KUNAL GUPTA

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EDUCATION

M.S. University of California San Diego, La Jolla, CA, USA
Computer Science (3D Computer Vision) Sept. 2018 - June 2020
GPA: 3.68/4.0

B.Eng. Birla Institute of Technology and Science, Pilani, Rajasthan, India
Electrical and Electronics Engineering (Robotics and Control) May 2018
GPA: 8.8/10.0

RESEARCH EXPERIENCE

Department of Radiology
UC San Diego, CA, USA June 2019 - Present
Research Assistant, Prof. Francisco Contijoch

· Confer with a team of radiologists and bio-engineers to automate 90% of cardiac segmentation pipeline
· Design novel compression algorithms using Octrees for 3D CT data that reduce memory usage by 88%
· Research Unet based 3D cardiac CT segmentation algorithms yielding mIoU of 0.82
· Develop scalable machine learning infrastructure involving kubernetes, dockers and AWS for rapid deployment

Centre for Visual Computing
UC San Diego, CA, USA Jan. 2019 - Present
Research Assistant, Prof. Manmohan Chandrekar

· Research dense 3D reconstruction using deep learning to improve mesh quality by 50 times compared to SOTA
· Develop novel architectures using Neural ODE based reversible networks for memory efficient reconstruction
· Produced maintainable Python code utilizing libraries like Pytorch, OpenCV, open3D and ShapeNet dataset
· Work currently under submission at NeurIPS 2020

Wireless Communication Systems Networking Group
UC San Diego, CA, USA April 2019 - June 2019
Research Assistant, Prof. Dinesh Bharadia

· Evaluated 3 segmentation and pose estimation algorithms for novel bi-directional millimeter radar sensor
· Implemented modified PointNet improve segmentation and pose estimation accuracy by 15%

Bio Robotics Lab, Advanced Robotic Center
National University of Singapore (NUS), Singapore June 2017 - Dec. 2017
Research Intern, Prof. Yu Haoyong

· Researched control algorithm that integrates seamlessly with rehabilitation robot improving stroke therapy
· Demonstrated on real subjects that control algorithm stops stumbling patient under 1 second
· Programmed sensor fusion via Kalman filter in C to work on real-time embedded Linux system

PROJECTS

Visual Inertial SLAM Jan 2019 - March 2019

· Implemented Extended Kalman Filter based SLAM system for a differential drive robot using synchronized measurements from stereo camera and IMU

SKILLS

Languages C, C++, Python
Tools Pytorch, Git, Linux, Docker