Veena Krish

PhD Student in Computer Science | New York | veena.t.krish@gmail.com | Website

I'm a 2nd year CS PhD student at Stony Brook University. Since obtaining my BSE/MSE in Bioengineering from UPenn, consulting as a data scientist, and co-founding a medical device start-up, I've had a growing interest in the security implications of deep learning systems. I'm advised by Professor Amir Rahmati, and my work spans security, machine learning, and cyber-physical systems.

ACADEMICS AND RESEARCH

PhD Student in Computer Science, Stony Brook University, New York

GPA 3.89/4.00 — AUGUST 2019 - PRESENT

Graduate Coursework: Network Security, Machine Learning, Computer Vision, Visualization, Cyber-Physical Systems

TA Experience: CSE316: Fundamentals of Software Development, CSE336: Offensive Security

Current Research Projects:

- Investigating the limits of adversarial threats against medical device controllers
- Improving adversarial ML defenses by exploring feature selection
- Exploring how adversarial ML can be translated to control system verification

Previous Class Projects:

- Cyber Physical Systems: Showing feasibility of adversarial attacks against Artificial Pancreas controllers, avoiding anomaly detection systems
- Visualization: : Interactive dashboard in D3.js for comparing common human viruses (including SARS-CoV-2) based on protein interactions
- Network Security: Deep learning-based detection of retargeted ads for information flow tracking

MSE/BSE in Bioengineering, University of Pennsylvania, Philadelphia PA

GPA 3.48/4.00 (Cum Laude) — MAY 2016

TA Experience: ENGR 105: Scientific Computing (MATLAB) for freshmen and sophomore bioengineers

Research Assistant, Littlejohn Fellow, Litt Translational Neuroengineering Lab — 2013 - 2014

- Implemented a 3D image coregistration algorithm in a Mac OS application from a large research collaboration and developed Java command-line tools for the data exchange portal (published 2014)

High School Diploma, Hopkins School, New Haven CT — MAY 2011

PROFESSIONAL EXPERIENCE

Data Scientist, Tessella Inc, Needham MA — 2016 - 2019

Data Scientist for analytics consulting services company; selected project history:

- Implemented bayesian statistical models for a large pharmaceutical company to simulate clinical trials (WPF, C#, .NET)
- Developed a LIMS application to track biomarkers for a small biotech company(full-stack: Postgres, Java API, Aurelia JS, AWS-hosted).
- Primary data scientist on an project to understand relationships among poultry gut microbial data and nutrition (Python, SQL)

Co-Founder, Shock Analytics LLC — 2016 - 2019

Designed system for noninvasive measurement of systemic vascular resistance

- Built the initial prototype (MATLAB and C/Arduino) and developed software for data collection and modeling (Arduino, C#, R Shiny).
- Accepted into the DevelUPmed accelerator at UPenn, which provided mentorship in defining business goals and building rapid prototypes.

Developer, Art & Alchemy, Philadelphia PA — 2015 - 2016

Part-time developer for a startup invested in immersive experiences for art and gaming

- Helped develop a system in MATLAB and C++ to analyze breathing from the Sony Morpheus microphone

Technology Fellow Intern, Coalition for Queens, New York NY — 2015

- Assisted class organization for nonprofit that teaches app development to underserved populations.

SKILLS

Core Software Dev: Java (5+yrs), Python (5yrs), AWS Deployment (5yrs), SQL/Postgres (5yrs), basic C, C++, shell scripting

Front-end Dev (5yrs): Javascript, React js, Aurelia js, D3.js

Machine Learning and Optimization: MATLAB (5+yrs), scikit-learn (5yrs), Tensorflow, Pytorch, Open AI Gym (2yrs)

Engineering software: LabVIEW

LEADERSHIP/AWARDS

Grace Hopper Conference 2020 scholarship recipient

TA training ambassador for the College of Engineering and Applied Science

Executive board member of Graduate Women in Science and Engineering (GWISE) and CS Graduate Student Organizations

PUBLICATION/PATENT

Azarion, A. A., Wu, J., Pearce, A., Krish, V. T., Wagenaar, J., Chen, W., Zheng, Y., Wang, H., Lucas, T. H., Litt, B., Gee, J. C., & Davis, K. A. (2014). An open-source automated platform for three-dimensional visualization of subdural electrodes using CT-MRI coregistration. Epilepsia, 55(12), 2028–2037. https://doi.org/10.1111/epi.12827

2016 : Methods, Systems, and Computer Readable Media for Measuring Systemic Vascular Resistance(WO2017173284A1)