Vineet R. Shenoy

Contact Information

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Education

Johns Hopkins University **Aug 2020 - Present**
PhD., Electrical and Computer Engineering
Advisor: Dr. Rama Chellappa

University of Maryland, College Park **August 2019 - August 2020**
PhD, Electrical and Computer Engineering
Transferred with advisor to Johns Hopkins University

Rutgers University - New Brunswick **August 2014 - May 2018**
B.S., Electrical and Computer Engineering, Computer Science
Summa Cum Laude

Publications

Scalable and Real-Time Multi-Camera Vehicle Detection, Re-Identification, and Tracking
Khorramshahi P., Shenoy V., Pack M., Chellappa R.
IEEE Transactions on Intelligent Transportation Systems, 2022 (under review)

Multi-Class, Multi-Movement Vehicle Counting on Traffic Camera Data
Shenoy V., Chellappa R.
Pre-Print 2022

Towards real-time systems for vehicle re-identification, multi-camera tracking, and anomaly detection
Peri N., Khorramshahi P., Rambhatla S., Shenoy V., Rawat S., Chen J.C. , Chellappa R.
Conference on Computer Vision and Pattern Recognition Workshops, 2020

Study of Timing Constraints and SAS Overload in the CBRS Band using SAS-CBSD Protocol
Anirudha Sahoo, Naceur El-Ouni, Vineet Shenoy
IEEE Globecom Conference Workshops 2019

Professional and Academic Experience

Johns Hopkins University – Anticipatory Ground-Level Imagery Analytics
Research Assistant **January 2020 - Present**

- Improved baseline object detector by 9 points to achieve state-of-the-art performance on operational traffic camera data using domain adaptation techniques.
- Integrated the detector along with a multi-target, multi-camera camera tracking system that re-identifies vehicles in different cameras.
- Collaborated with professional software engineers to integrate research into a real-time, multi-target multi-camera tracking system for the National Geospatial-Intelligence Agency (NGA).

Blutag
Software Engineer **September 2018 - August 2019**

- Integrated a recommendation system using LightFM (Python) into ElasticSearch for efficient searching of products.

- Generated classification labels for unknown products using PyTorch. Achieved 95% accuracy after 20 epochs of training.
- Built workflow for product classification using PyTorch, from image download, data cleaning, and preparation to training and model deployment as a web service using Microsoft Azure.

National Institute of Standards and Technology (NIST)

Intern, Wireless Communications **May - August 2017**

- Simulated FCC rules (docket 12-354) for spectrum sharing in the 3.5GHz frequency band using C++.
- Augmented simulation to analyze over 10,000 units simultaneously passing messages and analyzed stresses on the system.
- Delivered 25-minute plenary presentation to over 200 interns, scientists, and employees of NIST.
- Publication "Study of Timing Constraints and SAS Overload in the CBRS Band using SAS-CBSD Protocol"accepted to IEEE Global Communications Conference Workshops (2019).

MITRE Corporation

Intern, Biometrics **May - July 2016**

- Developed a 90% accurate age classifier in Python that recognized adults and minors based on facial photos.
- Recognized features from over 6000 images using Haar Cascades and trained features using a Support Vector Machine.

Assistantship

Research Assistant **Jan 2020 - Present**

Advisor - Professor Rama Chellappa

Teaching Assistant **Aug 2019 - Dec 2019**

Digital Computer Design (UMD ENEE446)

- Lead weekly discussion sessions, assisted students during office hours, and provided feedback through graded assignments

Relevant Coursework

University of Maryland, College Park

- Statistical Theory
- Machine Perception
- Statistical Pattern Recognition
- Advanced Digital Signal Processing
- Information Theory
- Estimation and Detection Theory
- Convex Optimization
- Stochastic and Random Processes

Skills

Languages : Python, C, Java
Softwares : Pytorch, Tensorflow, OpenCV, Matlab, Docker
Operating System : Windows, Linux

Achievements

- **Rutgers School of Engineering Commencement Speaker**, May 2018
- **Rutgers Chancellor's Leadership Award**, May 2018
- **James Leroy Potter Award for Original Investigation**, May 2018
- **Phi Beta Kappa**, Member, April 2018
- **Tau Beta Pi**, Member, December 2016
- **Valedictorian**, West Windsor-Plainsboro High School North, June 2014
- **Eagle Scout**, September 2013