

EDUCATION

USC Viterbi School of Engineering
Masters in Computer Science

Los Angeles, CA
2021–2023(expected)

BITS Pilani-K. K. Birla Goa Campus
B.E. in Computer Science, GPA: **9.75/10**

Goa, India
2017–2021

- Batch rank - **2**
- Relevant Courses - AI, ML, Data Mining, DSA, OS, Computer Architecture

EXPERIENCE

MIT Media Lab

Massachusetts, USA (Remote)
June 2020-June 2021

Undergraduate Thesis at Fluid Interfaces group

- PAL - Assisting habit formation with Machine Learning (ML)
- Leveraging **Human-in-the-Loop ML** for behaviour change interventions, using **sequence modelling** for behaviour patterns and **Reinforcement Learning (RL)** for context-specific interventions.

Biologically Inspired Neural Network (BINN) Labs, BITS Pilani - Goa

Undergraduate Research Project

Goa, India
Aug 2019-May 2020

- **Neural Mass Models** of the Thalamocortical Visual Pathway
- Implemented a neural mass model to simulate the behaviour observed by the Thalamocortical Visual Pathway in the brain using Python and MATLAB

Happiest Minds Technologies

Machine Learning Internship

Bengaluru, India
May 2019-July 2019

- **GANs** for automated product placement
- Implemented and trained **image-to-image translation GANs** like **GANi-morph** and CycleGAN, as well as **object detection** models like **YOLO** to automatically place a product in a video.

Cognitive Neuroscience Lab, BITS Pilani - Goa

Undergraduate Research Project

Goa, India
Jan 2019-Dec 2019

- Analysing the Visual Perception of the Colour Spectrum in the brain
- Leveraged **neural networks and gradient-boosted decision trees** to classify EEG data from subjects viewing colours through a VR headset with an **android app**

PUBLICATIONS

- Mina Khan, P Srivatsa, **Advait Rane**, Shriram Chenniappa, Rishabh Anand, Sherjil Ozair, Pattie Maes (2021) Pretrained Encoders are All You Need. [arXiv:2106.05139](https://arxiv.org/abs/2106.05139) . (Arxiv Preprint - accepted at the Unsupervised Reinforcement Learning workshop at ICML 2021)

- Mina Khan, P Srivatsa, **Advait Rane**, Shriram Chenniappa, Asadali Hazariwala, Pattie Maes (2021) Personalizing Pre-trained Models. arXiv:2106.01499 . (Arxiv Preprint)
- Mahajan P, **Rane AP**, Sasi S, Bhattacharya BS (2020) Quantifying Synchronization in a Biologically Inspired Neural Network. arXiv:2012.06112 . (Arxiv Preprint - accepted at IJCNN 2021)
- Mahajan P, **Rane AP**, Sasi S, Bhattacharya BS (2020) Phase Synchronisation in a thalamocortical neural mass model. Bernstein Conference 2020. doi: 10.12751/nncn.bc2020.0191.(Poster presentation)

TEACHING

- **Undergraduate Teaching Assistant** at BITS Goa, CSIS Department Aug 2019-Dec 2019
Discrete Structures for CS (CS F222)
- **Undergraduate Teaching Assistant** at BITS Goa, CSIS Department Jan 2020-May 2020
Computer Programming (CS F111)

SKILLS

- Software: **Python, TensorFlow/Keras, PyTorch**, pandas, sk-learn, C/C++, Java, Javascript, Linux shell, MATLAB, ModelSim Xilinx, \LaTeX

PERSONAL/COURSE PROJECTS

- **Graph Convolutional Networks** on Bitcoin transaction graphs Aug 2019
Implemented a **two layer GCN** to detect fraudulent transactions in a Bitcoin transaction graph, based on the paper "Anti-Money Laundering in Bitcoin: Experimenting with Graph Convolutional Networks for Financial Forensics".
- Solving the 8-puzzle problem with a **modified A* search** Sep 2019
Modified the A* search to expand each node with a limited BFS strategy to solve the 8-puzzle problem.
- Celebrity **face recognition** using Kaggle dataset Nov 2019
Implemented classifiers using sk-image and sk-learn to identify celebrity faces from a Kaggle dataset of photos.

SCHOLARSHIPS AND AWARDS

- Ranked 2nd in batch, BITS Goa 2017-2021
- 4 consecutive BITS Goa Merit Scholarships, Semesters 2 to 5 – top 1 percent BITS Goa 2018–2020
- BITS Goa Merit Scholarship Semester 1 – top 2 percent BITS Goa 2017–2018
- Ranked 1st in St. Mary's School (Boys) ICSE Board Exams with 98 percent 2015

EXTRACURRICULAR ACTIVITIES

- **Captain** of the BITS Goa Basketball Team (Boys) 2019–2020
I led the team to two victories – 1st place in MIT Pune Summit and 2nd place in BITS Hyderabad Arena.

- Member at LDC, BITS Goa
I was a member of the Literary and Debating Club, where I adjudicated several debates and helped organise college fest events.

2017–2020
- Member of Pune District Basketball Team
I was a part of the Pune District team, after winning the district-level under-16 basketball tournament

2014
- Participant at FTC, India
I was a part of the team representing St. Mary's School at FIRST Tech Challenge national robotics challenge.

2013–2014