Esha Pahwa

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Education

Carnegie Mellon University — Pittsburgh, PA
Master of Science in Machine Learning — Dec 2025
Courses: Probability and Statistics, Intro to Machine Learning, Intermediate Deep Learning

Birla Institute of Technology and Science, Pilani — Pilani, India
B.E. in Computer Science, M.Sc. in Chemistry — Jun 2023

Experience

Adobe — Jul 2023 – Aug 2024
Member of Technical Staff - I — *Noida, India*

- Spearheaded the backend the integration of **Adobe's AI tools for auto-generating emails, SMS, and push notifications**, boosting efficiency and earning the **Adobe Spot Award** for outstanding contributions.
- Engineered and streamlined the smart-token calculation for LLM token usage in email generation, **reducing operational costs and risk of throttling by 27% through dynamic token allocation**.
- Developed an API for automated thumbnail generation using Puppeteer, **reducing generation time by 70% for heavy webpages**, and deployed on Azure Functions to mitigate risks from malicious inputs.
- Designed and implemented a **multilingual API for a prompt library** catering to solution-specific needs, streamlining content generation across diverse market segments.

Google Research — Jan 2023 - Jul 2023
Research Associate | Supervisor: Prateek Jain & Gaurav Srivastava — *Bengaluru, India*

- Worked on enhancing product retrieval in **Google Shopping Ads** based on user query via Tensorflow, and **conducted detailed result analysis** to identify areas for potential improvement.
- Transformed the implementation to **JAX**, employing **data parallelism** across TPUs, **achieving the training time of 14 minutes** for a 100K query dataset.

Adobe - Media and Data Science Research Labs — May 2022 - Aug 2022
Research Intern | Supervisor: Piyush Gupta & Nikaash Puri — *Noida, India*

- Pioneered a **shared encoder-decoder architecture**, optimizing the use of second-party data across campaigns, achieving an impressive **93.11%** accuracy and **0.994** ROC in cross-dataset predictions.
- Implemented a **privacy-preserving mapping model**, elevating segment prediction accuracy to **98.8%** and attaining a **0.978** cosine similarity.

Harvard University — Feb 2022 - May 2022
Research Intern | Supervisor: Hanspeter Pfister & Salma Abdel Magid — *Remote*

- Explored and conducted a literature survey on various applications of super-resolution (SR) of images, such as **face SR for images** with poor quality, **removing bias in SR**.
- Initiated advancements in interpretable super-resolution, introducing and rigorously assessing innovative **texture classifiers** and autoencoders across diverse datasets for cross-training and cross-testing.

Publications

- **MedSkip: Medical Report Generation using Skip Connections and Integrated Attention - E Pahwa***, D Mehta*, S Kapadia*, D Jain*, A Luthra; **ICCV workshop - CVAMD 2021** Paper | Poster
- **LVRNet: Lightweight Image Restoration for Aerial Images Under Low Visibility - E Pahwa***, A Luthra*, P Narang; **AAAI 2023 Student Abstract** Paper | Project Page | Poster | Code
- **Conditional RGBT Fusion for Effective Crowd Counting - E Pahwa***, S Kapadia*, A Luthra*, S Shreyas*; **IEEE ICIP 2022** Paper | Poster | Code
- **DroneAttention: Sparse weighted temporal attention for drone-camera based activity recognition** - S K Yadav, A Luthra, **E Pahwa**, K Tiwari, H Rathore, H Pandey, P Corcoran; **Neural Networks Journal (Impact Factor: 9.657)** Paper

Achievements and Other Experience

- **Scholarships:** 1) Adobe Women-in-Tech Scholarship 2022 - 6 women were selected across India. 2) Grace Hopper Celebration Scholarship'21
- **Reviewer at: 1) ICCV CVAMD 2023. 2) ECCV MCV 2022**

Technical Skills

Languages: Python, Java, SQL, C
Libraries: Tensorflow, OpenCV, Keras, Pytorch, JAX, Numpy, Pandas