Durgesh Reddiyar

Linkedin: linkedin.com/in/durgeshreddiyar
Github: github.com/dee6600

Email: dreddiya@asu.edu
Mobile: (480)-7917716

Education

- **Arizona State University** — Arizona, USA
  Robotics and Autonomous Systems - AI-MS ; *GPA: 3.83* — *Jan 2021 - Dec 2022*
  Courses: Perception in Robotics, Autonomous Exploration Systems, Modeling and Control of Robots, Safe Autonomy of Cyber Physical Systems, Linear Algebra, Space Business and Entrepreneur, Artificial Intelligence.

- **Shivaji University - Autonomous Institute** — Maharashtra, India
  Computer Engineering - B.Tech ; *GPA: 3.64* — *May 2014 - June 2018*
  URI program: Undergraduate Research Experience - Gait Analysis System.

Skills Summary

- **Languages:** Python, C/C++,JavaScript, R, Embedded C
- **Frameworks:** TensorFlow, Keras, Torch, Flask, NLTK, SpaCy, QT, NodeJS, SQL, Mongo DB
- **Tools and libs:** OpenCV, Numpy, Pandas, Scikit, Dialogflow, Darknet, CUDA, Openmp, MATLAB
- **Platforms:** Arduino, Raspberry pi, Atmega 16/32 microprocessors, AWS, GCP, Azure, IBM Watson

Work Experience

- **Data Science and AI Researcher** — Maharashtra, India
  e-Zest Solutions pvt.ltd *(Full-time)* — *Sept 2019 - Oct 2020*
  - **Satellite Image Analysis Project**: **Korea Aerospace Research Institute (KARI):** Studied the existing system and revamped the architecture of previous team for Deep Learning Training and Inference pipeline with tensorflow for 3000+ unstructured satellite images and received **IOU** score of 92% with custom python scripts. Handled daily client meetings with **tensorboard graphs** and performed code review of 2 colleagues.
  - **Handwritten Data Extraction Project**: **Docbyte, Belgium :** Developed fully autonomous Hand written data extraction of Road accident forms with Deep learning and computer vision techniques like **Homography** for Skew correction, **Masking** for localisation, **Classification** for data integrity and **Segmentation** for part detection. Managed 2 million+ unstructured data under **GDPR** regulations. Utilized Tensorflow framework with **Transfer Learning** for building custom **ICR** algorithm which reduced workflow from **3 weeks to 90 seconds** for a form processing. Project developed and deployed on **AWS-ML** instances. Successfully **managed** commercial Data annotation tasks and code review of 5+ associates and interns involved in project.

- **Machine Learning Intern** — Maharashtra, India
  e-Zest Solutions pvt.ltd — *March 2019 - Sept 2019*
  - **Conversational Artificial Intelligent Receptionist Project (Zesty)**: Developed functionalities like Facial Recognition Attendance monitor, Meeting schedule, Registrations, Mail management, Hot-word trigger and greetings for 200+ employees. Tech Stack included Openface, Deepface, Dialogflow, Spacy, Blender, mongoDB, Python, NodeJS.

- **Research Intern** — Hyderabad, India
  Defence Research and Development Organization (DRDO) — *Dec 2017 - May 2018*
  - **Object Tracking Algorithms**: Tested different Tracking algorithms based on OpenCV and CNN on Nvidia Jetson board. Performed experimentation on Fourier transformation with numpyfft and cufft.

Projects

- **Solving Inverse Kinematics with Neural Networks** (**Machine Learning, Robot control, Data science**): NN model which can calculate joint space variables with end-effector pose for RRR and RPP robotic manipulators with 96% and 78% accuracies as compared to 'ikine' function of MATLAB keeping time complexity constant for inference. (2021).

- **Battery Aware Scheduling for CubeSat** (**Buchi Automata, Formal methods, Requirement analysis, Verification**): Modelling, Simulation and verification of multi process and multi state CubeSat with Priced Timed Automata on open-source UPPAAL CORA tool. Model verified for deadlocks and impossible state. (2021).

- **Sky-Hook Elevator Pitch** (**Aerospace, Idea Formation, Simulation, Public Speaking, TRL**): Proposed Sky-Hook Technology for sustainable alternative to space flights. Telemetry and scale Calculations, Fusion 360 Simulations, Material study, Business plan and Financial Ask were parts of the semester long presentations. (2021).

- **Undergrad Intern Project - Engine Defect detector and classifier - Mutha Engineering pvt.ltd** (**Computer vision, Hardware, Electronics, Networking**): Developed a system to classify manufactured engine parts and detect defect/deformity for 1300+ engine parts using Haar Cascades, Prototype system deployed on raspberry pi. (2015).

Awards, Courses and Publications

- **Review Paper: Gait analysis - Approaches and applications**: As a part of developing low cost 2D gait analysis system with handheld portable cameras. Project combined traditional image processing and CNN based computer vision tracking algorithm to detect markers on body and calculate joint angles.(IJARIIT link).(2018)

- **Robot Competitions -** : 2nd Rank and Finalist - **Maze solver and obstacle avoidance** at PVPIT and WCE, Runner up - RC **Aircraft design** fabrication and flying at MindSpark, COEP. (2015)

- **Coding Competitions and Events-** : Finalist for 2 consecutive years - **TCS CodeVita** (2016 and 2017), 1st rank - **Event management** - Online MMO game hosting framework and competition(2015), Runnerup - **Megathon** by e-Zest - **Vision based rescue with drones**(2019), 1st rank - Project competition - on the go chair (2014), Title - "Innovative Thinking" at e-Zest solutions.

- **Courses and certifications:**: Machine Learning and Data science A2Z: Hands on python and R, Deep Learning with Tensorflow 2.0, Redhat Certified System Administrator(RHCSA), Understanding Research Methods - University of London.