Sai Shankar Narasimhan

CONTACT INFORMATION

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LinkedIn | Github | Webpage

INTERESTS

Computer Vision, Intelligent control, Simultaneous Localization and Mapping (SLAM), Formal Verification

EDUCATION

The University of Texas at Austin *Aug 2021 - Present*
M.S, Electrical and Computer Engineering
Decision, Information and Communications Engineering (DICE) track
CGPA: 3.86/4.0
Relevant Courses: Learning for Optimal Control, Convex Optimization, Probability and Stochastic processes

Anna University, Chennai, India *June 2014 - April 2018*
B.E, Electrical and Electronics Engineering
CGPA: 8.46/10.0; Graduated with first class
Relevant Courses: Applied Soft Computing, Object Oriented Programming, Advanced Control Systems

EXPERIENCE

The University of Texas at Austin
Research Assistant *- Prof. Sandeep Chinchali* *Aug 2021 - Present*

- **Formal verification of Networked robotics**
  - Working on developing a safety patch for off the shelf controllers to ensure safety specifications are satisfied while operating robots through networks with stochastic communication delays.

Robotics Research Center, IIIT Hyderabad, India
Research Assistant *- Prof. Madhava Krishna* *July 2019 - July 2021*

- **Perception in Bird's Eye View**
  - Developed *MonoLayout*, a deep neural network for semantic segmentation / amodal scene layout prediction in Bird's Eye View (BEV) space.
  - Used adversarial learning to hallucinate beyond occluded areas in perspective view for road semantic class.
  - Implemented an improved trajectory estimation, using *MonoLayout's* BEV segmentation for road and car classes, to showcase its effectiveness.
- **Object-goal navigation**
  - Worked on developing navigation policies for commands like *find a bed* in Facebook's *Habitat AI* simulator, for unseen environments.
  - Trained a Graph Convolutional Network (GCN) to classify nodes in a pose-graph as likely or unlikely to occur near the object-goal.

PUBLICATIONS

AutoLay: Benchmarking Monocular Layout Estimation
International Conference on Intelligent Robots and Systems (IROS) 2020
Also presented at Workshop on Perception for Autonomous Driving at ECCV 2020
Kaustubh Mani*, *N. Sai Shankar**, Krishna Murthy, K. Madhava Krishna

MonoLayout: Amodal scene layout from a single image
Winter Conference on Applications of Computer Vision (WACV) 2020
Kaustubh Mani, Swapnil Daga, Shubhika Garg, *N. Sai Shankar*, Krishna Murthy, K. Madhava Krishna

DFVS: Deep Flow Guided Image Based Visual Servoing
International Conference on Robotics and Automation (ICRA) 2020
Y V S Harish, Harit Pandya, Ayush Gaud, Shreya Terupally, *Sai Shankar*, K. Madhava Krishna

TECHNICAL SKILLS

Tools & Libraries: OpenCV, TensorFlow, PyTorch, ROS, MATLAB, Git, LaTeX
Programming Languages: C/C++, Python

HONORS AND AWARDS

Undergraduate Thesis Grant, SSN Trust Student Internal Funding scheme, 2017
Merit Scholarships for academic years 2014-2015, 2015-2016