

SHAURYA GOYAL

☎ +91 8454869021 ✉ shauryagoyal789@gmail.com 🌐 [shauryagoyal](https://www.linkedin.com/in/shauryagoyal) 🌐 [shauryagoyall.github.io](https://github.com/shauryagoyal) 🏠 Mumbai

Education

Indian Institute of Technology, Kharagpur

2020 – Ongoing

Integrated Master of Science in Economics

CGPA: 8.74

Minor in Mathematics and Computing (Ongoing)

Micro - Specializations in Optimization Theory (Ongoing) and Artificial Intelligence (Ongoing)

Grade 12 (HSC), score: 92%

2020

Grade 10 (ICSE), score: 95%

2017

Research Experience

IIT Kharagpur

July 2021 – Ongoing

Undergraduate Student Researcher

Graph Signal Processing

- Developing faster, more numerically stable and accurate algorithms for graph fourier transform and graph principal component analysis
- Suggested faster implementations for the approximate graph fourier transform

IIT Kharagpur

April 2021 – Ongoing

Undergraduate Student Researcher

Evolutionary Biology

- Conducting a phylogenetic analysis of cells using genomic data to understand whether an inside-out or outside-in model is favourable and to understand how mitochondria originated in eukaryotic cells
- Sampled proteomes from orthologous groups of LUCA using python, used MAFFT for multiple alignment, removed spurious/poor hits using trimAl and generated maximum likelihood phylogenetic trees using FastTree

Projects

Reinforcement Learning for Brain Disorder

Ongoing

- Building a computational model of basal ganglia–dopamine interactions in cognition and how it changes in a neurodisorder

Conditional GANs (Guided Reading Project)

July - August 2021

- Did a directed reading on the theory of cGAN models in recent papers with an emphasis on face generation and other imaging purposes and presented it weekly.
- Also looked briefly at dynamical systems and stochastic approaches to GANs

Modelling Global Warming

June 2021

- Used machine learning to model how the temperatures have changed and used it to predict future changes

Robot Simulation

May 2021

- Simulated a multi-agent system of 2 floor cleaning robots in a room with obstacles

Selected Relevant Coursework

Reinforcement Learning (CS 234 Stanford), Linear Programming, Machine Learning for Genomics*, Monte Carlo Methods (PG), Introduction to Neuroscience*, Probability, Statistics, PDE, Psychology, Numerical analysis, ODE, Linear Algebra, Complex Analysis, Discrete Maths*

** indicates MIT OCW*

Technical Skills

Programming: Python, MATLAB, C

Other: L^AT_EX, HTML, CSS, Autocad, MS-Office

Volunteer Work

Teacher(Independent)

October 2019 – December 2020

- Taught 2 under privileged kids in my locality of grade 5 (to grade 6) math, science and English.
- Led to improved understanding and skill and their grade also improved by nearly 20 percent.

Leadership / Extracurricular

- Currently involved with co-founding a Neurotech student research group at IIT, Kharagpur
- Active member of Biotechnology Reading group and Debating Society, IIT Kharagpur
- Selected as Times Scholar 2020 by Times of India Group and awarded a scholarship (Declined)
- Silver Medal in National Taekwondo Championship and 1st Dan Black Belt

Other Interests: Guitar, Hiking, Running, Reading, Cooking, Rock music, Star Wars