MUKUND SHANKAR

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EDUCATION

BSc. Computer Science (Hons.) & Mathematics, *University of Maryland* Expected May 2025
Minor in Robotics & Autonomous Systems.
Honors: Computer Science Honors Program, 6x Dean's List.
Relevant Coursework: *Deep Learning*, *Artificial Intelligence*, *Computer Vision*, *Linear Algebra*, *Probability Theory*, *Data Structures & Algorithms*, *Object Oriented Programming*

GPA: 3.60

Nominated by and awarded the Golden Visa by the UAE government under the outstanding student category.

TECHNICAL SKILLS

Languages: Python, Java, C, Ruby, OCaml, HTML, CSS, React, JavaScript, SwiftUI, bash
Libraries: PyTorch, Gym, hydra, TensorFlow, opencv, pandas, numpy, scipy, sklearn, seaborn, mongoDB, AWS, SMPL

EXPERIENCE

Undergraduate Researcher *Dr. Abhinav Shrivastava, UMD CS* July 2023 - Current
Working towards a publication

- Developed a novel learning technique to train a model to retrieve motion motions based on textual inputs.
- Implemented the model in human action recognition and classification tasks using SMPL motions. This work is expected to be submitted for publication in Fall of 2024.
- Implemented a codebase of depth camera functions to process video feeds and generate datasets for training.

Teaching Assistant *University of Maryland, Computer Science Department* August 2022 - Current

- Lead discussion sessions and teach crucial OOP concepts to classes of 45, administering weekly quizzes and labs.
- Hold office hours for over 700 students, helping students understand and implement complex Java projects.
- Organize review sessions before exams to consolidate Java and course content to 400+ students.

Intern and Conference Speaker *International Renewable Energy Agency* January 2020

- Proposed using AI to predict outages to reroute energy, recognized by Director-General of European Commission.
- 1 of 20 selected based on leadership potential to interact with international dignitaries during debates.
- 1 of 45 selected globally based on academics to engage in debates to present renewable energy solutions.

PROJECTS

agora. *Large Language Models, Python, SwiftUI, LangChain, AWS, MongoDB, REST APIs*
The Marketplace for Healthy, Affordable, Personalized Meals Website & App [Link]

- Developed a ML powered LLM-based tool, curating over 300 personalized, nutritional meal ideas for users.
- Integrated solutions to generate images, allow purchases from Amazon Fresh, and LangChain to format output.

Aerial Object Detector *PyTorch, YOLOv5, COCO Dataset, Object Detection/Classification, Seaborn*
Northrop Grumman Hack Week 2023 Winner Code & details [Link]

- Built a model using the YOLOv5 model to recognize aerial objects with a MAP score of over 94%.
- Used transfer learning and the COCO dataset to develop a feasible, flexible, and usable PyTorch model.

Heart Desease Predictor *numpy, pandas, sklearn, matplotlib*

- Created a model, achieving 87% accuracy at predicting heart diseases given a patient's health history.
- Used common libraries (numpy, pandas, sklearn, and seaborn) to train and visualize a random decision forest.