Rahul Medicharla

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Education

The Ohio State University — Columbus, OH
Bachelors of Science in Computer Science Engineering, Minor in Business — *August 2021 – May 2025*
Graduating with Undergraduate Research Distinction — GPA: 3.7/4.0

Experience

Technology Intern Program (TIP) — June 2024 – Present
Capital One — *Mclean, Virginia*
- Developing a **Kubernetes-native operator** to assist in vulnerability risk mitigation in live **AWS Kubernetes clusters (EKS)** by identifying vulnerabilities in deployed **Docker containers** and notifying them to internal stakeholders through **Amazon SNS**.

Undergraduate Research Assistant — January 2024 – Present
Photogrammetric Computer Vision Lab, The Ohio State University — *Columbus, OH*
- Engineered a resilient multi-target pose detection algorithm utilizing **Yolov8 and Google MediaPipe** object and pose detection machine-learning models to track joint kinematics across a video.
- Training a **autoencoder model** to identify abnormal joint kinematics in real-time to assist in stroke treatment efficacy at medical institutions by preemptively identifying potential stroke patients.

Software Engineering Intern — May 2023 – August 2023
WillowTree — *Columbus, OH*
- Lead the creation of an end-to-end MVP for a 24/7 customer support chat bot by using the **React** framework, collaborating with a cross functional team of developers and designers, and by following **Scrum methodologies**.
- Implemented a semantic search and response feature to enhance the customer experience by cutting down the response times from the customer service team by around **30%** through the use of **large language models**, **vector embeddings**, and an **Azure SQL database**.
- Engineered and deployed a custom back-end web API leveraging **Azure Cloud Services, .NET framework, and C#**.

Technology Lead — November 2023 – Present
Google Developer Student Club, The Ohio State University — *Columbus, OH*
- Directed and helped organize weekly educational workshops for **80+ members** about Google technologies and their implementations in practice.
- Hosted a 4 session progressive workshop with annually **25+ members** to build a personal website using **React** and deploying it onto **Google Cloud Platform**.

3D Perception Team Member — January 2023 – February 2024
Buckeye Autodrive — *Columbus, OH*
- Developed a multi classification **image recognition ML model** using **Yolov8** and **OpenCV** to identify different types of traffic lights from a real-time camera while minimizing model response latency.
- Created and integrated a custom 3D Dynamics module to get the real-time speed, direction, and orientation of surrounding tracked objects using a **linear regression model**.

Projects

CV Object Tracking Algorithm | *Python, OpenCV, Scipy, Numpy* — April 2024 - May 2024
- Built a generalized object tracking algorithm to be rotation, scale, and brightness invariant using statistics-based computer vision techniques including **NCC template matching, covariance tracking, and mean-shift tracking**.
- Optimized computational efficiency by employing **image scale pyramids** and integrated multiple tracking algorithms, achieving a **20% improvement** in tracking results.

Evolate | *Python, Pytorch, Scipy, Pandas, Numpy* — June 2023- July 2023
- Engineered a dynamic data structure that autonomously switches between different data structure and search algorithm implementations based on user behavioral patterns, resulting in a **10% performance boost** in computation speed.
- Developed and trained a custom **PyTorch Neural Network** to determine the optimal data structure and search algorithm based on behavioral metrics such as insertion and deletion frequencies, search predictions, and search randomness.

Mood.ai | *Python, GCP, Docker, Yolov8, React, Flask* — March 2023- May 2023
- Developed and hosted a custom **Docker** contained python application on **Google Cloud Platform** that enabled **25+ users** to convert videos to abstracted art through the use of audio and video machine learning models and generative AI.
- Implemented numerous inference models such as **Yolov8 object detection** and speech recognition to parse data about that media and utilized **large language** and **stable diffusion models** to reconstruct the data as abstracted art.

Technical Skills

Languages: Javascript, Python, Golang, Java, SQL, C#, C
Frameworks: Kubernetes, Docker, React, .NET, Node.js, Flask, Ruby
Developer Tools: Git, Amazon Web Services, Azure Cloud Services, Google Cloud Platform
Libraries: Pytorch, Yolov8, Google MediaPipe, Opencv, Pandas, Numpy