Nishant Jana

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RESEARCH EXPERIENCE

AUG 2021 – PRESENT

Project Associate – I, Dr. Pavan Agrawal's lab, Centre for Mol. Neurosciences, KMC Manipal

- Fabrication of fly bowls, fly bubbles and a custom fly-on-a-ball set-up
- Developing hardware and software for high-throughput behaviour analysis pipelines
- Training deep neural network models for pose estimation and behaviour classification
- Exploring the effects of social isolation on social behaviours and aggregation [current project]

JULY 2020 – PRESENT

Collaborator, de la Iglesia Lab, University of Washington, Seattle

- Initiated the Digital Rhythms Project; Rhythms in Human Behaviour: Sleep and Work
- Built a method to extract and analyse digital "activity" data
- Crafted a tutorial notebook for teaching undergraduate students

DEC 2019

Visiting Student – Clock Club (BNL), Dr. Sheeba Vasu, JNCASR, Bangalore

- Learnt about biological clocks and ways of detecting rhythms in behaviour
- Gained skills in setting up experiments using Drosophila Activity Monitors
- Designed thesis project on rhythms in redox state of pacemaker neurons [slated - COVID19]

MAY 2019 – MAY 2021

Student Researcher at Fly Lab, Dr. S. Sahabudeen, SBE, SRM IST, Chennai, India

- Learnt the methods of fly pushing and husbandry
- Practiced dissections of adult fly brains, VNC, heart, larval brains, guts, and musculature
- Performed biochemical assays as well as molecular methods (Western Blots, Reverse Transcriptase-PCR)

TEACHING EXPERIENCE

JULY 2021

Teaching Assistant at Neuromatch Academy 2021, [Computational Neuroscience Summer School]

EDUCATION

2017 – 2021

Bachelor's in Technology, Biotechnology – First Class with Distinction
SRM Institute of Science and Technology, India

INSTITUTION ELECTIVES

Cell and Mol. Neuroscience, Developmental Biology, Biostatistics, Calculus, MATLAB, Electrical and Electronics Engineering, Mechanical Engineering, Workshop, Virtual Reality, Bioinformatics

PUBLICATIONS

CHEMOSPHERE 2021

Sarkar, A., Mahendran, S., Meenakshisundaram, A., Christopher, V., Dan, P., Sundararajan, V., **Jana, N.**, Venkatasubbu, D., & Sheik Mohideen, S. *Role of cerium oxide nanoparticles in decreasing oxidative stress and developmental delays in Drosophila melanogaster as an in-vivo model for Bisphenol-A toxicity*. Chemosphere, 284, 131363. 10.1016/j.chemosphere.2021.131363

BIORXIV 2021

Jana N., Manojkumar N., Mishra J., Kole S., Bhattacharya A., Sarkar A., Dan P., Sheik Mohideen S. *Chronic exposure of environmental toxin Bisphenol-A to Drosophila melanogaster exhibits two distinct levels of exposure within vials.* Biorxiv, doi link here

IN PREP 2021

Jana N., Sanchez R., Casiraghi L., de la Iglesia H., Harrington M., Leise T.
Using mobile phone app activity records to teach students about biological rhythms
manuscript in prep, target: Journal of Undergraduate Neuroscience Experiments

Presentations

Jan 2020 Poster title	5th Asia Pacific Drosphila Research Conference (APDRC'5), Pune "Comprehensive study on the Bisphenol-A induced *Drosophila* model for Autism Spectrum Disorders with co-treatment by Cerium Oxide Nanoparticles and U0126 MAP Kinase inhibitor: genotoxicity, oxidative stress, apoptosis and behavioural irregularities."
Feb 2019 Poster Title	Accelerating Biology, 2019 (BRAF – CDAC), IISER-Pune "Computing machinery and evolutionary survival"

Summer Schools

Aug 2021	NeuromatchAcademy: Deep Learning [Interactive] Designed modified U-Net for *Drosophila* pose estimation with non-random initialization to reduce extreme errors and imrpove prediction accuracy with reduced training
May 2020 - Aug 2020	Society for Research on Biological Rhythms: Chronoschool 2020 Made custom tool to analyse App timestamps and peek into human *digital* behaviour
July 2020	NeuromatchAcademy: Computational Neuroscience [Interactive] Worked with Dr. Nick Steinzmetz's Neuropixel data from 2AFC task to answer: "How do task engaged mice fail certain trials?"

Conferences Attended

Online	
Dec 2021	5th Indian Drosophila Research Conference (InDRC'5), TIFR
July 2021	International Conference on Chronobiology 2021, JNCASR and UC Davis
Oct 2020	Neuromatch 3.0
July 2020	Society for Developmental Biology, 79th Annual Meeting
May 2020	Neuromatch 2.0, Neurizons2020 (9th, Biennial)
Mar 2020	Neuromatch Unconference

Computing/Hardware related Skills

Programming Languages	Python3/2.7, MATLAB and R Attended Neurodata Without Borders Workshop to learn effective code sharing Active member of a test-user group for TOPAS-MC and nBio: Monte-Carlo Simulation toolkits

Online Courses

Neurosci	Computational Neuroscience – University of Washington, Seattle, Coursera Medical Neuroscience – Duke University, Coursera (ongoing) Visual Perception and the Brain – Duke University, Coursersa
Chronobio	Circaidan Rhythms: How Rhythms Structure Life – LMU Munich, Coursera
Python	Applied Plotting, Charting & Data Representation in Python - UM, Coursera Introduction to Data Science in Python – University of Michigan, Coursera Google IT Automation with Python (5 part+project) – Google, Coursera Introduction to Programming in MATLAB – Vanderbilt Univesity, Coursera

MATLAB	Practical Data Science with MATLAB – Mathworks, Coursera
Statistics and Experiment Design	Statistics with R (5 part + Project) – Duke University, Coursera Inferential Statistical Analysis with Python – University of Michigan, Coursera Bayesian Statistics: From concept to data analysis - UC Santa cruz, Coursera Experimentation for Improvement – McMaster Univeristy, Coursera
Game theory	Welcome to Game Theory – University of Tokyo, Coursera
Computation	Game Theory with Python – Coursera Project Network, Coursera
Computer Vision	Computer Science: Algorithms, Theory and Machines - Princeton, Coursera AWS computer vision: Getting started with GluonCV - AWS, Coursera Computer Vision Basics – SUNY, UB, Coursera