Dhruti Shah

ML Engineer working on multimodal foundation models

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Experience

Title	**Apple AI/ML, Machine Learning Engineer**	[May'22-Present]

Multimodal large language models

Description Core author on MM1: Methods, Analysis & Insights from Multimodal LLM Pre-training and MM1.5: Methods, Analysis & Insights from Multimodal LLM Fine-tuning. Led the implementation and benchmarking of image-text interleaved Supervised Finetuning pipeline for MM1. Led the multi-image finetuning efforts for MM1.5. Working on core capabilities for in-house multimodal foundation models, specifically high resolution data pipelines, multi-image inputs, in-context learning and multilingual capabilities.

Title	**IBM Research, AI Automation Group**	[2021-22]

Fast Scalable Image Stitching for High-Resolution Construction Scans [Patent]

Description Developed an image-stitching algorithm achieving a 30x speed increase, enabling the processing of over 100 high-resolution images in under 5 minutes. Leveraged efficient detection and image registration techniques to accurately localize defects on high-end civil engineering structures. Addressing the costliness of defect data collection, devised a semi-supervised tool for accelerated annotation of high-quality visual data.

Education

2019–2022 **Masters in Data Science**, *EPFL*, *5.34/6.0*.
Master Thesis at **IBM Research**
Advised by Prof. Rudiger Urbanke (EPFL) and Cristiano Malossi (IBM Research)
Conducted research in areas of Machine Learning and Computer Vision.

2014–2019 **Bachelors + Masters in Electrical Engineering**, *IIT Bombay*, *9.30/10*.
With Minor in Computer Science.
Institute Gold Medalist (Shankar Dayal Sharma) – First amongst 900 graduating students for general proficiency, both academic and extra-curricular.

Technical Strengths

Languages Python, C++, C, Go
Frameworks Jax, Pytorch, Tensorflow

Leadership and Volunteering

Contingent Leader, Inter IIT sports meet, *IIT Bombay*.
First ever female contingent leader of the gold-winning IIT Bombay team of 150 athletes.

Volunteer, Empowerment Lab, *EPFL*.
Tutor at Empowerment Lab, mentoring young school-girls in data science and machine learning.