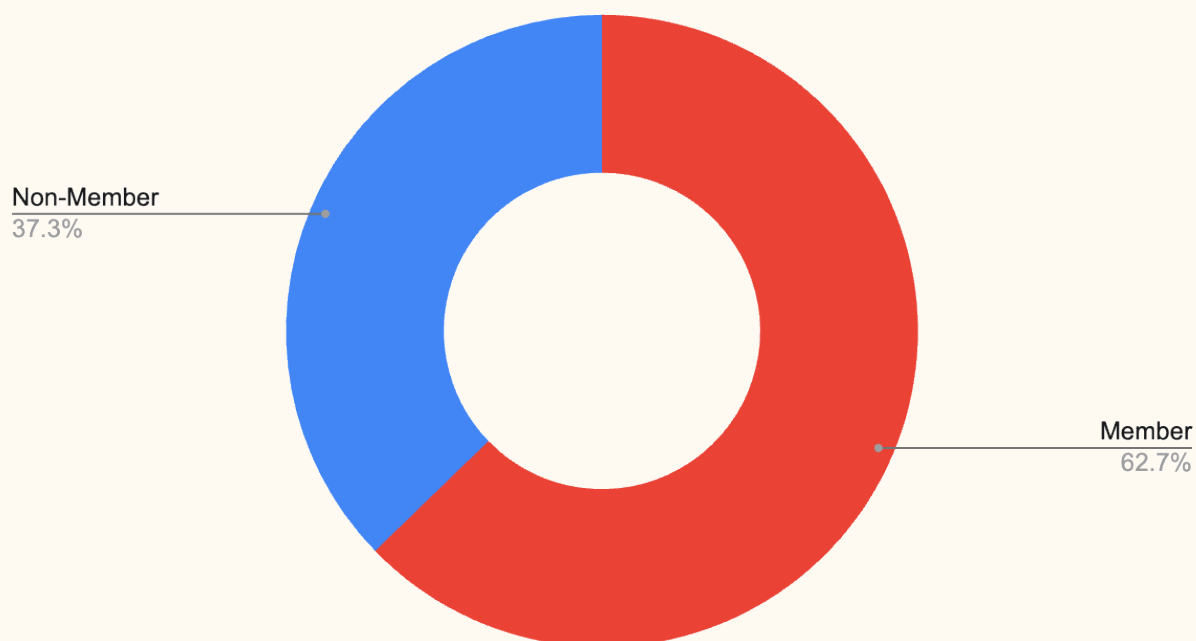
CNS*2024 Natal: Travel Awards

Travel Awards Chair: Michelle Moerel, Maastricht Centre for Systems Biology, Netherlands

A limited number of merit based travel awards, given based on review of summaries by the program committee, are available to presenting students and postdocs who are OCNS members. Women and members of other historically marginalized communities in Science, Technology, Engineering, and Mathematics are particularly encouraged to apply. Applications for travel grants are to be submitted during the abstract submission process at the annual OCNS conference.

This year's travel awards were competitive, with many more excellent applicants than available funds. We were pleased to award 19 travel grants to participants from all over the world:

- Flavio Rusch (Brazil)
- Cecilia Jarne (Argentina)
- Paolo Protachevicz (Brazil)
- Fernando Fagundes Ferreira (Brazil)
- Pamela Alejandra Illescas Maldonado (Chile)
- Lavinia Mitiko Takarabe (Brazil)
- Forough Habibollahi Saatlou (Australia)
- Fabio Pioggio (Italy)
- Richard Gast (USA)
- Alexandra Chatzikalymniou (USA)
- Ankur Sinha (UK)
- Christopher Earl (USA)
- Anaelle De Worm (Belgium)
- Ferdinand Tixidre (France)
- Camille Mazzara (Italy)
- Lindsay Stolting (USA)
- Elnaz Nemati (Australia)
- Dirk Goldschmitt (UK)
- Eleonora Bernasconi (UK)

Quotes from a few travel awardees:

Flavio Rusch (Brazil)

Attending CNS*2024 was an invaluable experience in my career as a physicist working in computational neuroscience. It provided me the opportunity to present my research to leading figures in the field, engage in discussions, and expand my network of collaborations. I am deeply grateful to OCNS for the travel award, as it made this opportunity possible.

CNS*2024 Natal: Feedback form Summary

Registrations Chair: Tatiana Kameneva, Swinburne University of Technology, Australia

We received 42 responses on the Participant Feedback Survey distributed at the end of CNS*2024. Overall, the feedback has been positive. The data is presented in Figure 1 above, with 5 being the highest rating.

Most people have enjoyed the venue: 71% gave 4 or 5 rating in this category (Figure 1 A). Attendees commented highly on the quality of the keynote speakers: 55% gave the highest (5) rating in this category (Figure 1 B). The common theme was a commendation to the local organizers for catering, efficiency, and airport pickup; while the AV, staff English proficiency, and the small space allocated for posters received mostly negative comments.

Tutorials had mixed reviews: 10% of the attendees submitted the rating less than average satisfaction (1 or 2), while most people, 42%, gave the rating 4 (Figure 1 C). No comments were provided.

The attendance at the workshops varied. Some workshops received very high praise; 80% of people gave ratings 4 or 5, with comments such as "very interesting topics", "amazing", "excellent session" (Figure 1 D). While other workshops left attendees dissatisfied, with suggestions to reduce the number of parallel sessions to boost the attendance.

Overall, 79% attendees enjoyed oral presentations and gave the ratings 4 or 5, while 21% rated the presentation as satisfactory (3) or below (2), Figure 1 E. Positive comments included "OCNS is superb in supporting young scientist's careers". Suggestions for improvements included more talks on data-driven, deep learning-based approaches. We thank everybody for their feedback that will be taken into account when organizing CNS*2025.
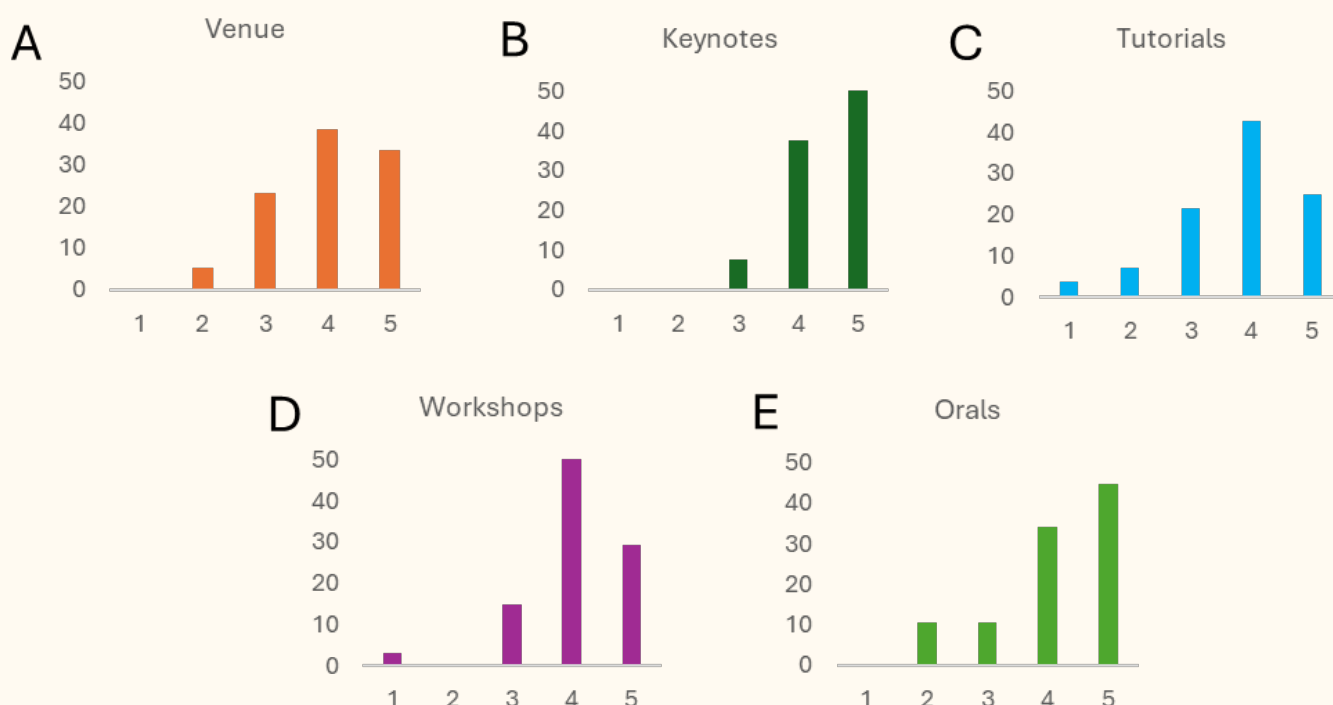

Figure 1: Summary of participant feedback, CNS*2024

CNS*2025: Firenze (Florence), Italy: July 5–9, 2025

Local Organizers: Michele Migliore, Institute of Biophysics, Palmero, Italy
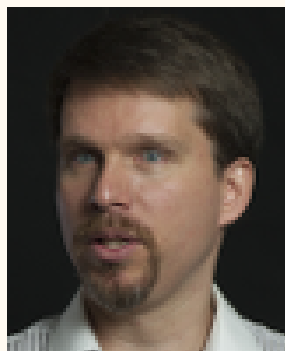**Sergio Solinas, University of Sassari, Sassari, Italy**

Florence: the cradle of the Renaissance

OCNS is excited to invite you to the

34th Annual Computational Neuroscience meeting

CNS*2025

in

Firenze (Florence), Italy from July 5–9, 2025.

Please mark your calendars!

OCNS conference proceedings

Publications Chair: Ingo Bojak, University of Reading, UK

Proceedings from the annual CNS conferences are published by the end of the year annually. Links to proceedings from previous conferences are below:

- **CNS*2023 Leipzig** (**Introduction**)
- **CNS*2022 Melbourne** (**Introduction**)

Proceedings from previous conferences are archived on the website here:

https://www.cnsorg.org/annual-meeting-publications.

Note from the Publisher

Spring Nature

Each year, Journal of Computational Neuroscience publishes a supplement including abstracts from the CNS annual meeting. In 2023, the CNS*2022 abstracts supplement was published in January. Changes in the supplement publishing process and our oversight in timely communicating the same to OCNS have regrettably delayed publication of the abstracts from CNS*2023. Proofs of this 2024 supplement are now being finalized. Please accept our sincere apologies for the delay. Springer Nature values the relationship between the Organization for Computational Neurosciences and Journal of Computational Neuroscience. We look forward to the timely publication of future CNS supplements.

OCNS Board: New arrivals and members rotating off

The current board of directors consists of 23 elected and ex officio members. According to the **OCNS Bylaws**, **elections** are held to replace three or four outgoing directors each year. The board elects its officers. The duties carried out by members of the board can be seen **here**.

Terms for a number of Board members were renewed this year:

- Thomas Nowotny (President)
- Leonid Rubchinksy (Vice president)
- Gennady Cymbalyuk (Treasurer)

The following members have completed their terms and will rotate off at the end of 2024. OCNS thanks them for their service:

- Cengiz Gunay (Newsletter chair)
- Maurizio de Pitta (Tutorials chair)
- Christoph Metzner (Membership chair)
- Srikanth Ramaswamy (Workshops chair)

A number of new Board members were elected in the 2023 Elections, or have moved to new roles within the Board:

- Shailesh Appukuttan (Publications chair)
- Michelle Moerel (Travel awards chair)
- Ankur Sinha (Newsletter chair)
- Robert McDougal (Webmaster)
- Rodrigo de Oliveira Pena (Membership chair)
- Anathanasia Papoutsi (Workshops chair)
- Kersink Lenk (Social media chair)
- Eirini Mavritsaki (EDI chair: new position)

OCNS Board: Elections: Nominations are open!

The nomination period for self-nominations for the election of new members of the **OCNS Board of Directors** is now open. New Directors will serve a three-year term from January 2025 through December 2027 and will initially fill the following roles:

- Registration Chair
- Sponsorship Chair

New Directors will act as Deputy Chairs in their roles by shadowing the current Chairs for a year, and then will take over when the current Chairs finish their terms. Candidates need to be current OCNS members and are required to have been OCNS members for at least a year or to attend an on-site CNS conference in the past. More information about the new Directors' election can be found at:

https://www.cnsorg.org/election-procedures

We strongly encourage OCNS members to consider self-nomination for these elections.

> **OCNS is committed to have a wide diversity among its Directors—across research areas, gender, abilities, career experiences, geographic locations, and personal backgrounds. This is possible only if a broad range of members apply. This year we are looking to appoint at least one student/postdoc Board Member. The OCNS strives to be a diverse group and encourages a balanced and inclusive representation of women in leadership positions within the organization.**

Please contact our EDI Chair Eirini Mavritsaki (**eirini.mavritsaki@bcu.ac.uk**) if you wish to have a short informational meeting about joining the board.

To apply, please use the form:

https://www.cnsorg.org/board-nomination-2024

The deadline for application is October 16, 2024.

OCNS Membership

The OCNS membership consists of:

Member type	2024	2023	2022	2021	2020
Student	**139**	185	182	212	266
Post-doc/not-for-profit employee	**93**	135	118	141	155
Faculty/for-profit emplyoee	**179**	215	209	217	189
Total	**401**	535	509	570	610

Membership type definitions:

- **Student:** Anybody studying toward an undergraduate or graduate degree.
- **Postdoc/not-for-profit employee:** Anybody who is employed as a postdoctoral scholar or postdoctoral fellow, and anybody who is employed in a university lab or non-industry research institute as a technician or research assistant not seeking a degree.
- **Faculty/for-profit employee:** Anybody who is employed as faculty, laboratory head, independent researcher, or in an equivalent position, and anybody who is employed in industry or for-profit institutions
- Retired persons should apply for or remain in their pre-retirement category.

Membership Benefits

OCNS members enjoy a number of rights and **benefits**:

- Reduced conference registration fees
- Eligibility for travel awards
- Nomination and voting rights for OCNS director elections
- Special Interest Groups (SIGs)
- Computational neuroscience schools
- Submission of extra abstract to the conference
- Free access to Springer encyclopedia
- Reduced journal subscription fees
- Book discounts

Membership Renewal

To **renew** your OCNS membership, please login at **www.cnsorg.org** to pay your OCNS dues. Please note that renewing with a multiple year membership will reduce your costs:

Member type	One year	Two years	Three years
Student	10 USD	15 USD	20 USD
Post-doc/not-for-profit employee	20 USD	30 USD	40 USD
Faculty/for-profit emplyoee	50 USD	75 USD	100 USD

Please contact the Membership Chair at **membership@cnsorg.org** before you pay your dues if:

- You are uncertain which category is appropriate for you.
- Your employment status has changed.
- *If you believe that special circumstances prohibit you from paying the full dues.*

Initiatives: Software Working Group

Co-chairs: Marcel Stimberg, Sorbonne Universite, Paris, France
Ankur Sinha, University College London, UK

The Software Working Group aims to increase awareness and knowledge of the various software tools that we use to carry out our research. The group is an open community group that everyone is welcome to join. It is shared between the OCNS and the **International Neuroinformatics Co-ordinating Facility (INCF)**, of which OCNS is a member organization.

In the past year, the group has continued to host sessions on different neuroscience software. Recordings from these sessions can be found on the **INCF YouTube channel**, and also on the **INCF Training Space**. Working group announcements are published on our **website**.

If there are software tools/standards that you think are useful for the community to know and learn about, please contact either of the working group co-chairs to let us know (**marcel.stimberg@sorbonne-universite.fr**, **ankur.sinha@ucl.ac.uk**). We will reach out to the developers of the software to organize a session on it.

The working group also sets up task forces to work on specific projects. Currently, a task force is working on developing a simple web based tool to help community members decide what simulation tool they should use. A working title for this tool is **Simselect**. If you would like to get involved in this task force, please let us know.

Initiatives: Mentoring Program Updates

EDI Chair: Eirini Mavristaki, Birmingham City University, UK

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Messages from our Sponsors

Metacell

Thank you to OCNS for hosting an excellent annual meeting, and to everyone who connected with MetaCell, attended our presentation and joined our event. It was great catching up with friends and partners in Natal, and we were proud sponsors of the meeting!

If you're interested in new ways to standardize, visualize, share, and build your computational models, please visit **metacell.us** and get in touch with our team.

Please contact the Sponsorship Chair at **sponsorship@cnsorg.org**
for information on sponsoring OCNS.

INCF Updates

Helena/Matthew

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OCNS: Member Updates: Scientific Items

Updates of scientific interest from OCNS members

The name of the OCNS member that submitted the entry is highlighted in **bold**.

[1] **Thanos Manos**, Sandra Diaz-Pier, Igor Fortel, Ira Driscoll, Liang Zhan, and Alex Leow. "Enhanced simulations of whole-brain dynamics using hybrid resting-state structural connectomes". In: *Frontiers in Computational Neuroscience* 17 (2023). ISSN: 1662-5188. DOI: **10.3389/fncom.2023.1295395**. URL: **https://www.frontiersin.org/journals/computational-neuroscience/articles/10.3389/fncom.2023.1295395**.

[2] Pake Melland and **Rodica Curtu**. "Attractor-Like Dynamics Extracted from Human Electrocorticographic Recordings Underlie Computational Principles of Auditory Bistable Perception". In: *Journal of Neuroscience* 43.18 (2023), pp. 3294–3311. ISSN: 0270-6474. DOI: **10.1523/JNEUROSCI.1531-22.2023**. eprint: **https://www.jneurosci.org/content/43/18/3294.full.pdf**. URL: **https://www.jneurosci.org/content/43/18/3294**.

[3] Juliette Courson, Mathias Quoy, Yulia Timofeeva, and **Thanos Manos**. "An exploratory computational analysis in mice brain networks of widespread epileptic seizure onset locations along with potential strategies for effective intervention and propagation control". In: *Frontiers in Computational Neuroscience* 18 (2024). ISSN: 1662-5188. DOI: **10.3389/fncom.2024.1360009**. URL: **https://www.frontiersin.org/journals/computational-neuroscience/articles/10.3389/fncom.2024.1360009**.

[4] Benjamin Ellenberger, Paul Haider, Jakob Jordan, Kevin Max, Ismael Jaras, Laura Kriener, Federico Benitez, and **Mihai A. Petrovici**. "Backpropagation through space, time, and the brain". In: *arXiv preprint arXiv:2403.16933* (2024). URL: **https://doi.org/10.48550/arXiv.2403.16933**.

[5] **Max Garagnani**. "On the ability of standard and brain-constrained deep neural networks to support cognitive superposition: a position paper". In: *Cognitive Neurodynamics* (2024). ISSN: 1871-4099. DOI: **10.1007/s11571-023-10061-1**. URL: **https://doi.org/10.1007/s11571-023-10061-1**.

[6] Frank Gelens, Juho Äijälä, Louis Roberts, Misako Komatsu, Cem Uran, Michael A. Jensen, Kai J. Miller, Robin A. A. Ince, **Max Garagnani**, Martin Vinck, and Andres Canales-Johnson. "Distributed representations of prediction error signals across the cortical hierarchy are synergistic". In: *Nature Communications* 15.1 (2024), p. 3941. ISSN: 2041-1723. DOI: **10.1038/s41467-024-48329-7**. URL: **https://doi.org/10.1038/s41467-024-48329-7**.

[7] Kevin Max, Laura Kriener, Garibaldi Pineda García, Thomas Nowotny, Ismael Jaras, Walter Senn, and **Mihai A. Petrovici**. "Learning efficient backprojections across cortical hierarchies in real time". In: *Nature Machine Intelligence* (2024), pp. 1–12. URL: **https://doi.org/10.1038/s42256-024-00845-3**.

[8] **Aitor Morales-Gregorio**, Anno C. Kurth, Junji Ito, Alexander Kleinjohann, Frédéric V. Barthélemy, Thomas Brochier, Sonja Grün, and Sacha J. van Albada. "Neural manifolds in V1 change with top-down signals from V4 targeting the foveal region". In: *Cell Reports* 43.7 (2024), p. 114371. ISSN: 2211-1247. DOI: **https://doi.org/10.1016/j.celrep.2024.114371**. URL: **https://www.sciencedirect.com/science/article/pii/S2211124724006995**.

[9] Coleman E. Olenick, Heather Jordan, and **Mazyar Fallah**. "Identifying a distractor produces object-based inhibition in an allocentric reference frame for saccade planning". en. In: *Scientific Reports* 14.1 (July 2024). Publisher: Nature Publishing Group, p. 17534. ISSN: 2045-2322. DOI: **10.1038/s41598-024-68734-8**. URL: **https://www.nature.com/articles/s41598-024-68734-8** (visited on 09/26/2024).

[10] Sue L. Rhamidda, **Mauricio Girardi-Schappo**, and Osame Kinouchi. "Optimal input reverberation and homeostatic self-organization toward the edge of synchronization". In: *Chaos: An Interdisciplinary Journal of Nonlinear Science* 34.5 (May 2024). ISSN: 1089-7682. DOI: **10.1063/5.0202743**.

[11] **Ankur Sinha**, Padraig Gleeson, Bóris Marin, Salvador Dura-Bernal, Sotirios Panagiotou, Sharon Crook, Matteo Cantarelli, Robert C. Cannon, Andrew P. Davison, Harsha Gurnani, and R. Angus Silver. "The NeuroML ecosystem for standardized multi-scale modeling in neuroscience". In: *eLife* (May 2024). DOI: **10.7554/elife.95135.1**. URL: **http://dx.doi.org/10.7554/eLife.95135.1**.

[12] Jiayun Xu, **Mauricio Girardi-Schappo**, Jean-Claude Béïque, André Longtin, and Leonard Maler. "Shortcutting from self-motion signals: quantifying trajectories and active sensing in an open maze". In: (2024). DOI: **10.7554/elife.95764.2**. URL: **http://dx.doi.org/10.7554/eLife.95764.2**.

OCNS: Member Updates: Community Development

Updates related to community development from OCNS members

- **The Capo Caccia Worskhops toward Neuromorphic Intelligence**

  Submitted by: Mihai A Petrovici

  https://capocaccia.cc/en/event/ccnw24/landing-page/

  The goal of the CCNW workshops is to promote the neuromorphic approach to designing technologies, establish an international community, and to encourage collaboration amongst small groups, in order to achieve the kind of technical advances which could only otherwise happen in well-funded industrial labs.

  The CCNW has an open format, whose intention is to encourage creativity and exploration of ideas and projects in a relaxed and intellectually open environment. Although there is a skeleton program that sets a default route through the two weeks, ad hoc deviations from or elaborations of this basic program are encouraged. Discussion groups and projects arise dynamically. There are no formal lectures. Instead, the morning consist of two 1.5 hr discussion sessions in which a few discussants will make short contributions to the topics in order to ignite more general interaction. Although the sessions of the skeleton program have assigned moderators and discussants, these persons should also be seen as defaults. Whiteboards and overhead tablets are available for drawings. Formal presentations with prepared media (such as Powerpoint slides) are strictly forbidden. The daily program includes a late afternoon sports break, and happy hour.

- **The Lu.i educational neurons**

  Submitted by: Mihai A Petrovici

  https://physiologie.unibe.ch/~petrovici/group/lui.aspx

  With an increasing presence of science throughout all parts of society, there is a rising expectation for researchers to effectively communicate their work and, equally, for teachers to discuss contemporary findings in their classrooms. While the community can resort to an established set of teaching aids for the fundamental concepts of most natural sciences, there is a need for similarly illustrative experiments and demonstrators in neuroscience. We therefore introduce Lu.i: a parametrizable electronic implementation of the leaky-integrate-and-fire neuron model in an engaging form factor. These palm-sized neurons can be used to visualize and experience the dynamics of individual cells and small spiking neural networks. When stimulated with real or simulated sensory input, Lu.i demonstrates brain-inspired information processing in the hands of a student. As such, it is actively used at workshops, in classrooms, and for science communication. As a versatile tool for teaching and outreach, Lu.i nurtures the comprehension of neuroscience research and neuromorphic engineering among future generations of scientists and in the general public.

- **Neuroscience Gateway (NSG)**

  Submitted by: Amitava Majumdar

  https://www.nsgportal.org

  NSG project provides free and open access to supercomputing resources. NSG enables modeling, simulation and data processing (e.g. EEG, MEG, fMRI etc.) research in neuroscience by lowering the administrative and technical barriers that currently make it difficult for investigators to use large scale computing resources. It provides access to popular neuroscience tools, pipelines, data processing software and libraries.