SHAURYA GOYAL

+91 8454869021 shauryagoyal789@gmail.com shauryagoyal shauryagoyall.github.io 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
- Implemented approximate graph fourier transform and suggested a faster implementation

IIT Kharagpur **April 2021 – Ongoing**
Undergraduate Student Researcher *Evolutionary Biology*

- Conducting a phylogenetic analysis of cells using genomic data to understand whether an inisde-out or outside-in model is favourable and to understand how mitchondria originated in eukaryotic cells
- Sampled proteomes from ortholgous groups of LUCA using python, used MAFFT for multiple alignment, removed spurious/poor hits from 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 ands stochastic approches 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: LaTeX, 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