Ashank **Behara**

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Education

University of Illinois at Urbana-Champaign *August 2018 - May 2022*

Computer Science and Mechanical Engineering, Bachelor's

Internships

Tesla *January 2021 - May 2021*

Incoming Software Engineer Co-Op *Fremont, CA*

3M *May 2020 - August 2020*

Research Intern *Maplewood, Minnesota*

- Custom trained and implemented modified YOLO R-CNN model with a DarkNet backbone for 2D object detection of low visibility bodies
- Leveraged OpenCV in Python for curvature calculation of specular and reflective surfaces and deployed on multi-axis robotic arm
- Built multi-class image classifier using a custom built CNN in Tensorflow and Keras and deployed on NVIDIA Jetson-Nano for IoT solution

Hack4Impact *September 2019 - Present*

Software Developer Intern *Urbana, Illinois*

- Full stack development in tech for social good 501(c)(3) shipping robust open-source software solutions to other nonprofits across the world
- Work vertically in tech stack in in a team of 8 developers and designers with frameworks such as React.js, Node.Js, Flask, MongoDB, and Next.js
- Building HIPAA compliant patient portal to facilitate hearing aid distribution and manufacturing in Jordan and U.S. for 3DP4ME, shipped project-sharing platform to empower the youth for Kids Save Ocean in Austria, and built PoC ride sharing application for UIUC students

RAAD Systems *June 2019 - August 2019*

Robotics Intern *San Jose, California*

- Designed and modeled 6-axis robot and mounting interface for mobile robot using Autodesk Inventor
- Performed inertial and torque analysis for motor selection and functionality testing for kinematics analysis using MATLAB
- Gained knowledge in good industry practices to robustify load bearing mechanical systems and proper design procedures

Research

Human Centered Autonomy Lab | University of Illinois at Urbana-Champaign *September 2020 - Present*

Autonomous Vehicles *Urbana, Illinois*

- Implementing and training Velodyne LiDAR point cloud based pedestrian detection algorithm for electric and autonomous car in Python
- Aided in rewriting the camera based birds-eye-view lane detection pipeline using OpenCV and validated using ROS, Gazebo, and Rviz

Caesar Research Group | University of Illinois at Urbana-Champaign *March 2020 - August 2020*

IoT Software Engineering *Urbana, Illinois*

- Working on frontend infrastructure team for large scale IoT Virtual Circuit Emulator tool available for all UIUC engineering courses
- Modeling virtual user-constructed hardware components as Immutable.js objects and writing unit tests for translation to JSON
- Developing multiple displays with React/Typescript and Konva.js for web frontend to visualize circuits and dynamically edit circuit properties

Disability, Participation, and Quality of Life Lab | University of Illinois at Urbana-Champaign *June 2019 - December 2019*

Wheelchair fall detection *Urbana, Illinois*

- Leveraged Python and MATLAB for wheelchair fall detection using a large sensor suite consisting of accelerometers, gyroscopes, and force plates
- Used SciKit Learn to implement polynomial regression machine learning model and used Vicon motion capture system to validate predictions

Kod*Lab | University of Pennsylvania *June 2017 - August 2017*

Aerial and Hexapedal Robotics *Philadelphia, PA*

- Performed motion analysis of hexapedal and aerial robots using Python and data extracted from the Vicon motion capture system
- Wrote Vicon user guide for the entire lab, assembled various robots, such as Minitaur, and and wrote clustering script for data classification

Projects

Vision-based PPE Validation

https://github.com/abehara2/GotMask

C++ and Python implementations of real time object detection of face-masked and gloved medical personnel using OpenCV. Built, trained, and optimized CNN to 96.3% accuracy using Tensorflow and Keras. Deployed on Raspberry Pi 4 with external camera and i2c LCD display.

Fatemaker

https://github.com/hack4impact-uiuc/kids-save-ocean

Sustainability project accelerator aimed at motivating children to make a change in their communities and empower other children across the world. Web application developed using Next.js, MongoDB, Node.js, and Express.js. We have finished after 6 months of development and are handing off!

Skills

Development: C++, Java, Python, Tensorflow, Keras, OpenCV, Pytorch, ROS, Gazebo, Javascript, MATLAB, React, Node, MongoDB, Verilog, MIPS
Modeling and Analysis: Autodesk Fusion 360, CREO Parametric, Solidworks, Autodesk Inventor, APriori

Extra Curriculars and Awards

Co-founder and VP of Neurotech @ UIUC: Machine learning and technical consulting for Fortune 500 companies
1st Place @ Autodesk BioEngineering Designathon: Designed knee injury simulator for medical students
Honorable Mention @ Health Make-a-Thon: Designed wearable for chronic illness detection for elderly patients in rural areas
Illinois Club Tennis Team: Opportunity to play a sport I love at a high level!