

Nishant Jana

Curriculum Vitae

|  |  |
| --- | --- |
| Personal Information |  |
| E-Mail  Github  Contact Number  Citizenship  Date of Birth  Permanent Address (Indian) | [nishantjana5@gmail.com](mailto:nishantjana5@gmail.com)  [github.com/invisilico](http://www.github.com/invisilico) (@invisilico)  +91 99204 31714  Indian  25th of November, 1999  M – 803 Bakeri Swara  Near ABB Campus  Makarpura Maneja Road  Maneja, Vadodara 390013, India |
| Research Experience |  |
| Position  Supervisor  Area of Research  Position  Supervisor  Area of Research  Position  Supervisor  Area of Research | Collaborator, (July 2020 – Present)  Dr. Horacio de la Iglesia,  Dept. of Biology, University of Washington, Seattle.  Digital Rhythms Project, Rhythms in human behaviour, Sleep and Work  Visiting Student, (Dec 2019)  Dr. Sheeba Vasu  Behaviour and Neurogenetics lab, JNCASR, Bangalore, India  Circadian Rhythms in Glutathione and Peroxide levels in Drosophila Pacemaker Neurons. The interplay of redox states and neuron function  (project proposed for Jan 2021 to June 2021, slated due to COVID-19)  Student Researcher, (May 2019 – Present)  Dr. S. Sahabudeen  Dept. of Biotechnology, SBE, SRM IST, Chennai, India   1. Effect of choices of Individuals made on outcomes of collectives 2. Drosophila awareness of self in collective locomotion 3. Bisphenol-A exposed *Drosophila melanogaster* is a poor model for neurodevelopmental diseases |
| Education |  |
| Presently Pursued Degree  Institution  Sr. Secondary School  Secondary School  Institution | Bachelor’s in Technology, Biotechnlogy (2017 – 2021), (78.12%)  SRM Instititute of Science and Technology  All India Senior School Certificate Examination (2017)(77%)  All India Secondary School Examination (CBSE) (2015)(9.6 CGPA)  R. N. Podar School, Affiliated to CBSE, Mumbai, India |
| Summer Schools |  |
| May - August 2020  Highlights  July 2020  Highlights | SRBR Chronoschool 2020  Made my own tool to study Android App timestamps  Joined the Digital Rhythms Project, with the de la Iglesia lab  Made tutorial notebooks to aid teaching neurobehaviour experiments  NeuroMatchAcademy 2020, Interactive Student  Worked with Dr. Steinzmetz’s Neuropixel data from 2AFC task  "Why do task engaged mice still fail sometimes?" |
| Conferences Attended |  |
| January 2020  Poster presented  February 2019  Poster presented  (Online) October 2020  (Online) July 2020  (Online) May 2020  (Online) March 2020 | 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.”  Accelerating Biology, 2019 (BRAF – CDAC), IISER-Pune  "Computing machinery and evolutionary survival"  Neuromatch 3.0  Society for Developmental Biology, 79th Annual Meeting  Neuromatch 2.0  Neurizons2020 (9th, Biennial)  Neuromatch Unconference |
| Ongoing Projects |  |
| With de la Iglesia Lab, UW  With Dr. S. Sahabudeen, SRMIST  By Self | 1. Digital Rhythms Project – Data Collection Stage and Analysis stage   <https://delaiglesialab.github.io/DigitalRhythmsProject/>   1. Tutorial notebooks – Made Available, Publication post feedback   <https://invisilico.github.io/Tutorial-Notebooks/>   1. Bisphenol-A expoure in *Drosophila melanogaster* is a poor model for Neurodevelopmental disorders – Publication stage, biorxiv soon 2. A 2 – cluster mixing paradigm to study social decisions (In flies)   *To study what makes them stay or desert groups*   1. Conserved bee waggle-dance circuits in *Drosophila melanogaster*   Analysing the Janelia fly hemibrain EM data to model connections  between pacemaker neurons and central complex/EPG neurons  *To understand how the clock guides heading direction in flies* |
| Computer Skills |  |
| Programming Languages | Python3/2.7 (preferred), MATLAB and R  I prefer using Linux (Pop!\_OS) to ensure fully open source projects.  I believe in full Data and Code sharing in publications.  I have attended the Neurodata Without Borders (NWB) orientation  User-developer of TOPAS-MC and nBio, A Monte-Carlo Simulation toolkit for biological molecules based on Geant4 Particle data. |
| Online Courses |  |
| Computational Neuroscience  Neuroscience  Chronobiology  Systems Biology  Python, GitHub, Jupyter  MATLAB  Statistics and  Experimental Design  Game theory  Theory of Computation  Deep Learning  Computer Vision | Computational Neuroscience – University of Washington, Seattle, Coursera  Medical Neuroscience – Duke University, Coursera  Visual Perception and the Brain – Duke University, Coursersa  Circaidan Rhythms: How Rhythms Structure Life – LMU Munich, Coursera  Systems Biology and Biotechnology(5part+project) – Icahn centre, Coursera  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  Practical Data Science with MATLAB – Mathworks, Coursera  Statistics with R (5 part + Project) – Duke University, Coursera  Bayesian Statistics: From concept to data analysis - UC Santa cruz, Coursera  Experimentation for Improvement – McMaster Univeristy, Coursera  Welcome to Game Theory – University of Tokyo, Coursera  Game Theory with Python – Coursera Project Network, Coursera  Computer Science: Algorithms, Theory and Machines - Princeton, Coursera  Deep Learning Specialisation (5 part) – deeplearning.ai, Coursera  AWS computer vision: Getting started with GluonCV - AWS, Coursera  Computer Vision Basics – SUNY, UB, Coursera |
| Communication Skills |  |
| Languages | English (Most used and proficient in, All formal education in English)  Hindi, Bengali (Fluency in speech, some reading and writing) |
| Research Interests  and  Career Statement |  |
| Neuroscience Associated:  Behavioural neuroscience  Mechanistic neuroscience  Computational neuroscience  Systems neuroscience  Evolutionary and Developmental neuroscience  Cellular and Molecular neuroscience  Invertebrate neuroscience  Other Marked Interests:  Chronobiology  Social Clusters  Collective Behaviour  Evolution and Ecology | I am interested in exploring how cognitive processes that drive complex behaviours are performed by clusters of highly specialized cells which we call neurons. In my opinion, apart from understanding their cellular mechanisms of computation and a systemic understanding of function, It is important to understand the evolutionary context that led to their current state.  To that end, I believe chronobiology, the study of biological timekeeping mechanisms, which itself is a product of the limitations of biological processes and the evolutionary history of organisms, may be the perspective that allows us to gain a reasonable insights.  During the course of grduate school, I would like to study how pacemaker cells communicate with the circuits that perform cognitive processes and play a role in their modulation. Specifically, in the case of celestial navigation and heading direction/motion, how they may encode the information of external time to guide the fly in the right direction using external time cues.  I find the fruitfly to be the perfect model to start with, given my experience with them and the level of manipulation possible, but in the future, would like to continue exploring the other ways life has found of performing analogous functions, in different organisms, and would like to pick necessary skills up early during graduate school. |