

Unit Name

Computational Neuroscience Unit

Collaborations

Term 1 2024 - Ongoing

Professor H.P. Thier, Akshay Markanday, Junya Inoue, University of Tübingen, Germany, Spiking activity of monkey cerebellar neurons

Prof. Dr. Silvio O. Rizzoli and Dr. Svilen V., Medical University Göttingen, Germany, Quantitative molecular identification of hippocampal synapses

Professor M. Häusser, Professor A. Roth, Dr. S. Dieudonné, Taro Yasuhi, Ecole Normale Supérieure, Paris, France, United Kingdom, France, Purkinje cell morphology and physiology, modeling

Prof. F. Schürmann, Dr. G. Castiglioni and Dr. A. Cattabiani,, École Polytechnique Fédérale de Lausanne, Switzerland, Human Brain Project: simulator development

Prof Christian Hansel, University of Chicago, USA, Diversity of Purkinje cell morphologies in humans: phylogenetic origin and functional implications'

Professor J. Myung, Taipei Medical University, Taiwan, Circadian rhythm generation

Professor C. De Zeeuw, Professor L.W.J. Bosman and Dr. M. Negrello, Erasmus Medical Center, The Netherlands, Cerebellar anatomy and physiology

Research Personnel

Jan 2024 - Jan2025	Yifei Ma, Research Unit Technician
May 2019 - Present	Gabriela Cirtala, Postdoctoral Scholar
May 2009 - Present	Weiliang Chen, Staff Scientist
Sep 2023 - Present	YinYun Li, Postdoctoral Scholar
May 2008 - Present	Iain Hepburn, Research Unit Technician
Sep 2019 - Present	Jules Lallouette, Postdoctoral Scholar
May 2018 - Present	Chie Narai, RUA

Mentorship / Supervision

Sep 2024 - Present	Host (RI, SRS, VRS, VS), Sara Milosevska, Research Intern
May 2024 - Dec 2024	Host (RI, SRS, VRS, VS), Michelle Gonzalez, Research Intern
Sep 2023 - Apr 2024	Host (RI, SRS, VRS, VS), Margaux Fabienne Marie-Lou Asclipe, Research Intern
May 2023 - Present	Mentor, Kota Shirahata, OIST Student Thesis Supervisor, Juliana Silva, OIST Student
Jan 2023 - Present	Mentor, Terezie Sedlinska, OIST Student
Sep 2022 - Present	Thesis Supervisor, Ryo Nakatani, OIST Student
Jan 2022 - Present	Mentor, David Pere Tomas, OIST Student

Sep 2019 - Present Mentor, Roman Koshkin, OIST Student
Sep 2017 - Aug 2024 Mentor, Prasanna Vijayaraghavan, OIST Student
Jan 2017 - Apr 2024 Third Committee Member, Sergey Zobnin, OIST Student

Scholarly Contributions and Creative Productions

Journal Article

Completed/Published

Liu, Z.; De Schutter, E.; Li, Y. GABA-Induced Seizure-Like Events Caused by Multi-Ionic Interactive Dynamics. *eNeuro* **2024**, *11*.

Cirtala, G.; De Schutter, E. Branch-Specific Clustered Parallel Fiber Input Controls Dendritic Computation in Purkinje Cells. *iScience* **2024**, *27*.

Hepburn, I.; Lallouette, J.; Chen, W.; Gallimore, A.; Nagasawa-Soeda, S.; De Schutter, E. Vesicle and Reaction-Diffusion Hybrid Modeling with STEPS. *Communications Biology* **2024**, *7*.

Presentation at Conference

Completed/Published

De Schutter, E. Active Enhancement of Synapse Driven Depolarization of Perisynaptic Astrocytic Processes. *Linking brain structure & function at the nanoscale: an interdisciplinary workshop* **2024**.

De Schutter, E. Active Enhancement of Synapse Driven Depolarization of Perisynaptic Astrocytic Processes. *TSVP Symposium: Neuromodulation of Adaptive Learning* **2024**.

Seminars

Completed/Published

De Schutter, E. Branch Specific Dendritic Spikes and Inhibition in the Purkinje Cell **2024**.

Scholarly Contributions (Unit Members)

Term 3 2024

Ryo Nakatani, Presentation at Conference, Elucidating mechanisms of astrocytic depolarization, Neuro2024 Conference, Completed/Published

Gabriela Cirtala, Presentation at Conference, Somatic pauses in response to SK2 modulation and feed-forward inhibition in a Purkinje cell model with heterogeneous ion channels, Neuro2024 Conference, Completed/Published

Ryo Nakatani, Presentation at Conference, Elucidating mechanisms of astrocytic depolarization, IAS workshop, Completed/Published

Gabriela Cirtala, Poster Presentation at Conference, Branch-specific heterogeneous ion channel density Purkinje cell model with SK2 modulation and feed-forward inhibition, Dendrites2024 Conference: Principles of dendritic function and computation, Completed/Published

Juliana Silva de Deus, Poster Presentation at Conference, Two-dimensional adaptive control of saccades by cerebellar Purkinje cells, FENS Forum, Completed/Published

Juliana Silva de Deus, Poster Presentation at Conference, Cerebellar neural manifold in the adaptive control of 2D saccadic eye movements, Neuro 2024, Completed/Published

Term 1 2024

Yinyun Li, Poster Presentation at Conference, Modulation of synchronous and asynchronous vesicle release with different calcium sensors, ICCN2024 Hong Kong, Completed/Published

Ryo Nakatani, Poster Presentation at Conference, Elucidating mechanisms of astrocytic depolarization, SfN Neuroscience2024, Completed/Published