

Ankur Sinha

GENERAL INFORMATION

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Nationality: Indian.

Research Fellow at the [Silver Lab](#),
University College London,
London, United Kingdom.

EXPERIENCE

RESEARCH

- March 2020–: Research Fellow at the [Silver Lab](#) at University College London, London.
- March 2020–: core member of the [NeuroML](#) and [Open Source Brain](#) development teams.
 - 2022–2025: elected member of NeuroML editorial board.
- 2020–: Co-chair of the [INCF/OCNS Software Working Group](#).
- 2020: Member of the Organising Committee for [CNS 2020 Online](#).
- 2019–2021: on the Board of Directors of the [Organization for Computational Neuroscience](#) as the OCNS webmaster.
- 2018–: core team member of the [NeuroFedora](#) initiative.

SERVICE AND VOLUNTEERING

- 2022–: SilverLab weekly meeting and journal club organiser.
- 2008–: volunteer at the Free and Open Source Software [Fedora Linux project](#):
 - [software package maintainer](#); also [sponsor](#) to the package maintainers team, “[proven packager](#)” with permissions to aid other package maintainers with their tasks.
 - member of [Join Special Interest Group](#), focussed on on-boarding of new community members.
 - 2021–2022: [Outreachy](#) mentor for NeuroFedora packaging project.
 - 2020, 2021: Fedora track reviewer for [Devconf.cz](#).

TEACHING

- January 2015–September 2020: visiting lecturer at the School of Physics, Engineering, and Computer Science, University of Hertfordshire.
 - Lecturing/Tutorials/Practicals/Lab work/Grading: Artificial Intelligence, Machine Learning, Databases, Contemporary issues, Algorithms and data structures.
 - Project supervision: on-campus and online undergraduate, post-graduate projects.

INDUSTRY

- June 2011–June 2012: Business Technology Analyst (BTA) at Deloitte Consulting India Pvt. Limited.
- 2011: [Google Summer of Code](#): granted stipend by Google to work on the [Fedora Medical](#) project.

EDUCATION

OCTOBER 2014–2020

- Doctor of Philosophy (PhD):
 - Structural plasticity and associative memory in balanced neural networks with spike time dependent inhibitory plasticity: computational modelling of homeostatic structural plasticity and homeostatic inhibitory synaptic plasticity to investigate mechanisms underlying the restoration of activity to deafferented neurons, and the effects of network rewiring on associative memories stored in the network.
 - Supervisors: [Professor Volker Steuber](#) (primary), Dr Christoph Metzner, Professor Roderick Adams, Dr Neil Davey, Professor Michael Schmuker.
 - Examiners: [Professor Thomas Nowotny](#) (external); Dr Reinoud Maex (internal)
 - [UH Biocomputation group](#), School of Physics, Engineering, and Computer Science, University of Hertfordshire, Hatfield, UK.
 - Funded by a PhD scholarship provided by the University of Hertfordshire.

JULY 2012–JUNE 2014:

- Master of Engineering (research) (ME):
 - Biomimetic navigation in robots: computational modelling of head direction and grid cells for use in navigation of robots running the [ROS](#) platform.
 - Supervisor: [Dr Jack Wang](#).
 - Faculty of Engineering and Information Technology (FEIT), University of Technology, Sydney.

JULY 2007–JUNE 2011:

- Bachelor of Engineering (BE) (GPA: 8.67):
 - Computer Science & Engineering.
 - Manipal University, India

RESEARCH

PROFILE

- Interests: structural, synaptic, homeostatic plasticity; excitatory-inhibitory balance; associative memory, cerebellar processing; tools, software, and, standardisation for neuroscience research.

JOURNAL PAPERS

- **Ankur Sinha**, Christoph Metzner, Neil Davey, Roderick Adams, Michael Schmuker, and Volker Steuber. "Growth rules for the repair of Asynchronous Irregular neuronal networks after peripheral lesions". In: *PLOS Computational Biology* 17.6 (June 2021), pp. 1–35. DOI: [10.1371/journal.pcbi.1008996](https://doi.org/10.1371/journal.pcbi.1008996). URL: <https://doi.org/10.1371/journal.pcbi.1008996>
- Bilal Shaikh, Lucian P Smith, Dan Vasilescu, Gnaneswara Marupilla, Michael Wilson, Eran Agmon, Henry Agnew, Steven S Andrews, Azraf Anwar, Moritz E Beber, Frank T Bergmann, David Brooks, Lutz Brusch, Laurence Calzone, Kiri Choi, et al. "BioSimulators: a central registry of simulation engines and services for recommending specific tools". In: *Nucleic Acids Research* (May 2022). DOI: [10.1093/nar/gkac331](https://doi.org/10.1093/nar/gkac331)

ACCEPTED ORAL PRESENTATIONS

- **CNS 2021: Software showcase: CompNeuroFedora - a community-developed Free/Open Source Operating System for computational neuroscience.**
- **University of Hertfordshire Engineering and Computer Science Conference, 2019: Ankur Sinha.** *Investigating activity dependent dynamics of synaptic structures using biologically plausible models of post-deafferentation network repair.* Apr. 17, 2019. DOI: 10.18745/PB.21692. URL: <https://uhra.herts.ac.uk/handle/2299/21692>

CONFERENCE POSTERS

- **CNS 2021: Ankur Sinha,** Matteo Cantarelli, Salvador Dura-Bernal, Filippo Ledda, Zoran Sinnema, Angus Silver, and Pdraig Gleeson. "Open Source Brain v2.0: Closing the loop between experimental neuroscience data and computational models". In: *JOURNAL OF COMPUTATIONAL NEUROSCIENCE* 49.SUPPL 1, 1, SI (Dec. 2021), S75–S76. ISSN: 0929-5313
- **Neuroinformatics 2021: Ankur Sinha,** Shailesh Appukuttan, Stewart Heitmann, Caglar Cakan, Nikola Jajcay, Christoph Metzner, Felix B. Kern, Zohreh Vaziri, Amelie Aussel, Brent Huisman, Malin Sandström, Daniele Avitabile, Thomas Nowotny, James Knight, Charl Linssen, Andrew P. Davison, Shavika Rastogi, and Marcel Stimberg. "INCF/OCNS Software Working Group". In: *Proceedings of INCF Neuroinformatics, 2021* (2021). URL: <https://neuroinformatics.incf.org/node/269>
- **Neuroinformatics 2021: Ankur Sinha,** Aniket Pradhan, Sergio Pascual, Antonio Trande, Alessio Ciregia, Josh Santos, Alberto Rodríguez Sánchez, Luis Bazan, Igor Raits, Christian Kellner, Morgan Hough, Zbigniew Jędrzejewski-Szmek, and Iztok Fister Jr. "NeuroFedora: a ready to use Free/Open Source platform for Neuroscientists". In: *Proceedings of INCF Neuroinformatics, 2021* (2021). URL: <https://neuroinformatics.incf.org/node/268>
- **CNS 2020: Ankur Sinha,** Aniket Pradhan, Qianqian Fang, Danny Lee, Danishka Navin, Alberto Rodriguez Sanchez, Luis Bazan, Luis M. Segundo, Alessio Ciregia, Zbigniew Jędrzejewski-Szmek, Sergio Pascual, Antonio Trande, Victor Manuel Tejada Yau, and Morgan Hough. "Comp-NeuroFedora, a Free/Open Source operating system for computational neuroscience: download, install, research". English. In: *BMC Neuroscience* 21 (2020). ISSN: 1471-2202. URL: <https://labs.fedoraproject.org/comp-neuro>
- **CNS 2020: Ankur Sinha,** Christoph Metzner, Roderick Adams, Neil Davey, Michael Schmuker, and Volker Steuber. "Associative memory performance in peripherally-lesioned networks repaired by homeostatic structural plasticity". English. In: *BMC Neuroscience* 21 (Dec. 2020). 29th Annual Computational Neuroscience Meeting: CNS*2020 ; Conference date: 18-07-2020 Through 22-07-2020. ISSN: 1471-2202. DOI: 10.1186/s12868-020-00593-1
- **CNS 2019: Ankur Sinha,** Luis Bazan, Luis M. Segundo, Zbigniew Jędrzejewski-Szmek, Christian J. Kellner, Sergio Pascual, Antonio Trande, Manas Mangaonkar, Tereza Hlaváčková, Morgan Hough, Ilya Gradina, and Igor Gnatenko. "NeuroFedora: a ready to use Free/Open Source platform for Neuroscientists". In: *BMC Neuroscience* 20 (2019). ISSN: 1471-2202. URL: <https://neuro.fedoraproject.org>
- **CNS 2019: Ankur Sinha,** Christoph Metzner, Neil Davey, Roderick Adams, Michael Schmuker, and Volker Steuber. "Growth rules for repair of asynchronous irregular network models following peripheral lesions". In: *BMC Neuroscience* 20 (2019). ISSN: 1471-2202

- **CNS 2018:** **Ankur Sinha**, Christoph Metzner, Roderick Adams, Neil Davey, Michael Schmuker, and Volker Steuber. "The combined effect of homeostatic structural and inhibitory synaptic plasticity during the repair of balanced networks following deafferentation". In: *BMC Neuroscience* 19.2 (2018), pp. 129–130. ISSN: 1471-2202. DOI: [10.1186/s12868-018-0451-y](https://doi.org/10.1186/s12868-018-0451-y)
- **CNS 2017:** **Ankur Sinha**, C. Metzner, R. Adams, M. Schmuker, N. Davey, and V. Steuber. "The effect of homeostatic structural plasticity on associative memory in a network with spike-time dependent inhibitory synaptic plasticity." In: *BMC Neuroscience*, 18(Suppl.1). 2017. DOI: [10.1186/s12868-017-0370-3](https://doi.org/10.1186/s12868-017-0370-3)
- **CNS 2015:** **Ankur Sinha**, Neil Davey, Rod Adams, and Volker Steuber. "Structural plasticity and associative memory in balanced neural networks with spike-time dependent inhibitory plasticity". In: *BMC Neuroscience* 16.1 (2015), p. 1. URL: <http://www.biomedcentral.com/1471-2202/16/S1/P235>

CONFERENCE PAPERS

- **Ankur Sinha** and Jack Wang. "An implementation of the path integrator mechanism of head direction cells for bio-mimetic navigation". In: *2014 International Joint Conference on Neural Networks (IJCNN)*,. Ieee, 2014, pp. 1984–1991
- **Ankur Sinha** and Jack Jianguo Wang. "Bio-mimetic Path Integration Using a Self Organizing Population of Grid Cells". In: *Artificial Neural Networks and Machine Learning–ICANN 2014*. Springer, 2014, p. 675

PEER-REVIEW ACTIVITY

- 2021–: reviewer at [Frontiers](#) (2 reviews)

CONTRIBUTIONS TO SCIENTIFIC SOFTWARE

- Padraig Gleeson, **Ankur Sinha**, Richard C. Gerkin, Rokas Stanislovas, David Lung, Boris Marin, Chaitanya Chintaluri, Mark Watts, 34383c, András Ecker, and Johannes Rieke. *NeuroML/pyNeuroML: v0.5.20*. Version v0.5.20. Dec. 2021. DOI: [10.5281/zenodo.5788658](https://doi.org/10.5281/zenodo.5788658). URL: <https://doi.org/10.5281/zenodo.5788658>
- Padraig Gleeson, Mike Vella, **Ankur Sinha**, Chris Barnes, Michele Mattioni, Andrew Davison, Lev E. Givon, BK, Gregory Jefferis, Marcel Stimberg, Sho Iizuka, Stephan Gerhard, and Kapil kumar. *NeuralEnsemble/libNeuroML: Release v0.3.1*. Version v0.3.1. Dec. 2021. DOI: [10.5281/zenodo.5788625](https://doi.org/10.5281/zenodo.5788625). URL: <https://doi.org/10.5281/zenodo.5788625>
- Padraig Gleeson, Robert Cannon, Matteo Cantarelli, **Ankur Sinha**, Hugh Osborne, Adrian Quintana, Boris Marin, and Finn Krewer. *LEMS/jLEMS: v0.10.6*. Version v0.10.6. Dec. 2021. DOI: [10.5281/zenodo.5788680](https://doi.org/10.5281/zenodo.5788680). URL: <https://doi.org/10.5281/zenodo.5788680>
- Padraig Gleeson, **Ankur Sinha**, Russell Jarvis, Finn Krewer, Adrian Quintana, Boris Marin, Eugenio Piasini, Kapil kumar, Dilawar Singh, Giovanni Idili, and Werner Van Geit. *NeuroML/jNeuroML: v0.11.1*. Version v0.11.1. Dec. 2021. DOI: [10.5281/zenodo.5788691](https://doi.org/10.5281/zenodo.5788691). URL: <https://doi.org/10.5281/zenodo.5788691>
- Padraig Gleeson, Robert Cannon, and **Ankur Sinha**. *LEMS/LEMS: v0.7.6*. Version v0.7.6. Dec. 2021. DOI: [10.5281/zenodo.5788686](https://doi.org/10.5281/zenodo.5788686). URL: <https://doi.org/10.5281/zenodo.5788686>

- Padraig Gleeson, Matteo Cantarelli, Boris Marin, **Ankur Sinha**, Matt Earnshaw, Adrian Quintana, and Eugenio Piasini. *NeuroML/org.neuroml.model: v1.8.1*. Version v1.8.1. Dec. 2021. DOI: [10.5281/zenodo.5788683](https://doi.org/10.5281/zenodo.5788683). URL: <https://doi.org/10.5281/zenodo.5788683>
- Padraig Gleeson, **Ankur Sinha**, and Matteo Cantarelli. *NeuroML/org.neuroml.model.injectingplugin: v1.8.1*. Version v1.8.1. Dec. 2021. DOI: [10.5281/zenodo.5788681](https://doi.org/10.5281/zenodo.5788681). URL: <https://doi.org/10.5281/zenodo.5788681>
- Padraig Gleeson, **Ankur Sinha**, Matteo Cantarelli, Adrian Quintana, and Boris Marin. *NeuroML/org.neuroml.import: v1.8.1*. Version v1.8.1. Dec. 2021. DOI: [10.5281/zenodo.5788684](https://doi.org/10.5281/zenodo.5788684). URL: <https://doi.org/10.5281/zenodo.5788684>
- Padraig Gleeson, **Ankur Sinha**, and Matteo Cantarelli. *NeuroML/org.neuroml1.model: v1.8.1*. Version v1.8.1. Dec. 2021. DOI: [10.5281/zenodo.5788682](https://doi.org/10.5281/zenodo.5788682). URL: <https://doi.org/10.5281/zenodo.5788682>
- Jakob Jordan, Håkon Mørk, Stine Brekke Vennemo, Dennis Terhorst, Alexander Peyser, Tammo Ippen, Rajalekshmi Deepu, Jochen Martin Eppler, Alexander van Meegen, Susanne Kunkel, **Ankur Sinha**, Tanguy Fardet, Sandra Diaz, Abigail Morrison, Wolfram Schenck, David Dahmen, Jari Pronold, Jonas Stappmanns, Guido Trensche, Sebastian Spreizer, Jessica Mitchell, Steffen Graber, Johanna Senk, Charl Linssen, Jan Hahne, Alexey Serenko, Daniel Naoumenko, Eric Thomson, Itaru Kitayama, Sebastian Berns, and Hans Ekkehard Plesser. *NEST 2.18.0*. 2019. DOI: [10.5281/zenodo.2605422](https://doi.org/10.5281/zenodo.2605422). URL: <https://doi.org/10.5281/zenodo.2605422>
- Charl Linssen, Mikkel Elle Lepperød, Jessica Mitchell, Jari Pronold, Jochen Martin Eppler, Chrisitan Keup, Alexander Peyser, Susanne Kunkel, Philipp Weidel, Yannick Nodem, Dennis Terhorst, Rajalekshmi Deepu, Moritz Deger, Jan Hahne, **Ankur Sinha**, Alberto Antonietti, Maximilian Schmidt, Luciano Paz, Jesús Garrido, Tammo Ippen, Luis Riquelme, Alex Serenko, Tobias Kühn, Itaru Kitayama, Håkon Mørk, Sebastian Spreizer, Jakob Jordan, Jeyashree Krishnan, Mario Senden, Espen Hagen, Alexey Shusharin, Stine Brekke Vennemo, Dimitri Rodarie, Abigail Morrison, Steffen Graber, Jannis Schuecker, Sandra Diaz, Barna Zajzon, and Hans Ekkehard Plesser. *NEST 2.16.0*. 2018. DOI: [10.5281/zenodo.1400175](https://doi.org/10.5281/zenodo.1400175)
- Alexander Peyser, **Ankur Sinha**, Stine Brekke Vennemo, Tammo Ippen, Jakob Jordan, Steffen Graber, Abigail Morrison, Guido Trensche, Tanguy Fardet, Håkon Mørk, Jan Hahne, Jannis Schuecker, Maximilian Schmidt, Susanne Kunkel, David Dahmen, Jochen Martin Eppler, Sandra Diaz, Dennis Terhorst, Rajalekshmi Deepu, Philipp Weidel, Itaru Kitayama, Sepehr Mahmoudian, David Kappel, Martin Schulze, Shailesh Appukuttan, Till Schumann, Hünkar Can Tunç, Jessica Mitchell, Michael Hoff, Eric Müller, Milena Menezes Carvalho, Barna Zajzon, and Hans Ekkehard Plesser. *NEST 2.14.0*. 2017. DOI: [10.5281/zenodo.882971](https://doi.org/10.5281/zenodo.882971)
- Susanne Kunkel, Abigail Morrison, Philipp Weidel, Jochen Martin Eppler, **Ankur Sinha**, Wolfram Schenck, Maximilian Schmidt, Stine Brekke Vennemo, Jakob Jordan, Alexander Peyser, Dimitri Plotnikov, Steffen Graber, Tanguy Fardet, Dennis Terhorst, Håkon Mørk, Guido Trensche, Alex Seeholzer, Rajalekshmi Deepu, Jan Hahne, Inga Blundell, Tammo Ippen, Jannis Schuecker, Hannah Bos, Sandra Diaz, Espen Hagen, Sepehr Mahmoudian, Claudia Bachmann, Mikkel Elle Lepperød, Oliver Breitwieser, Bruno Golosio, Hendrik Rothe, Hesam Setareh, Mikael Djurfeldt, Till Schumann, Alexey Shusharin, Jesús Garrido, Eilif Benjamin Muller, Arjun Rao, Juan Hernando Vieites, and Hans Ekkehard Plesser. *NEST 2.12.0*. 2017. DOI: [10.5281/zenodo.259534](https://doi.org/10.5281/zenodo.259534)

DATA SETS

- **Ankur Sinha**, Christoph Metzner, Neil Davey, Roderick Adams, Micheal Schmuker, and Volker Steuber. *Simulation generated data for: Growth Rules for the Repair of Asynchronous Irregular Neuronal Networks after Peripheral Lesions*. Zenodo, Apr. 2021. DOI: [10.5281/zenodo.4727700](https://doi.org/10.5281/zenodo.4727700). URL: <https://doi.org/10.5281/zenodo.4727700>

WORKSHOPS

- October 2021: [NeuroML development workshop at COMBINE 2021](#).
- July 2019: Co-organiser of the [CNS 2019 student and post-doc career development workshop](#).

TUTORIALS

- August 2021: Co-organiser of [NeuroML tutorial at INCF Training Weeks](#).
- July 2021: Co-organiser of [CNS 2021 Software working group tutorials on Bash, Git, and Python](#).
- July 2021: Co-organiser of [NeuroML tutorial at CNS 2021](#).

OTHERS

- April 2021: [Seminar on NeuroFedora at the World Wide Open Source seminar series](#).

AWARDS AND ACHIEVEMENTS

- 2019: CNS 2019 conference travel funding award.
- 2019: UH Post graduate researcher conference funding award.
- 2018: CNS 2018 conference travel funding award.
- 2018: 3 Minute Thesis (3MT) competition finalist.
- 2016: UH Post graduate researcher conference funding award.
- 2014: UH PhD scholarship.
- 2014: UTS Vice Chancellor's conference fund grant.
- 2014: UTS FEIT travel grant.

REFEREES

Available on request.