

# POORVI HEBBAR

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## EDUCATION

### Carnegie Mellon University

Master of Science in Computer Vision

Pittsburgh, PA

Dec 2023

- Capstone project: *Reconstructing Hand-Object Interactions from videos* (Advisor: [Prof. Shubham Tulsiani](#))

- Key courses: *Mathematical Fundamentals of Robotics, Visual Learning and Recognition, Learning from 3D*

### Indian Institute of Technology, Bombay

Bachelor of Technology with Honors in Computer Science and Minors in Physics

Mumbai, India

May 2021

- Bagged **All India Rank 36** in IIT JEE Advanced among 1.4 million candidates (Top Female Ranker)

- Received the **Undergraduate Research Award** for Bachelor's Thesis

## SKILLS

### Programming

Python, C/C++, MATLAB, CUDA, JAVA, HTML/CSS, Bash, Javascript, Prolog, SQL, Scala, Spark

### Frameworks and Softwares

PyTorch, Tensorflow, AWS, Solidworks, Ansys, Gnuplot

## RESEARCH PROJECTS

### Skew-Robust Human-Object Interactions (HOI) in Videos [\[report\]](#)[\[slides\]](#)[\[code\]](#)

IIT Bombay, India

Jun 2021 - Present

Manuscript in process, submitted at CVPR 2022

- Designed a novel end-to-end framework with body pose and object related cues for discerning multiple HOIs in videos

- Validated the formulation on the large-scale in-the-wild VidHOI dataset, outperforming state-of-the-art methods by 8%

### Robust Classification of Histology Images Exploiting Adversarial Autoencoders [\[report\]](#)[\[slides\]](#)[\[code\]](#)

Jul 2020 - Jun 2021

[Paper](#) accepted at the 43<sup>rd</sup> Annual International Conference of IEEE EMBC 2021

- Proposed a novel weighing scheme of training instances based on likelihood of the encoded features in latent space

- Generated robust features with optimized priors, achieved 80.9% classification accuracy on noisy histology datasets

### Detection of Brittle Shear Zones in Mesoscale Photographs [\[preprint\]](#)[\[code\]](#)

Jul 2020 - Jun 2021

Manuscript submitted to the Journal of Earth System Sciences (JESS 2022)

- Innovated unsupervised edge-detection and quantization methods to discern and label fracture planes with 92% accuracy

### 3D Human Pose Estimation and Future Pose Prediction [\[report\]](#)[\[slides\]](#)[\[code\]](#)

Jan 2021 - Jun 2021

- Investigated BERT and GPT models to learn best pose representations and estimate human motion from monocular videos

- Obtained an average of ~4% improvement in pose retrieval and ~11% reduction in pose-errors on the Human3.6M dataset

### Anomaly Detection in Proctoring Videos (collaboration with CodeTantra) [\[report\]](#)[\[slides\]](#)[\[code\]](#)

Jul 2020 - Dec 2020

- Developed an LSTM autoencoder model to estimate degrees of anomaly in proctoring scenarios and detect aberrant video segments reconstruction pose errors; optimized using online sub-modular maximization and real-time video summarization

### Predicting the Remaining Useful Life of Jet Engines (collaboration with Tvarit AI) [\[report\]](#)[\[code\]](#)

Jul 2020 - Dec 2020

- Successfully employed transfer learning to predict health Indices of engines with > 30% missing time-series data

- Encoded the intermittent measurements as a series of 21-channel images and filled the gaps using generative images

## WORK EXPERIENCE

### Goldman Sachs | Quantitative Risk Analyst

Bangalore, India

Jun 2021 - Jul 2022

- Backfilled reliable time series for swap rates and Euro future prices of various currencies to aid the LIBOR Transition

- Devised automated benchmark, volatility and data quality tests to validate, reconcile and sign off portfolio-pricing models

- Drafted an unsupervised framework to identify anomalies in risk metrics, reducing mitigation time from 1 day to 2 hours

### Goldman Sachs | Data Analyst Intern

May 2020 - Jul 2020

- Predicted Portfolio Risk due to security shocks using regression on hypothesized parameters

- Achieved 97.3% validation accuracy and reduced the PnL estimation time by 47% for 5000 pandemic market-scenarios

### Google | Software Engineering Intern [\[report\]](#)[\[slides\]](#)[\[code\]](#)

Jul 2020 - Sep 2020

- Collaborated with a team of 4 to design, develop and launch a digital content recommendation app; trained a matrix

factorization model with collaborative filtering to customize newsfeed based on viewer's preferences and general popularity

## ACHIEVEMENTS AND ACTIVITIES

- One among the 10 Indians to secure the **KC Mahindra scholarship** of INR 500 thousand for higher studies 2022

- Awarded the **Sports Roll of Honor** for an exceptional contribution to the Institute Athletics team's success 2021

- Part of the **Institute Student Satellite Team**, modeled the mechanical structure of IITB's second satellite – Advitiy 2019

- Initiated a computer literacy program for cafeteria workers under NSS (National Service Scheme) IIT Bombay 2018

- Felicitated by the Hon'ble President of India, received Desai Sethi Scholarship for inspiring STEM female aspirants 2017

- Accorded the **Len Bassar Award** for scientific leadership at the International Science School camp, Sydney 2017

- Honored with the prestigious KVPY Fellowship by the Government of India with an **All India Rank 7** 2017