Abhinav Gupta

Senior Year Computer Science Undergraduate at IIIT, Hyderabad
GitHub | Website | abhinav.g@students.iiit.ac.in

EDUCATION

IIIT, HYDERABAD
B-Tech (Honours) in Computer Science and Engineering
Expected May 2021
Hyderabad, India

INDIAN SCHOOL MUSCAT
Central Board of Secondary Education
Graduated May 2017
Muscat, Oman

SKILLS

PROGRAMMING
Proficient and Experienced in:
C • C++ • Python3
Familiar with:
MATLAB • JavaScript • SQL • HTML • CSS • Golang • Flask • Bluespec

SOFTWARE AND TOOLS
OpenCV • ROS • TensorFlow • PyTorch • Linux • Bash • Open3D • ReactJS • OpenGL • Neo4J • LaTeX

COURSEWORK

UNDERGRADUATE

Computer Vision
Mobile Robotics
Statistical Methods in AI
Artificial Intelligence
Operating Systems
Data Structures and Algorithms
Computer Networks
Computer Graphics
Digital Signal Processing

Teaching Assistant for:
Digital Logic and Processors
Design and Analysis of Software Systems

ACHIEVEMENTS

- Perfect scores (800/800) on the SAT Subject Tests (Physics, Chemistry and Mathematics)
- President, The Music Club, IIIT, Hyderabad
- Finalist, Listen Up! Elocution, The Muscat Daily, 2014
- Freestyle Swimming Finalist, CBSE Clusters, 2015

EXPERIENCE

SIEMENS | Machine Learning Intern
May 2020 - Present | Bengaluru, India

- Currently working at Siemens as a machine learning intern in the Research in Digitalisation and Automation business unit. My work revolves around pose estimation and action recognition.

ROBOTICS RESEARCH CENTER | Honours in Robotic Vision
May 2019 - Present | IIIT, Hyderabad | Advisor: Prof. Madhava Krishna

- Currently working on deep optical flow estimation for unsupervised and scene agnostic visual servoing, **aimed for publication for ICRA 2021**.
- Trained and evaluated the popular Flownet2.0 flow estimation algorithm on a dataset manually curated from Facebook's habitat simulator.

CENTRE FOR VISUAL INFO. TECHNOLOGY | Research Intern
January 2020 – Present | Advisor: Prof. PJ Narayanan

- Successfully trained a real-time YOLOv3 object detection model for detecting unhygienic face touches to stay safe from the coronavirus pandemic.
- Manually curated and annotated a datadet and implemented the system to detect and warn the user of the imminent danger.

MAJOR PROJECTS

STEREO RECONSTRUCTION | Computer Vision

- Generated a dense 3D point cloud reconstruction of a scene from stereo images by generating disparity maps for each stereo pair and implemented an iterative PnP algorithm to recover the pose.

EKF-SLAM | Mobile Robotics

- Estimated the 2D pose and trajectory of a robot using sensor measurements from a wheel odometer and laser rangefinder, by applying an Extended Kalman Filter.

VISUAL ODOMETRY | Computer Vision

- Implemented a monocular visual odometry algorithm from scratch, to recover the trajectory of the drone using a sequence of images and implemented the 8-point algorithm within a RANSAC scheme.

FACE CLASSIFICATION | Machine Learning

- Trained various learning models on a dataset of real and animated face images by applying different feature transformations and analysed the classification results.

NOUGHTS AND CROSSES: AI BOT | Artificial Intelligence

- Built a bot for 3*3 Tic-Tac-Toe board, further divided into more 3*3 blocks using Minimax algorithm with alpha-beta pruning, using an optimal heuristic function.

LINUX SHELL | Operating Systems

- Implemented a Linux Bash shell, a command line interpreter in C. Supports many bash commands with piping and redirection