Sai Shankar Narasimhan

Contact Information

Robotics Research Centre
KCIS, IIIT Hyderabad

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Research Interests

Deep Learning for Computer Vision, Intelligent control, Mobile Robotics, Simultaneous Localization and Mapping (SLAM)

Education

Anna University, Chennai, India **June, 2014 - May, 2018**
B.E, Electrical and Electronics Engineering
CGPA:8.46/10.0; Graduated First Class
Relevant Courses: Control Systems, Advanced Control Systems, System Identification & Adaptive Control

Honors and Awards

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

Experience

Robotics Research Centre, IIIT Hyderabad, India
Research Assistant - *Prof. Madhava Krishna* **July, 2019 - present**

- Developed Monolayout / Videolayout, Bird's Eye View (BEV) networks for amodal scene BEV layout estimation from input RGB images

Swaayaat Robots, Bhopal, India
Computer Vision Intern **June, 2018 - June, 2019**

- Worked on self-supervised deep architectures, based on consistency loss, to obtain pixel level depths
- Developed a semi-automatic data labelling pipeline using deep unsupervised optical flow networks. Successfully transferred pixel-wise labels across frames with 90 % automation.

Indian Institute of Technology, Madras, India
Robotics Research Intern - *Prof. Manivannan P. V.* **Dec, 2016 - Dec, 2017**

- Developed a novel Kalman Filter algorithm using correlations between measured variables to achieve faster and accurate convergence.
- Developed a new efficient sensor fusion algorithm using Maximum likelihood estimators and measurement noise correlations. Achieved an error reduction of 70% compared to existing methods.

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

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

Modified Extended Kalman Filter using correlations between measurement parameters
Published by Springer in Advances in Intelligent Systems and Computing
Ramanan Sekar, *Sai Shankar N*, Shiva Shankar B, P.V.Manivannan

Use of measurement noise correlations for an improved SONAR model
IEEE Biennial International Conference on Technological Advancements in Power and Energy - 2017
Ramanan Sekar, *Sai Shankar N*, Shiva Shankar B, P.V.Manivannan

Technical Skills

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