

ABHINANDAN DE

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EDUCATION

| Degree | Institute / Board | Year | CGPA / % |
|---|-------------------|------------------------|-------------|
| B. Tech in Computer Science and Engineering | IIT Kharagpur | 2019 - 2023 (Expected) | 9.64 / 10 📈 |
| All India Senior School Certificate Examination | CBSE | 2019 | 95.6 % 📈 |
| All India Secondary School Examination | CBSE | 2017 | 10 / 10 📈 |

INTERNSHIP

DE Shaw India 🌐

Quant-Dev Intern | June - Aug '22

- Explored various techniques of dimensionality reduction like **PCA** and **Factor Analysis** for analyzing portfolio metrics.
- Developed a **Python library** for performing regression analysis using **scikit**, **NumPy** and several in-house utilities.
- Achieved a **50-fold** reduction in dimensions and achieved **90%** accuracy while estimating annual market values.
- Designed the project following an **Iterative SDLC** and performed rigorous testing using **pytest** and **unittest** modules.

PROJECTS

Natural Language Processing (CNERG IIT Kharagpur / Microsoft India) 🌐

BTP | Mar'22-Present

- Exploring various techniques for **prompt tuning** to improve language models' performance on dialog generation tasks.
- Augmenting **summarization** / **retrieval-models** to reduce the context size while keeping the response quality intact.
- Reviewed a variety of existing **evaluation metrics** for evaluating NLP systems specifically suited for **dialog modeling**.

Reinforcement Learning 🌐

Term Project | Aut'22

- Analyzed change in behaviour of an agent with change in aspects of the environment using a variety of RL algorithms.
- Utilized the **Cart-Pole** environment and attempted **transfer learning** by changing physical properties of the Cart-Pole.
- Performed transfer learning and solved the Cart-Pole environment with **70%** lesser training under unseen scenarios.

Deep Learning 🌐

Term Project | Spr'22

- Built and trained a **ResNet Classifier** using **PyTorch Lightning** and fine-tuned the model to perform transfer learning.
- Implemented the vanilla **Vision Transformer** and a slight variation of the model using the **PyTorch Lightning** library.
- Used various python libraries such as **NumPy**, **matplotlib**, **TensorFlow** and **einops** to facilitate proper data analysis.

Machine Learning 🌐

Term Project | Spr'21

- Designed and evaluated a **Decision Tree** and a **KNN** classifier on the Car Evaluation and the Spam mail datasets.
- Implemented a **Multi-Layer Perceptron Classifier** using PyTorch for soil classification on the **Landsat Satellite** dataset.
- Explored dimensionality reduction via **PCA** to achieve a mere reduction of **1.6%** in accuracy with an **18-fold** reduction.

SKILLS and EXPERTISE

Languages/ OS : C, C++, Python, UML, MySQL, Java, Javascript, Dart, LaTeX, MIPS, Windows, Ubuntu
Tools : Git, VSCode, Postman, Netlify, Vim
Libraries/Framework/SDK : C++ STL, NumPy, Pandas, PyTorch, Matplotlib, Scikit, React, Flask, Django, Flutter

AWARDS and ACHIEVEMENTS

- Qualified for **Google Code Jam - Round 2** and **Facebook Hacker Cup - Round 2** 📈 📈 **Sep'21**
- Our team achieved a **Rank of 16** in ACM-ICPC Kanpur Regionals 2020 📈 **Aug'21**
- Our team achieved a **Rank of 76** in ACM-ICPC Gwalior-Pune Regionals 2020 📈 **Aug'21**
- **Changed Department** to Computer Science & Engineering with a CPGA of **9.89** in the first year 📈 **Jun'20**
- Acquired rank **835** in JEE Advanced-2019 and rank **1729** in JEE Mains-2019 out of 1.14 million applicants. 📈 **Jul'19**
- Awarded the **KVPY Scholarship** in SX-2018 stream by Department of Science and Technology, India. 📈 **Mar'19**

COURSEWORK INFORMATION

Completed with Laboratory Component: Algorithms I, Software Engineering, Switching Circuits and Logic Design, Computer Organization and Architecture, Compilers, Operating Systems, Computer Networks

Completed: Discrete Structures, Probability and Statistics, Formal Language and Automata Theory, Algorithms II, Machine Learning, Deep Learning, Big Data Processing, Artificial Intelligence, Reinforcement Learning, Information Retrieval, Theory of Computation, Object Oriented Systems