**HARSHA GURNANI, PhD**

Postdoctoral scholar-fellow, University of Washington

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# WORK EXPERIENCE

**2023- Postdoctoral Researcher,** *University of Washington*. Advisor: Prof Bing Brunton  
**2022 Postdoctoral Researcher,** *University College London*. Advisor: Prof Angus Silver  
**2015-2016 Research Internship,** *Brandeis University*. Advisor: Prof Eve Marder, Dr Timothy O’ Leary

# EDUCATION

**2016 - 2022 PhD in Neuroscience,** *University College London*

Advisor: Prof R Angus Silver, FRS

**2012 –2016** **Bachelor of Science** with Major in **Biology**, Minor in **Mathematics**

*Indian Institute of Science* [First Class with Distinction; University Gold Medal]

# FELLOWSHIPS AND AWARDS 2022- UW Data Science Fellowship 2022-2024 Schmidt Science Fellowship (2-year postdoctoral fellowship) 2019 Computational and Systems Neuroscience (Cosyne 2019) Travel Grant 2017 Award from DeepMind for Cajal Course in Computational Neuroscience (CCCN 2017) 2016-2021 Wellcome Trust PhD Studentship 2015 Khorana Scholarship for 3-month research internship [Khorana Scholars Program, DBT] 2012-2016 KVPY (Undergraduate) Fellowship [Dept. of Science and Technology, India]

# PUBLICATIONS 1. *Sinha A\*, Gleeson P\*, Marin B, Dura-Bernal S, Panagiotou S, Crook S, Cantarelli M, Cannon RC, Davison AP, Gurnani H, Silver RA.* The NeuroML ecosystem for standardized multi-scale modelling in neuroscience. bioRxiv 2023; doi: [10.1101/2023.12.07.570537](https://doi.org/10.1101/2023.12.07.570537) 2. *Gurnani H\*, Cayco-Gajic NA\*.* Signatures of task learning in neural representations. Curr Opinion in Neurobiology - Computational Neuroscience issue 2023, doi: [10.1016/j.conb.2023.102759](https://doi.org/10.1016/j.conb.2023.102759)

3*.* ***Gurnani H\*****, Silver RA.* **Multidimensional population activity in an electrically coupled inhibitory circuit in the cerebellar cortex.** Neuron 2021; doi: [10.1016/j.neuron.2021.03.027](https://doi.org/10.1016/j.neuron.2021.03.027)

4. *Lanore F\*, Cayco-Gajic NA\*,* ***Gurnani H****, Coyle D, Silver RA.* **Cerebellar granule cell axons support high dimensional representations.** Nature Neuroscience, 2021; doi: [10.1038/s41593-021-00873-x](https://doi.org/10.1038/s41593-021-00873-x)

5. *Lak A\*, Okun M, Moss MM,* ***Gurnani H,*** *Farrell K, Wells MJ, Reddy CB, Kepecs A, Harris KD, Carandini M.* **Dopaminergic and Prefrontal Basis of Learning from Sensory Confidence and Reward Value.** Neuron 2020; doi: [10.1016/j.neuron.2019.11.018](https://doi.org/10.1016/j.neuron.2019.11.018) [as *preprint* doi: 10.1101/411413]

**In Active Preparation:**

6. ***Gurnani H\*,*** *Brunton BW*. **Feedback controllability constrains learning timescales of motor adaptation**. [Preprint expected early 2024]

# TEACHING AND MENTORING

**2023-2024** STEP-WISE Scholar,University of Washington (Pedagogical training)

**2021** TA for BIOL0029: Computational Biology, UCL

**2020, 2021** Course instructor and content creator for Data Science and Machine Learning in Python, UCL

**2020, 2021** TA for NEUR0019: Neuroinformatics course (methods in quantitative neurophysiology), UCL

**2018, 2019** TA at LIDO-PhD SysMIC course: Systems Training in Maths, Informatics, Statistics and Computational Biology, UCL

**2016** TA at Computational Approaches to Memory and Plasticity (CAMP), Bangalore

**2016** TA for MB208: Theoretical and Computational Neuroscience (IISC, Bangalore)

**2019-2021** Mentor at ReachOut, UK (working with grade 5/6 students)

**2020-21** Mentor for 3-month PhD rotation project

**2019-20** Mentor-supervisor for BSc. thesis project

# SELECTED CONFERENCE PRESENTATIONS

Project: **Transformation of cortico-pontine inputs during associative learning**

***Harsha Gurnani***\*, RA Silver

**Oct 2023** Lake Conferences, Neural Dynamics [Poster]  
**Feb 2022** 5th France Cerebellar Meeting [Talk]

Project: **Cerebellar-like structure improves feedback-learning in recurrent neural networks**

*Alessandro Barri\*,* ***Harsha Gurnani****, RA Silver.*

**Feb 2021** Computational and System Neuroscience conference (*Cosyne*) [Poster]

Project: **Dynamics of electrically coupled inhibitory networks**

***Harsha Gurnani\*****, NA Cayco Gajic, RA Silver.*

**Feb 2021** Computational and System Neuroscience conference (*Cosyne*) [Poster]  
**Oct 2019** (Janelia) Junior Scientist Workshop on Theoretical Neuroscience [Talk]

Project: **Coordination of inhibitory Golgi Population Activity in the Cerebellar Cortex**

***Harsha Gurnani\*****, RA Silver.*

**July 2019** Gordon research Seminar & Conference (Cerebellum) [Talk]

**Mar 2019** Computational and Systems Neuroscience conference (*Cosyne*) [Poster]

**Jan 2019** 3rdFrance Cerebellar Meeting [Poster]

**Oct 2018** Champalimaud Research Symposium [Poster]

Project: **Dopaminergic and frontal signals for reward learning in perceptual decisions***Armin Lak\*, M Okun, M Moss,* ***Harsha Gurnani****, MJ Wells, CB Reddy, KD Harris, M Carandini.*

**Nov 2018** Neuroscience 2018 (SfN) [Poster]

**Nov 2017** Neuroscience 2017 (SfN) [Poster]

Project: **Maintaining neuronal properties during growth with local and global homeostatic regulation**

***Harsha Gurnani****\*, T O’ Leary, E Marder*.

**Nov 2016** Neuroscience 2016 (SfN) [Poster]

**Oct 2015** Dynamic Neural Networks: STG Meeting 2015 [Talk]

# WORKSHOPS AND SCHOOLS

**Oct 2019** Janelia Junior Scientist Workshop on Theoretical Neuroscience

**May 2018** Optical Imaging and Electrophysiological Methods in Neuroscience  
**Aug 2017** CAJAL Course in Computational Neuroscience  
**July 2014** Computational Approaches to Memory and Plasticity  
**Dec 2013** Bangalore Cognition Workshop

**VOLUNTEERING**

**2022** Organizing committee, UCL NeuroAI

**2019-20** Organizing committee, UCL PhDs in Systems Neuroscience

**2018-19** PhD student committee, NPP, UCL

**2016-18** Winter volunteer with CRISIS UK