DWIREF OZA

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EXPERIENCE

Path Robotics, Inc. February 2022 – Present
Computer Vision Engineer (Python, PyTorch, Open3D, AWS, OpenCV, C++) *Columbus, OH*

- Architect & maintainer of a 3D point cloud stitching algorithm deployed in Path's identification software stack.
- Spearheaded a major refactor of Path's multi-pass welding software, enhancing efficiency and maintainability.
- Orchestrated complete life cycle of a machine learning model to generalize subjective human welder preferences, seeding candidate solutions for a uniform grid search. Unlocked 60% time reduction and a more robust product.
- Successfully led a coordinated software deployment of two autonomous welding cells worth millions in revenue.
- Rapid prototyping and deployment of feature requests, unlocking welding patterns and stability improvements.

Streamn, Inc. May 2021 – February 2022
Machine Learning Engineer (Python, Bash, OpenCV, Docker, networkx, FFmpeg) *Cupertino, CA*

- Developed a community detection algorithm to identify commercials in IPTV feeds using a graph of audio and color structure features.
- Containerized stream capture service to reduce number of data capture outages by 20% and recording failure rate from 40% to 7%.

COSMOS Project, Columbia Student Research Program June 2020 – December 2020
Research Assistant (TensorFlow, PyTorch, C, CUDA, Bash, Docker, Google Cloud) *New York, NY*

- Led a study† on YOLOv4 object detection performance across video resolutions, frame rates and aspect ratios.
- Conducted a comparative study of Mask R-CNN inference with TensorRT through CUDA profiling.

Spectrum Lab, Indian Institute of Science June 2018 – June 2019
Research Associate (Python, TensorFlow, MATLAB) *Bangalore, India*

- Conducted studies with image processing and deep learning for detection of degenerative eye conditions.
- Developed a method for Macular Edema Severity prediction with U-Net and particle swarm optimization with 95.52% accuracy.

EDUCATION

Columbia University August 2019 – May 2021
M.S. Electrical Engineering (Advisors: Predrag Jelenkovic, Zoran Kostic) *New York, NY*

Projects: Multi-object detection, PCA with PyCUDA, Image Super-Resolution through Sparse Representation

Manipal Institute of Technology July 2014 – May 2018
B.Tech. Electrical & Electronics Engineering (Minor in Signal Processing) *Manipal, India*

Thesis: Exploration of Low Rank and Sparse Matrix Decomposition methods for Image Processing

PUBLICATIONS

A Novel Application of Multiscale Low-Rank Image Decomposition for Optic Disc Localization
IEEE Region 10 Conference (TENCON) (2019)

Smart City Traffic Intersection: Impact of Video Quality and Scene Complexity on Precision and Inference†
19th IEEE International Conference on Smart City (2021)

SKILLS

Languages & Scripting	Python, MATLAB, C, C++, bash
Frameworks, Libraries & APIs	PyTorch, TensorFlow, TensorRT, Open3D, OpenCV, CUDA, OpenCL, networkx, FFmpeg, MLFlow, Agile
Platforms & Tools	Linux, Docker, Git, Google Cloud, Jira, Databricks, AWS S3, EC2