

Archit Rungta

First-Year · Mathematics and Computing · Indian Institute of Technology Kharagpur · +91-8084207992 · archit120@iitkgp.ac.in · archit.me

EDUCATION

Indian Institute of Technology, Kharagpur — Integrated *MS in Mathematics and Computing*

JULY 2018 – APRIL 2023*

CGPA – 9.27/10

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

International Olympiad in Informatic Training Camp, India

2016 AND 2017

Youngest participant in 2016. Finished at 22nd and 9th position in 2016, 2017 respectively.

Delhi Public School, Patna — *High School*

MARCH 2004 - MAY 2018

CBSE Board, Subjects: English, Physics, Math, Chemistry, Computer Science - **96.4%**. Overall School Rank **3/150** with Rank **1** in Computer Science.

RESEARCH EXPERIENCE

Aerial Robotics Lab, IIT Kharagpur — *Perception Team Member*

FEBRUARY 2019 - PRESENT

Working on detection and localization through dense navigable spaces slightly larger than the size of a quadcopter with an aim to compete at IMAV 2019.

SKILLS

Programming Languages — *Python, C++, C#, JavaScript, PHP*

Machine Learning — *pandas, numpy, XGBoost, LightGBM, sklearn, Keras, fastAI, CUDA, OpenCL, NEAT*

Software — *Git, Jupyter, Latex, SSH*

Languages — *English, Hindi*

PROJECTS

Lingatagger — Part of *NLP toolkit for Indian languages* - <https://github.com/djokester/lingatagger>

JANUARY 2019 - PRESENT

Contributed to open source project by expanding training corpus. Improved accuracy of word gender tagger for Hindi(all words in Hindi have a gender associated) using 1D convolutions. Working on implementing LSTM and attention models to further improve accuracy from context.

Gradient Descent Research — *Independent research into gradient descent optimization*

SEPTEMBER 2018 - PRESENT

Developing an algorithm with adaptive learning rates based on Shannon entropy for gradient descent. Using Tensorflow and Keras for prototyping and hyperopt for parameter tuning. Currently tends to beat rmsprop and is close in performance to Adam.

Virtual Hand — *Reconstruction of hand in 3D space* - <https://youtu.be/RI1C584UrW0>

DECEMBER 2017 – MARCH 2018

Made a glove that uses IMU sensor to map the entire hand with all its motions. As a sample use, created NEAT neural networks to learn sign language symbols and interpret. The project was coded in C++ and Python.

arcMiners — GPU cryptocurrency miners - <https://github.com/archit120/arcMiner>

MARCH 2014 - APRIL 2016

Made the first GPU miner for the keccak 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. Cumulative profit in fees is over USD 100K.

Monero Pool — *Cryptocurrency Mining pool* - <https://github.com/archit120/Monero-Pool>

MAY 2014 - JULY 2014

One of the two contenders for mining pool for Monero. Includes a Redis based data storage system as well as a front end. Designed for maximum utilization of multi core CPU by sharing work among hundreds of threads at once. Written in C#, C++, PHP and JS.

Charge Field — *Drawing field lines of static charges*

JUNE 2016 - JULY 2016

Created a classical physics model of static charges with forces and collisions. Software drew the field lines and their interaction in real time.

Computation was offloaded to GPU using CUDA to achieve realistic frame-rates even in the case of high number of particles.

ACHIEVEMENTS

IBM NLP Hackathon, IISc Bangalore — Part of two-member team coming in top 10 for binary classification of news as reliable/un-reliable.

NOVEMBER 2018

ONLINE COURSES

Practical Deep Learning, fast.ai — *Resnet, Embedding, LSTM, RNN, Differential Learning*

NOVEMBER 2018 – DECEMBER 2018

mlcourse.ai, Open Data Science — *XGBoost, Random Forests, Ensembles*

OCTOBER 2018 – DECEMBER 2018

Machine Learning, Coursera — *Logistic and Linear Regression, SVM, PCA, LDA*

JANUARY 2015 – APRIL 2015

EXTRA-CURRICULARS

Debating Society, IIT Kharagpur — Debater

AUGUST 2018 - PRESENT

Participate in various parliamentary debates held in and outside college.

Delhi Public School, Patna — *Competitive Programming Coach*

SEPTEMBER 2016 - JANUARY 2018

Mentored Competitive Programming to students of junior classes.