

Abhinav Gupta

Junior Year Computer Science Undergraduate at IIIT, Hyderabad
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EDUCATION

IIIT, HYDERABAD

B-TECH (HONOURS) IN COMPUTER
SCIENCE AND ENGINEERING
CGPA: 8.20/10.00
Expected May 2021
Hyderabad, India

INDIAN SCHOOL MUSCAT

Central Board of Secondary Education
Grade 11: 97.8%
Grade 12: 93%
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
Deep Learning
Mobile Robotics
Statistical Methods in AI
Operating Systems
Artificial Intelligence
Data Structures and Algorithms
Computer Networks
Digital Signal Processing

ACHIEVEMENTS

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

EXPERIENCE

SIEMENS | DEEP LEARNING INTERN

May 2020 - Present | Bengaluru, India

- Currently working at Siemens as a computer vision intern in the Research in Digitalisation and Automation business unit. My work revolves around pose estimation, gait analysis and face recognition.

ROBOTICS RESEARCH CENTER | COMPUTER VISION RESEARCHER

May 2019 - Present | IIIT, Hyderabad | Advisor: Prof. Madhava Krishna

- Currently working on deep optical flow estimation for unsupervised, sequence guided and scene agnostic visual servoing, **aimed for publication for ICRA 2020**.
- Trained the popular 'YOLO' object detection algorithm on a hand-labelled dataset of door images collected from Facebook's habitat.

IIIT, HYDERABAD | TEACHING ASSISTANT

August 2019 - Present | Advisor: Prof. Aftab Hussain

- Teaching the principles of digital logic and the architecture of a processor to 300 students, as part of the Digital Logic and Processors course.
- Teaching software engineering principles and coding techniques in Python and JavaScript, as part of the Design and Analysis of Software Systems course.

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 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