Akshay Rangesh

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Summary

I am a Ph.D. candidate with expertise in applied Computer Vision and Machine Learning, specifically in the context of Autonomous Driving and Driver Safety.

Education

- **University of California, San Diego (UCSD)**
  Ph.D. in Electrical and Computer Engineering — Jul 2016 – present
  M.S. in Electrical and Computer Engineering — Sep 2014 – Jun 2016
- **National Institute of Technology, Silchar, India (NITS)**
  B.Tech. in Electronics and Communication Engineering — Jul 2010 – Jun 2014

Experience

- **Research Assistant, UC San Diego, CA** — Jul 2015 – Present
- **Research Assistant, Indian Institute of Technology, Guwahati, India** — Summer, 2013

Testbed Design, Calibration & Deployment

- **LISA-T** — 2018
  - Tesla Model S platform
  - 11 GoPro Hero 4 Blacks, 1 Kinect v2, 1 Velodyne VLP-16 HiRes LiDAR, 2 VL6180 IR sensors etc.
  - Complete calibration of cameras and LiDAR
  - Associated publication: **Exploring the Situational Awareness of Humans inside Autonomous Vehicles** - Akshay Rangesh, Nachiket Deo et al., IEEE ITSC 2018.
- **LISA-A** — 2015
  - Toyota Avalon platform
  - 8 PointGrey Flea3 RGB cameras, 6 iBeo LiDARS, 4 Delphi SRR2 Radars, 1 Mobileye Driver Assistance System etc.
  - Complete calibration of cameras and LiDARs
  - Associated publication: **A Multimodal, Full-Surround Vehicular Testbed for Naturalistic Studies and Benchmarking: Design, Calibration and Deployment** - Akshay Rangesh, Kevan Yuen et al., arXiv 2017.

Publications (selected)

- **HandyNet: A One-stop Solution to Detect, Segment, Localize & Analyze Driver Hands**
  Akshay Rangesh and Mohan M. Trivedi in 3D Humans Workshop, CVPR 2018.
- **No Blind Spots: Full-Surround Multi-Object Tracking for Autonomous Vehicles using Cameras & LiDARs**
  Akshay Rangesh and Mohan M. Trivedi in IEEE Transactions on Intelligent Vehicles, 2018.
- **How would surround vehicles move? A Unified Framework for Maneuver Classification and Motion Prediction**
  Nachiket Deo, Akshay Rangesh and Mohan M. Trivedi in IEEE Transactions on Intelligent Vehicles, 2018.
- **Driver Gaze Zone Estimation using Convolutional Neural Networks: A General Framework and Ablative Analysis**

Sourabh Vora, Akshay Rangesh and Mohan M. Trivedi in IEEE Transactions on Intelligent Vehicles, 2018.

- **Pedestrians and their Phones - Detecting Phone-based Activities of Pedestrians for Autonomous Vehicles**
  Akshay Rangesh, Eshed Ohn-Bar, Kevan Yuen and Mohan M. Trivedi in IEEE ITSC, 2016.

Skills

- **Programming Languages:** C++, Python, MATLAB, Shell
- **Deep Learning Frameworks:** Caffe, TensorFlow, Keras, PyTorch
- **Web Design:** HTML, CSS (novice), JavaScript (novice)
- **Other Skills:** PC speccing & building, Arduino prototyping

Teaching Experience

- Special Topics in Robotics and Control Systems (Spring 2016 & Spring 2018)
- Introduction to Intelligent Systems: Robotics and Machine Intelligence (Winter 2016)
- Digital Image Processing (Fall 2015 & Fall 2016)
- Physics Laboratory: Electricity and Magnetism, Waves and Optic (Spring 2015)

Courses (selected)

Computer Vision (I & II) ∘ Artificial Intelligence ∘ Parameter Estimation (I & II)
Statistical Learning ∘ Optimization on Manifolds
Data Mining and Predictive Analytics ∘ Design and Analysis of Algorithms