

Shaurya Goyal

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Education

École Normale Supérieure (ENS-PSL), Paris MS in Cognitive Science, Diploma ENS Specialization: Cognitive Modelling, Theoretical Neuroscience and AI	2024 - Ongoing - / 20
Indian Institute of Technology (IIT), Kharagpur BS-MS in Economics Minors : Mathematics, Computer Science Transferred to ENS-PSL after completing 3 years	2020 - 2023 CGPA: 8.9 / 10

Publication and Conference Posters

Cumpelik A., **Goyal S.**, Barayeu U., Csicsvari J. L. ; The role of prefrontal spatial coding in supporting a contextual association task.

Co-Author: FENS Forum, 2024; Society for Neuroscience (SfN), 2023, 2024

Presenter: Junior Scientists Workshop on Recent Advances in Theoretical Neuroscience, 2024

Subbalakshmi, A.R., Sahoo, S., Manjunatha, P., **Goyal, S.**, et al. The ELF3 transcription factor is associated with an epithelial phenotype and represses epithelial-mesenchymal transition. J Biol Eng 17, 17 (2023). <https://doi.org/10.1186/s13036-023-00333-z>

Research Experience

Role of mPFC and CA1 in Context Association IST Austria — Prof Jozsef Csicsvari	May 2023 – August 2024 In-Person
<ul style="list-style-type: none">Developed behavioral classification and investigated context and spatial representations over learningAnalyzed the role of replay in guiding context dependent and independent decision making	
Hippocampal Cell Dynamics During Replay University College London (UCL) — Prof Dan Bendor	October 2022 – July 2024 In-Person/Remote
<ul style="list-style-type: none">Developed a novel bayesian decoding method to track spatial representations in sharp-wave ripplesAnalyzed CA1 neural activity to investigate memory stabilization and consolidation in novel environments	
Neuro Inspired Reinforcement Learning Brown University — Prof Michael J Frank	February – September 2022 Remote
<ul style="list-style-type: none">Developed an actor-critic deep reinforcement learning model motivated by dopamine circuits in the striatumImplemented and compared the performance against A2C on Atari games with sparse rewards	
Epithelial - Mesenchymal Plasticity in Cancer Indian Institute of Science (IISc), Bangalore — Prof Mohit Kumar Jolly	November 2021 – June 2022 Remote
<ul style="list-style-type: none">Examined the effect of ELF3 gene on transcriptional regulation and immune evasion in breast cancerUsed mechanistic modelling, simulations and machine learning to analyze phenotype switching dynamics	

Awards and Scholarships

Selected and funded for ICTP Junior Scientists Workshop on Theoretical Neuroscience	2024
Charpak BCS Scholarship	2024
ENS International Selection Scholarship	2024
Erasmus+ Training Mobility Grant	2024
COSYNE Undergraduate Travel Award	2024
ISTern, IST Austria Summer Program and Oead Scholarship	2023
MITACS Globalink Summer Internship [Declined]	2023
Summer Research Award, Next Gen Scientists Foundation	2022
International Research Fellowship, IIT Kharagpur Foundation	2022

Selected for PhD-level inStem workshop on Stem Cells and funded by Govt. of India	2022
Selected for PhD-level ICTP-ICTS Winter School in Sensorimotor Control	2021
Merit-Cum-Means (MCM) Scholarship, IIT Kharagpur [full tuition + stipend]	2020-2023
Top 1% in JEE Advanced from 150,000 selected students across India	2020
Top 0.3% in JEE Mains from over 1 million students across India	2020

Programming Skills

Python, MATLAB, Linux (Bash), HPC (SLURM), PyTorch, C/C++

Relevant Coursework

Brain: Computational Neuroscience, Learning and Decision Making, Neuroscience¹, Cognitive Modelling

CS: Machine Learning¹, Deep Learning², Math Methods for Data Science, Algorithms 1²

Math: Non-Linear Dynamics², Probability, Statistics, Linear Algebra, Numerical Analysis

Other: Statistical Physics of Machine Learning, Econometrics 1 & 2, Linear Programming

Workshops / Conferences Attended

1 PhD level course, 2 Online from Stanford, MITOCW etc

FENS Forum	2024
ICTP Junior Scientists Workshop on Theoretical Neuroscience	2024
COSYNE Main Meeting and Workshops	2024
Young Scientist's Symposium - IST Austria	2023
Computational Neuroscience - Neuromatch Academy	2022
Essential Stem Cell Lab Techniques - inStem and NCBS, Bangalore, India	2022
Sensorimotor Control - ICTP & ICTS	2021

Mentoring

Academic Mentor, IIT Kharagpur **2022 – 2023**

- Mentored 6 students (2022) and 3 students (2023) in their 1st year to ensure they have a smooth integration to university life and assisting with academic and non-academic matters

English Mentor, IIT Kharagpur **2022**

- Guided 4 students who struggled with English by providing feedback and solving doubts based on weekly exercises for 1 semester

Leadership / Extracurricular

- Co-Founder of Biotechnology Reading Group and iGEM Team, IIT Kharagpur
- National level debate tournaments as a member of the Debating Society, IIT Kharagpur
- Represented institute in the Inter-IIT Scrabble Tournament
- Selected as Times Scholar (2019) from 300,000+ students and felicitated by Vice-President of India
- Silver Medal in National Taekwondo Championship (2017) and 1st Dan Black Belt

Other Interests: Hiking, Cooking, Running, Frisbee, Volleyball, Board Games, Bouldering, Reading