Lakshay Virmani

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Education

Carnegie Mellon University, College of Engineering **Jan. 2022 - May 2023**
Master of Science in Electrical and Computer Engineering — GPA: 4.0 *Pittsburgh, PA, US*
- Coursework: Intro to Machine Learning, Mathematical and Computational Foundations for ML, Intro to Deep Learning, Data, Inference and Applied ML, Foundations of Computer Systems.

University of Delhi, Netaji Subhas Institute of Technology **Aug. 2014 - Jun. 2018**
Bachelor of Engineering in Information Technology — GPA: 4.0 *Delhi, India*
- Coursework: Design and Analysis of Algorithms, Data Structures, System Analysis and Design, Operating Systems.

Industry Experience

Voaige Inc. **May 2022 – Aug. 2022**
Computer Vision Research Intern, DeepSpace Operating AI *Pittsburgh, PA, US*
- Setting up the core perception stack for robotic arms including surface normal estimation, edge and object detection, and keypoint matching for point cloud registration.
- Building an MLOps pipeline for efficient tracking and logging of experiments using Neptune.ai.

Khatabook **Sept. 2019 – Nov. 2021**
Software Development Engineer, Data Platform *Bengaluru, KA, IN*
- Collaborated with Product, Analytics, Marketing and Operations team to build a highly reliable and scalable data platform which grew from consuming about 100k to over **100M** rows worth of data every day.
- Implemented a data lake architecture resulting in annual savings of over **$250k** and a *30%* drop in the query runtime.
- Set up a central data repository using *MongoDB* and *Elasticsearch* (AWS OpenSearch) containing a catalogue of products from all over India being reused by multiple services across the platform.
- Led the data due diligence efforts during the Series B funding round, provided critical insights to the investors, and helped the firm raise over **$60M**.

Amazon **June 2018 – Aug. 2019**
Software Development Engineer, Distributed Computing Services *Hyderabad, TS, IN*
- Developed a feature which enabled the clients to set-up complete service infrastructure with one-click of a button. Reduced the onboarding time of customers by **85%** (from 4 hours to 35 minutes) for over *1000 onboardings/year*.
- Refactored the scaling automation to produce a *fault-tolerant* workflow by introducing service health checks and retry mechanisms, including a suspension state to hand over control to the customer in case of a recoverable failure.
- Designed and implemented the front-end & back-end of a progress tracking feature for the aforementioned automations to provide better visibility to the customers.
- Eliminated the operational burden of about *50 client-contacts/week* and saved more than **800 man-hours/year** in the process.

Software Development Engineer Intern, Fast Data Technologies **June 2017 – July 2017**
- Built a stream-based algorithm to process data during the reduce phase of AWS Elastic Map Reduce service (EMR).
- Improved the EMR runtime by over *25%* and was recognized with the **Amazon Inventor's Award** for filing a **patent** for this technique.

Research Experience

Carnegie Mellon University **May 2021 – May 2022**
Graduate Research Assistant | Advisor: Dr. Howie Choset *Pittsburgh, PA, US*
- Explored the Multi-Agent Path Finding (MAPF) problem with a focus on building hybrid algorithms using a combination of search and learning.
- Submitted the paper titled *"Subdimensional Expansion Using Attention-Based Learning For MAPF"* for IEEE Robotics and Automation Letters (IEEE RA-L), 2022.

Indraprastha Institute of Information Technology Delhi **Aug. 2017 – May 2018**
Undergraduate Research Intern | Advisor: Dr. A.V. Subramanyam *Delhi, India*
- Studied the application of unsupervised learning in *"Image Corpus Representative Summarization"* using a generative adversarial network.
- Published the paper in IEEE International Conference on Multimedia Big Data (IEEE BigMM), 2019 and received the **Honourable Mention Award - Best Paper Nomination** (top 4/250 papers).

Skills

Programming Languages: *Proficient:* Python, C++, SQL *Intermediate:* Java, JavaScript, HTML, CSS, Latex
Frameworks & Tools: Pytorch, Tensorflow, Elasticsearch, MongoDB, DynamoDB, Kafka, Spark, Airflow, Docker, Kubernetes.