Deepti Mahesh

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EDUCATION

Master of Science in Computer Science | Robotics Subplan Aug 2023 – Jun 2024
University of Colorado Boulder USA

B.Tech in Computer Science | Graduated with Honors Aug 2017 – May 2021
International Institute of Information Technology Hyderabad 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 June 2023 – Aug 2023
Computer Vision Intern 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 matchings.
- 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 June 2021 – June 2022
AI Platform Developer 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 May 2020 – Aug 2020
Computer Vision Intern 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 May 2019 – July 2019
Data Analyst and Developer Intern Bangalore, India

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

PROJECTS

Spacecraft Design Jan 2023 – May 2023
System Design | Python | Telecommunication | Guidance, Navigation & Control

- **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 Aug 2022 – Dec 2022
Computer Vision | Independent Study | ML | QGIS | LiDAR | U-Net

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

Implicit Decoder Jan 2020 – May 2020
CV Final Project | pytorch

- 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 June 2019 – Mar 2021
Research Project | Honors | Tobii Eye Tracker | PyTorch | Interpretable ML

- 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#).