Ankur Sinha

General information

ankursinha AT fedoraproject.org
a.sinha2 AT herts.ac.uk
ankursinha.in
github.com/sanjayankur31

London, United Kingdom.
Nationality: Indian.

Education

October 2014–2019:

- 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.
  - Supervisor: Dr Volker Steuber.
  - UH Biocomputation group,
    School of 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; tools and software for computational neuroscience research.
- Experience with NEST (development team member), Auryn, PyNN, and NEURON.
- Extensive knowledge of C, C++, Python, Bash, LaTeX, GNUPlot, MPI, Linux, Git, and related software development tools.

Journal papers (pre-prints)

- Ankur Sinha et al. "Growth Rules for the Repair of Asynchronous Irregular Neuronal Networks after Peripheral Lesions". In: *bioRxiv* (2019). DOI: 10.1101/810846. eprint: https://www.biorxiv.org/content/early/2019/10/21/810846.full.pdf. URL: https://www.biorxiv.org/content/early/2019/10/21/810846

Oral presentations

- 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

- Ankur Sinha et al. "NeuroFedora: a ready to use Free/Open Source platform for Neuroscientists". English. In: *BMC Neuroscience* 20 (2019). ISSN: 1471-2202. URL: https://neuro.fedoraproject.org
- Ankur Sinha et al. "The combined effect of homeostatic structural and inhibitory synaptic plasticity during the repair of balanced networks following deafferentation". In: *BMC Neuroscience* 19.2 (Oct. 2018-10-29), pp. 129–130. ISSN: 1471-2202. DOI: 10.1186/s12868-018-0451-y
- Ankur Sinha et al. "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
- Ankur Sinha et al. "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

Software for computational neuroscience

- Jakob Jordan et al. *NEST 2.18.0*. June 2019. DOI: 10.5281/zenodo.2605422. URL: https://doi.org/10.5281/zenodo.2605422
- Charl Linssen et al. *NEST 2.16.0*. Aug. 2018-08. DOI: 10.5281/zenodo.1400175
- Alexander Peyser et al. *NEST 2.14.0*. Oct. 2017. DOI: 10.5281/zenodo.882971
- Susanne Kunkel et al. *NEST 2.12.0*. Mar. 2017-03. DOI: 10.5281/zenodo.259534

Workshops

- July 2019: Co-organiser of the CNS*2019 student and post-doc career development workshop.

Experience

Research

- 2019–: on the Board of Directors of the Organization for Computational Neuroscience.
- 2018–: core team member of the NeuroFedora initiative.
- 2015–2017: seminar manager and webmaster for the UH Biocomputation group.
- January 2011–June 2011: research intern at Indian Institute of Sciences (IISc), Bangalore.
- May 2010–July 2010: research intern at Indian Institute of Sciences (IISc), Bangalore.

Teaching

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

Volunteering

- 2008–: volunteer at the Free and Open Source Software Fedora project:
  - package maintainer.
  - Classroom SIG team member.
  - Join SIG team member.

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.

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.