Abhishek Yadav

Transpiler Engineer
Prophecy

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ACADEMIC DETAILS

Examination / Degree	Institute	Year	CPI/%
B.Tech , Electrical Engineering	IIT Kanpur	2016-2020	8.5/10
Class XII (CBSE)	Delhi Public School, Kanpur	2016	95.6
Class X (ICSE)	City Montessori School, Lucknow	2014	92.2

ACHIEVEMENTS

- Awarded **distinction** in Electrical Engineering based on the academic performance.
- Published a **patent** in the domain of **compressed video action recognition** on edge devices.
- Secured 2^{nd} **global rank** in 2019 and 12^{th} **global rank** in 2018 for IIT Kanpur in Intelligent Ground Vehicle Competition held at Oakland University, Michigan.
- Achieved All India Rank **1348** in IIT-JEE Advanced 2016 out of approximately **2 lakh** qualified students
- Secured **99.9 percentile** in IIT-JEE Mains 2016 amongst approximately **12 Lakh** students.

WORK EXPERIENCE

- **Transpiler Engineer**

  Prophecy Jan'23 - Present

  - Working on **transpilers** to convert legacy ETL to open source spark code.
  - Contributed to transpiling Alteryx, Datastage and Ab Initio pipelines to **low code spark**.
  - Converted above languages to spark pipelines using **parser combinators** and **graph migrations**.
  - Actively worked on introducing **Prophecy's copilot** into IDE to provide expression / graph prediction.
  - Provided project, pipelines, components and subgraph descriptions using copilot.

- **Software Engineer**

  Jumio Corporation ML Dev Infra Squad Aug'20 - Jan'23

  - Contributed to **model training infrastructure** and **data pipelines** on AWS.
  - **Designed** and engineered **self-serve infrastructure** for rules engine using serverless principles.
  - Handled **cold start** rules engine on AWS lambda using native binaries to provide **single digit ms** latency
  - Contributed to **on-demand Kubernetes clusters** for Machine Learning Engineers to run ML workflows.
  - Improved **wipeout optimisation process by 300%** using partitioning and daily wipeout cleanup

- **Research Intern**

  Adobe Big Data Experience Lab May'19 - July'19

  - Enabled Video analytics over edge devices using a deep video codec for **faster inference** and **low storage**.
  - Performed various **computer vision-tasks** on low dimensional representation of videos.
  - Trained the **non-sequential encoder-decoder model** for classification and reconstruction loss
  - Showed **increase in the inference speed** and and **reduction in memory footprint** for the action recognition.
  - Received a **Pre-Placement offer** and successfully **published a patent** for the work during internship

- **Summer Intern**

  New York University May'18 - July'18

  - Inserted backdoors for mis-classification of specific classes in **one-shot recognition** and **object detection**.
  - Poisoned **Siamese Network and Faster-RCNN** for one shot recognition and object detection respectively.

ACADEMIC PROJECTS

- **Asynchronous Distributed Consensus Optimization**: EE698V Optimization for Big Data

  Prof. Ketan Rajwat, IIT Kanpur Aug'19 - Nov'19

  - Developed an **asynchronous algorithm** for decentralized distributed convex optimization problem with Sketched Gradient
  - Used **Stochastic ADMM** with variance-reduced random linear sketches of the gradient (SEGA) as an unbiased estimator
  - Achieved a time complexity of **O(log(t)/t)** for μ convex L-smooth functions and and **O(1/t)** for convex, L-smooth functions
  - Found faster **wall-clock run time** for the Asynchronous algorithm in comparison to the Synchronous version

- **Simple Secure Client :** CS628 **Computer System Security**

  Prof. Pramod Subramanyan, IIT Kanpur Jan'18 - May'18

  - Implemented an **encrypted dropbox** on a zero trust malicious server to store files of many different users securely.
  - Designed the whole system in **GoLang**, assuming that only the **public-key** and username of users is not compromised.
  - Implemented tasks such as **sharing of files**, **revocation**, **fast append** to mimic real world secure database.
  - Used algorithms like as Argon2, RSA, AES and Digital Signatures to achieve aformentioned tasks.

- **Senior Team member, Team IGVC IITK**

  Intelligent Ground Vehicle Competition, Oakland University, Michigan, USA Nov'17 - Jan'19

  - Developed **asynchronous architecture** using ROS for exchange of data with low latency.
  - Developed a robotic ground vehicle capable of **autonomous navigation** on grassy terrain while avoiding obstacles placed on its way.
  - Worked for **Lane Detection and Classification** by implementing U-net and Fast-SCNN for semantic segmentation in real time.

- **Visual Recognition :** CS783 **Visual Recognition**

  Prof. Vinay P. Namboodiri, IIT Kanpur Jan'18 - May'18

  - Performed **unsupervised muti-object tracking** using techniques such as domain adaptation,YOLO and kalman filtering.
  - Implemented deep image matching using **SIFT / DELF** and fine-grained classification using **Bi-linear CNN**.

- **Learning Graph Representations :** CS771 Introduction to Machine Learning

  Prof. Piyush Rai, IIT Kanpur Aug'17 - Dec'17

  - Modelled Ego network as a graph and learned task aware embedding for each node.
  - Established baselines for **link prediction** and **node classification** on graphs, visualized the results using **PCA**
  - Compared various techniques for such as **GraphSAGE, GCN, Node2Vec** on Zachary Karate Club dataset.

RELEVANT COURSES

Computer System Security	Modern Cryptography	Optimization for Big Data
Data Structures and Algorithms	Algorithms II	Machine Learning for Signal Processing
Probability and Statistics	Visual Recognition	Introduction to Machine Learning

POSITION OF RESPONSIBILITIES

- **Head, Team IGVC IITK** July'18 - Jan'19
  - Served as Head of Team IGVC for IIT Kanpur, responsible for Computer Vision department of the vehicle
  - Secured 2^{nd} **global rank** in 2019 and 12^{th} **global rank** in 2018 for IIT Kanpur in IGVC.
- **Secretary, Programming Club, IIT Kanpur** July'17 - May'18
  - Organized various programming competitions and lectures on topics related to programming

TECHNICAL SKILLS

Languages	Python	C / C++	Scala	Java		
Frameworks	Akka	Spring	Parsers	Tensorflow	Keras	Scikit-Learn