Shreyas **Ramakrishna**

Graduate Research Assistant · Vanderbilt University

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Experience

ScopeLab, Institute of Software Integrated Systems (scopelab.ai)
Nashville, TN

Graduate Research Assistant (DARPA Assured Autonomy Project) *Jan 2019 - Present*

- Research work focuses on safety assurance and testing of machine learning enabled autonomous systems.
- Developed deep-learning and reinforcement-learning controllers and time-series anomaly detectors for 1/10 scale autonomous race cars and autonomous vehicles in CARLA simulation.
- Developed an evaluation framework with operational risk metric for simulation-based testing of autonomous systems.
- Assisted in developing automation tools for design, development, and testing of autonomous systems.

Siemens Corporate Technology
Princeton, NJ

Research Intern (DARPA ARCOS Project) *May 2021 - Aug 2021*

- Research work focused on automating the assurance case development process for system certification.
- Reduced assurance case development time by 14% by automating the assurance pattern selection process.

Electrical Engineering and Computer Science Department, Vanderbilt University
Nashville, TN

Graduate Teaching Assistant *Aug 2017 - Dec 2018*

- Teaching assistant for courses including Introduction to Computer Engineering, Operating System, and Resilient Distributed System.
- Assisted professors in creating course content, grading, and holding office hours for helping students.

Apsis Solutions
Bangalore, India

Embedded System Designer *Sep 2015 - May 2017*

- Involved in creating requirement and specification documents for several military and commercial products.
- Developed software for products with embedded platforms like PIC, ARM, and Raspberry Pi.

Projects

Runtime Safety Assurance of Autonomous Systems

Research Project

- Developed anomaly detector for perception based machine learning controllers of autonomous systems. (β-VAE Detector)
- Developed the ReSonAte framework for operational risk assessment of autonomous systems. (ReSonAte Framework)

DeepNNCar Autonomous Vehicle Research Testbed

Research Project (DeepNNCar)

- Developed a 1/10 autonomous vehicle testbed to design and test machine learning controllers and safety algorithms.

Education

Vanderbilt University
Nashville, TN

Ph.D. in Electrical Engineering *Aug 2017 - PRESENT*

Technical University Kaiserslautern
Kaiserslautern, Germany

Masters in Electrical Engineering and Information Technology *June 2015*

BNM Institute of Technology (VTU Affiliated)
Bangalore, India

Bachelor of Electrical and Communication Engineering *July 2012*

Skills

Programming	Python (expert), C (proficient), Java (prior experience)
Machine Learning	TensorFlow, Keras, Numpy, Scikit-learn, Pandas
Cloud & Database	AWS, InfluxDB, MongoDB (prior experience)
Hardware Platforms	NVIDIA Jetson, Raspberry Pi, PIC, ARM Cortex M3
Tools & Editors	Docker, Jupyter, Conda, Git, Latex, Microsoft Office
Operating System	Windows, Linux, Robotics Operating System (ROS)
Languages	English, German (Limited working proficiency)