Keshav Rungta

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EDUCATION

UC SAN DIEGO

MS in Intelligent Systems, Robotics and Controls
Dec 2021 | San Diego, CA
GPA: 3.67

BS in Electrical Engineering
Jun 2020 | San Diego, CA
ECE Honours Student
GPA: 3.85, Cum Laude

SKILLS

Concepts
Perception • SLAM • Bayesian Filters
NLP • Path Planning

Programming
Python • MATLAB • C++ • Java

Frameworks
Numpy • Pandas • Matplotlib
Open3D • PyTorch • Scikit
Comet.ml • OpenCV • NuScenes
Astyx • KITTI • HuggingFace

Hardware
Raspberry Pi • Arduino • Jetson Nano
Intel Realsense • TI Radar • ROS
Ouster LiDAR • Soldering

Miscellaneous
Git • Unix • Rapid Prototyping
Kubernetes • Docker

COURSEWORK

Neural Networks/ Deep Learning
Pattern Recognition
Sensing & Estimation
Advanced Computer Vision

TUTORING

2019-20 Linear Systems
2018-19 Intro to ECE

ACHIEVEMENTS

2017 Eta Kappa Nu
2019 Caledonian Scholar
2020 Phi Beta Kappa, Tau Beta Pi
2020 ECE Student of the Year
2020 Award for Excellence in ECE
2020 Henry Booker Award

WORK EXPERIENCE

APPLE | ML Engineer, Environment Light Estimation
Feb 2022 - present | Sunnyvale, CA

- Blueprinted evaluation pipeline **speeding up run time by 85%**

QUALCOMM | Engineering Intern, Depth Imaging with TOF Sensor
Jun 2021 - Sept 2021 | San Diego, CA

- Implemented collection platform to collect depth data in controlled environment at **60+fps**
- Designed data-loader to query experiments based on object attributes
- Analyse and model point-wise depth of object to simulate the same

WCSNG at UC San Diego | Research Assitant, Object Detection
Mar 2019 - Present | San Diego, CA

RadSegNet: A Reliable Approach to Radar Camera Fusion [1]

- Designed multi-stage network to detect cars from fused radar birds eye view (BEV) and RGB images in PyTorch with **mAP of 0.55**
- Blueprinted algorithm to augment dataset leading to **43.1% improved** detections over SOTA

Pointillism: accurate 3D bounding box estimation with multi-radars [2]

- Architected hardware to collect data from camera, LiDAR and radar at **30 fps** using ROS, Arduino, C++, **fps improved by 100%**
- Curated two real-world datasets of **8000+** and **1700+** samples
- Devised algorithm called Cross Potential Point Clouds to de-noise and segment objects, **improving network's performance by 10%**

Video Processing Lab at UC San Diego | Research Intern, 3D Scene Reconstruction
Mar 2018 – Mar 2019 | San Diego, CA

- Developed scripts to organise point clouds in octree structure to render VR scenes in Unity and C# at **100fps, improved by 240%**

PROJECTS

SLAM WITH KALMAN AND PARTICLE FILTERS | Jan 2021 - Mar 2021

- Performed SLAM with both Particle Filters and Extended Kalman Filters
- Mapped camera RGB features to generated map

ALL TERRAIN AUTONOMOUS VEHICLE | Oct 2019 - Jun 2020

- Architected car to navigate itself on land and water

LEADERSHIP

IEEE ETA KAPPA NU (HKN) | Vice President of Events
Apr 2018 - Jun 2020 | San Diego, CA

- Led **25+ officers** to create **100+** events facilitating academic, technical, professional development for engineering community
- Directed **H.A.R.D. Hack**, 24-hour hardware-based hackathon, for **250+ participants** and **10 companies**

PUBLICATIONS

[1] Bansal, K., Rungta, K., and Bharadia, D. Radsegnet: A reliable approach to radar camera fusion, 2022.

[2] Bansal, K., Rungta, K., Zhu, S., and Bharadia, D. Pointillism: Accurate 3d bounding box estimation with multi-radars. In *Proceedings of the 18th Conference on Embedded Networked Sensor Systems* (New York, NY, USA, 2020), SenSys '20, Association for Computing Machinery, p. 340–353.