

ABHISHEK NAYAK

Graduate Student (PhD), Texas A&M University

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📍 Texas, USA

🌐 <https://nykabhishek.github.io/>

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EDUCATION

Texas A&M University

Doctor of Philosophy in Mechanical Engineering

📅 Aug 2017 - present

📍 College Station, TX

National Institute of Technology Karnataka

Bachelor of Technology in Mechanical Engineering

📅 July 2010 - May 2014

📍 Mangalore, India

EXPERIENCE

Graduate Research Assistant

Texas A&M Transportation Institute (TTI)

📅 Jan 2018 - Present

📍 College Station, TX

Student Technician

Texas A&M Engineering Experiment Station (TEES)

📅 Sep 2017 - Jan 2018

📍 College Station, TX

Member R&D (Engine - Cyl. Head & Valvetrain Design)

TVS Motor Company Ltd, Hosur

📅 Aug 2014 - Aug 2017

📍 TN, India

PROJECTS

Reference Machine Vision for ADAS functions

📅 Feb 2019 - present

📍 TTI

- The objective of this project is to develop a reference system for evaluating different lane markings, sensors and perception algorithms used for Lane Detection.

Response of Autonomous Vehicles towards Emergency Response Vehicles (RAVEV)

📅 Jan 2018 - present

📍 TTI

- Developed vision-based emergency vehicle detection, tracking and localization capabilities for the smart road-side infrastructure using Python and ROS. YOLO-v3 was used as the base architecture for object detection, and a TensorFlow-based object classification neural network was developed using Keras.

Infrastructure Enabled Autonomy (IEA)

📅 Aug 2017 - present

📍 CAST group, TAMU

- Setup DSRC communication network for V2V, V2I and I2I, and developed machine vision capabilities for on-road object detection, tracking, localization on the smart-infrastructure to enable autonomy in vehicles.

Development of drive-by-wire capability on a Ford Focus via vehicle sensor emulation using an Arduino Mega

📅 Aug 2017 - Dec 2017

📍 TTI

RELEVANT COURSES

Analysis of Algorithms | Design of Non-Linear Control Systems | Control System Design | Applied Random Processes | Survey Optimization | Intro to Classical Analysis | Modeling and analysis of Mechanical systems

PUBLICATIONS

- Nayak, Abhishek, Adam Pike, Sivakumar Rathinam, and Swaminathan Gopalswamy. *Reference test system for machine vision used for ADAS functions*. No. 2020-01-0096. SAE Technical Paper 2020
- Hari, Sai Krishna, Abhishek Nayak, and Sivakumar Rathinam. *An Approximation Algorithm for a Task Allocation, Sequencing and Scheduling Problem involving a Human-Robot Team*, 2020 IEEE International Conference on Robotics and Automation (ICRA) 2020
- Deepika Ravipati, Kenny Chour, Abhishek Nayak, Tyler Marr, Sheelabhadra Dey, Alvika Gautam, Sivakumar Rathinam, Swaminathan Gopalswamy, "Vision Based Localization for Infrastructure Enabled Autonomy", 2019 IEEE Intelligent Transportation Systems Conference (ITSC), Auckland, New Zealand, 2019, pp. 1638-1643. 2019
- Nayak, Abhishek, Sivakumar Rathinam, and Swaminathan Gopalswamy. "Vision-based techniques for identifying Emergency Vehicles." No. 2019-01-0889. SAE Technical Paper 2019
- Nayak, A., Chour, K., Marr, T., Ravipati, D., Dey, S., Gautam, A., Gopalswamy, S. and Rathinam, S., 2018. A Distributed Hybrid Hardware-In-the-Loop Simulation framework for Infrastructure Enabled Autonomy. arXiv preprint arXiv:1802.01787 2018

LEADERSHIP EXP.

Senior Director - Mentoring, IGSA - TAMU

📅 Sep'17 - Jul'19

📍 Texas A&M

Convenor - Hobby & Flying Club

📅 Apr'13 - Apr'14

📍 NITK - Surathkal

Executive member, SAE INDIA

NITK Chapter

📅 Sep'11 - May'14

📍 NITK - Surathkal

HONORS & AWARDS

- Learning Facilitator, TVS Motor Feb 2017
- MHRD Scholarship, Ministry of Human Resource Development, Govt. of India June 2010
- Participated in the 10th National Budokan Karate Championship Nov 2007

SKILLS

Python, Matlab, scikit-learn

ROS, OpenCV, LaTeX

Pro-E, Catia, AutoCAD

Tensorflow, Keras

