

# Ashutosh Naik

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## EDUCATION

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### University of Colorado Boulder

*Master of Science in Computer Science GPA: 4.0/4.0*

Expected May 2024

*Boulder, CO*

### Sardar Patel Institute of Technology

*Bachelor of Technology in Computer Engineering GPA: 9.77/10*

May 2022

*Mumbai, India*

## EXPERIENCE

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### Graduate Teaching Assistant

*University of Colorado Boulder*

Aug. 2023 – Present

*Boulder, CO*

- Serve as a Teaching Assistant for CSCI 2400: Computer Systems course.
- Conduct weekly recitations and office hours, effectively supporting a class of approximately 50 students.

### Graduate Student Researcher

*University of Colorado Boulder*

Aug. 2022 – Present

*Boulder, CO*

- Played a key role in the development of ShelfHelp, a smartcane to aid the visually impaired in grocery shopping with computer vision and guidance algorithms.
- Developed a unique locator using autoencoders, and verbal guidance issuing precise manipulation commands.
- Surpassed performance of baseline model in command accuracy and guidance time, matching human-level metrics.
- Co-authored a study validating ShelfHelp, accepted for publication in AAMAS 2023.

### Machine Learning Intern

*Skinzy Software Solutions*

Dec. 2020 - Dec. 2021

*Mumbai, India*

- Optimized ML algorithms, surpassing benchmarks, by fine-tuning MRCNN, UNET, and Detectron2, achieving 0.6 Jaccard Index in skin disease segmentation.
- Spearheaded jaundice detection by engineering a PyTorch-based model, attaining 80% accuracy.
- Led training of Deep Learning models to distinguish images of skin diseases among 20 different classes with an accuracy of 85%.

## PROJECTS

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### CloudBoard - Cloud Clipboard | *Go, Google Cloud Platform APIs, Redis, Docker, SQL*

June 2023

- Devised an app to seamlessly synchronize users' clipboards across multiple devices.
- Coded a JWT-based authentication system and leveraged Websockets for real-time clipboard data transfer.
- Crafted REST APIs using Gin and successfully deployed them on Google Cloud Run for high availability.

### TowMater - Autonomous 1/10 Scale Car | *C++, ROS, OpenCV, Robotics*

Jan. 2023 – May 2023

- Played a key role in a team of 6 to develop an autonomous 1/10th scale car.
- Spearheaded the integration of an Intel Realsense 2 camera and IMU, improving depth data collection and vehicle stability.
- Designed a PID controller to achieve precise maneuvering, enabling the car to take jumps up to 1 meter wide.

### Image Augmentation as a Service | *Python, Flask, Kubernetes, Docker, Google Cloud Platform APIs*

Nov. 2022

- Conceived and designed a scalable application to offer image transformations as a service.
- Built augmentation functions on Google Cloud Functions and managed image storage via Google Cloud Storage.
- Developed RESTful APIs with Flask and executed a seamless deployment on a Kubernetes cluster for high availability.

## TECHNICAL SKILLS

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**Languages:** Python, C/C++, Go, SQL, JavaScript, HTML/CSS

**Developer Tools:** Git, Docker, Kubernetes, Google Cloud Platform, ROS, Vim, MPI

**Frameworks and Libraries:** Flask, Gin, pandas, NumPy, Matplotlib, PyTorch, TensorFlow, OpenCV

**Coursework:** Datacenter Scale Computing, Design and Analysis of Algorithms, Advanced Robotics, Object Oriented Programming, Artificial Intelligence and Soft Computing, Applied Deep Learning, Distributed Systems, Database Management Systems, Advanced Data Structures, Data Mining