Archit **Rungta**

Sophomore Undergraduate Student

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Education

Indian Institute of Technology, Kharagpur — *Kharagpur, India*

Integrated M.S. in Mathematics and Computing | Cumulative GPA : 9.47/10 — *Expected May 2023*

- Achieved a **top 0.1 percentile rank** in JEE examination taken by **1.6 million aspirants**.

Projects

Virtual Hand

Reconstruction of hand in 3D space — *December 2017 – March 2018*

- Made a glove that used multiple IMU sensors to map a hand with all its motions. The sensors were connected to a Raspberry Pi which ran C++ code and interacted with a display computer using TCP socket over local network. A Python script running on the computer in Blender displayed the captured hand. As a sample use, created NEAT (Neuro Evolution of Augmenting Topologies) neural networks to learn sign language symbols and interpret. The project was coded in C++ and Python. **Project was chosen by Government of India under Atal Innovation Mission. Youtube**

arcMiners

GPU cryptocurrency miners — *March 2014 - April 2016*

- Made the first GPU crypto-currency miner for the keccak (SHA-3) POW algorithm, and Protoshares momentum POW based on existing miners utilizing CUDA for Nvidia GPUs and OpenCL for AMD. Later, made a new miner from ground up focusing on modularity and abstraction. The miners were cross-compatible on Windows and Linux operating systems. Programmed in C++, CUDA and OpenCL. **Github**
- **Cumulative profit in fees is over USD 100K**.

Monero Pool

Cryptocurrency Mining pool — *May 2014 - July 2014*

- **One of the first two mining pools for Monero**. Wrote a Server application with a Redis based data storage system as well as a HTML front end. The server application was responsible for difficulty re-targets, dispatching blocks. processing correctly solved Proof-of-Word and payouts. Uses TCP sockets from the Mono Framework. Cross-compatible on Windows and Linux. Designed for maximum utilization of multi core CPU by sharing work among hundreds of threads at once. Abandoned now because of major changes in the currency's protocol. Written in C#, C++, PHP and JS. **Github**

Research

Aerial Robotics Lab, Kharagpur — *IIT Kharagpur, India*

Perception Undergraduate Researcher — *February 2019 – Present*

- Working under **Prof Somesh Kumar** on various autonomous drone navigation related challenges.
- Designed an algorithm based on KNN and other traditional image processing techniques to find dense navigable spaces.
- Along with another undergraduate student, created a non-machine learning based fast method to detect helipads and then precisely land drones in specific orientation using visual servoing. **Publication expected soon.**
- Part of team whose technical description was selected for special oral session at **International Micro Air Vehicle Competition and Conference 2019**

Skills

Programming Languages

In order of familiarity

- C# • Python • C++ • PHP • C • HTML • PHP •Javascript• • SQL • Android • LaTeX • Shell • Assembly

Competitive Programming

- Codeforces : **1804** (Primary) • Codechef: **1915**

Relevant Coursework

- Design and Analysis of Algorithm • Natural Language Processing • #Machine Learning • #Convolutional Neural Networks for Visual Recognition • Programming and Data Structures
  (#) Completed online Course with assignments

Honors & Awards

2019	**1st**, International Micro Aerial Vehicle Indoor Competition	*Madrid, Spain*
2019	**528th**, World Rank in Google code jam 2019 round 1A	
2018	**Top 10**, IBM hosted NLP news classification challenge	*Bangalore, India*
2017	**9th Place**, at IOI Training Camp (Final Stage) in India	*Chennai, India*
2016	**Youngest**, at IOI Training Camp in India	*Bangalore, India*

Extracurricular Activity

Debating Society — *Kharagpur, India*

Member — *August 2018 - PRESENT*

- Participate in parliamentary debates on-campus.