

# Deepti Mahesh

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## EDUCATION

### Master of Science in Computer Science | Robotics Subplan

University of Colorado Boulder

Aug 2022 – Jun 2024

USA

### B.Tech in Computer Science | Graduated with Honors

International Institute of Information Technology Hyderabad

Aug 2017 – May 2021

India

- Editor (2019 - 2020), Writer (2017 - 2020) at College Magazine, Ping!

## SKILLS

**Languages:** Python, C++, Java, C, C#, Rust, Bash, Elm (Functional), React, Flask, JS

**Frameworks, Libraries & Databases:** pytorch, tensorflow, pandas, openCV, scikit-learn, scipy, CosmosDB (Azure), MySQL

**Tools / Other Software:** Git, Docker, Kubernetes, AWS, Apache Hadoop and Spark, Vim, Adobe AE & PS, Unity, Blender, LaTeX

## EXPERIENCE

### Second Spectrum

Computer Vision Intern

June 2023 – Aug 2023

Los Angeles, USA

- Worked in the **broadcast augmentation and calibration** team dealing with court calibration and temporal alignment of broadcast and stationary cameras using head detection, shape matching algorithms and in-house ML libraries.
- Improved **calibration model** accuracy and precision scores (**~98% decrease in false positives**) and augmented auto-evaluation metrics to eliminate invalid court projections and key point matching.
- Computed 2D coordinates of player heads from 3D tracks projected to respective broadcast calibration frames and conducted various experiments to match the above with detections using Delaunay, Hausdorff, Procrustes analyses. Managed to narrow alignment shifts to a margin of 5 with **64.135% decrease in mean absolute error** compared to just distance shifts.
- Python | C++ | AWS | Docker | Git | Bash

### Couture.ai

AI Platform Developer

June 2021 – June 2022

Bangalore, India

- **Automated ML workflow platform** to generate analyses of large data with the development of a feature-rich environment engaging in **resource-adaptive scheduling** and **hyper-parameter tuning** for training models.
- Adapted to scaling and serving infrastructure ( **EKS with EFS for persistent storage** ) from Docker within **2 weeks** and managed production releases.
- Integrated **SSO with Okta** and **Mesh Management with Kiali**. Established centralized security for key management, encryption, PKI system, and secrets storage with Hashicorp Vault within just a week.
- Python | ReactJS | Docker | Kubernetes | MySQL | Git

### StanceBeam

Computer Vision Intern

May 2020 – Aug 2020

Bangalore, India

- Designed and built state-of-the-art, deployable models and statistical analysis for **detection of events in sport** aiding cricket academies with upto **95% accuracy**.
- Annotated and performed audio and video analysis of large data. Developed working algorithms with continual reference and evolution to **academic literature**. Implemented a Python-Azure stack for deploy capabilities.

### Happiest Minds Technologies

Data Analyst and Developer Intern

May 2019 – July 2019

Bangalore, India

- Considered **Business Intelligence**, Machine Learning and **Explainable AI** on a dataset and used tools such as Plotly Dash to create a prototype dashboard for a visual demo of **ML Workflow**.
- Interpreted results obtained through ML models with the utilisation and understanding of libraries such as **LIME**, **Eli5**, etc.

## PROJECTS

### Spacecraft Design

System Design | Python | Telecommunication | Guidance, Navigation & Control

Jan 2023 – May 2023

- **Subsystem Lead for GNC and Telecom** working towards L4 requirements of a NEO Prospector mission launching in 2028.
- Designed, down to part selection, the **hardware, protocols, assembly and scheduling** ensuring adherence to MRD and reliable delivery of functions including telemetry, command, tracking, attitude determination and control, and asteroid operations.

### Terrain Generation and Crater Detection

Computer Vision | Independent Study | ML | QGIS | LiDAR | U-Net

Aug 2022 – Dec 2022

- Perfected Image-to-Image Translation with **Conditional GANs** for generating smooth DEMs from a sparse sketch containing only a network of rivers, ridges and level sets. Developed erosion, level-set and river-network synthesizers to aid in training and modelling.

### Implicit Decoder

CV Final Project | pytorch

Jan 2020 – May 2020

- Implemented a GAN, CNN auto-encoder and decoder for better **Generative Shape Modelling (arXiv 2019)**. The network learns implicit fields resulting in shapes with far better visual quality compared to other methods.

### Kin Face Matching

Research Project | Honors | Tobii Eye Tracker | PyTorch | Interpretable ML

June 2019 – Mar 2021

- Worked on novel developments in Kin Detection & Correlation with respect to face matching algorithms improving results to upto **80%**.
- Utilised LIME and perturbations for **Interpreting ML** black-box trust perceptions. **Wrote a paper for ETRA 2020**.

## ACHIEVEMENTS

- **IIIT Gameathon** | Level Up! (2019): Led a team of 3 and Won Best Design and Art (Unity, C#). Stood 4th out of 20 teams.
- **Games for Good by Indo-American Consulate** | GameJam (2018): Led a team of 5 and Won Best Design Workflow (C#).