Hitesh Kumar Punna

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EDUCATION

Indian Institute of Technology Bombay — Jul 2019 - Jul 2023

Bachelor of Technology with **Honors** in Computer Science and Engineering
Minor degree in Applied Statistics and Informatics — **CPI 8.86/10**

- Key Courses - Image Processing, Reinforcement Learning, Opereating System, Machine Learning and Deep Learning, Automatic Speech Recognition, Introduction to Derivative Pricing,

SCHOLASTIC ACHIEVEMENTS

- Secured **All India Rank 39** in **IIT JEE-Advanced** out of 246,000 candidates *(2019)*
- Attended the Vijyoshi Camp, organized by the (**IISC**) Bangalore aimed to inculcate research skills *(2019)*
- Achieved **Rank 34** in **TS-EAMCET** out of 2.2 lakh students conducted by **TSCHE** *(2019)*

EXPERIENCE

Quant Researcher and Analyst | **Graviton Reseach Capital** — Jun 2023 - Present

- Led the development of innovative **trading strategies** for the National Stock Exchange (**NSE**) and Multicommodities Exchange (**MCX**), enhancing prediction with Linear regressed market indicators and better risk management.
- Applied **XGBoost** and **Neural network** models to identify market dynamics, improve prediction accuracy by 10%.
- Applied **genetic algorithms** to decrease manual intervention in model training from 1-2 hours to just 10-15 minutes.
- Modeled complex financial instruments like Callable Bull/Bear Contracts (**CBBC**) refining it with **linear regression**

Quant Research Intern | **Graviton Research Capital** — May 2022 - Jul 2022

- Created multiple market activity indicators to accurately capture general trends in market movements.
- Developed a sophisticated coding interface designed to promote **seamless communication across various strategies**, while also implementing advanced data management solutions to greatly improve operational efficiency.

Research Intern | **ThoughtWorks** — Jan 2022 - May 2022

- Deployed an **OCR model** to streamline the upload and verification process for **Medical** documents.
- Demonstrated an optimized ranking model using **hierarchical** feature selection for improved keyword identification.

Research and Development Intern | **National Blockchain Project** — May - July 2021

- Developed a secure, data-encrypted Chrome extension utilizing **CryptoJS** to ensure the integrity of sensitive data.
- Established seamless communication between the extension and **Smart-contracts** deployed on remote Matic nodes.
- Designed an intuitive user interface using **Bootstrap** and **jQuery** to enhance the overall user experience.

PROJECTS

Optimization of Deep Neural Networks via Layer Pruning — Spring 2023
Guide: Prof. Rushikesh K.Joshi — BTP Project

- Employed **layer and node pruning**, and training **student-teacher networks**, to optimize the size of neural networks.
- Achieved a significant two-thirds reduction in model size while ensuring accuracy remained within a 5% margin.

MDP Optimization with Reinforcement Learning — Autumn 2021
Guide: Prof. Shivaram Kalyanakrishnan — Course Project

- Explored sampling algorithms like **KL-UCB** and **Thompson Sampling** for stochastic multi-armed bandits
- Programmed **SARSA** with linear approximation for the mountain car game using **OpenAI Gym** in Python

Improving xv6 — Autumn 2021
Guide: Prof. Mithli Vutukuru — Course Project

- Incrementally enhanced xv6 OS by adding new system calls to facilitate **process and memory management**
- Implemented **file system operations** to create, delete, view, edit, open and close files on an emulated disk

Quantum Fourier Transforms in Image Processing — Autumn 2022
Guide: Prof. Kasturi Saha — Course Project

- Applied Quantum Fourier transforms in image processing, effectively utilizing quantum bits to store N bits of information while requiring only $\log(N)$ quantum bits, thereby enhancing data efficiency and processing capabilities.

SKILLS

Programming	C++, C, Python, MATLAB, Java, Bash, SQL, HTML, Javascript
Tools & Software	PyTorch, TensorFlow, scikit-learn, OpenCV, Angular, Matplotlib, Arduino,FPGA
Expertise in	Python, C++, Artificial Intelligence, Image Processing

POSITION OF RESPONSIBILTY

- **Coordinator at Exofly** | *Tech Team IITB* — Mar 2022 - Apr 2023
  - Led a **6-member team** and secured funding to design a safe and compact manned **eVTOL aerial vehicle**
  - Designed a controller on **Simulink**, performing **sensor fusion** for localization with an **Extended Kalman Filter**