Veena Krish

veena.t.krish@gmail.com | https://www.linkedin.com/in/veenakrish/ | https://vkrish1.github.io/

I'm a 2nd year Computer Science PhD student at Stony Brook University. Since obtaining my BSE/MSE in Bioengineering from UPenn, working 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. My work spans security, formal verification, machine learning, and cyber-physical systems.

ACADEMICS AND RESEARCH

PhD Student in Computer Science, Stony Brook University — NEW YORK
GPA 3.91/4.00 — AUGUST 2019 - PRESENT

Graduate Coursework: Network Security, Machine Learning, Computer Vision, Cyber-Physical Systems, Visualization
TA Experience: CSE316 Fundamentals of Software Development, CSE336 Offensive Security
Current Research:

- Investigating the limits of adversarial threats against medical device controllers (publication in preparation)
- Evaluating the robustness of neural network controllers along minimal-noise unsafe trajectories (extension of AFRL internship research, publication in preparation)
- Improving the robustness of computer vision algorithms by exploring feature selection (publication under review)

Previous Class Projects:

- Cyber Physical Systems: Evaluating the risk of attacks against neural network controllers used in artificial pancreas systems
- Visualization: Interactive dashboard in D3.js for comparing common viruses (including SARS-CoV-2) based on protein interactions

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

- Implemented a 3D image coregistration algorithm in a Mac OS application within a large research collaboration; publication below

PROFESSIONAL EXPERIENCE

Summer Research Intern, Air Force Research Laboratory — WRIGHT-PATTERSON AFB, OH (REMOTE)
Autonomy Capability Team (ACT3), Sensors Directorate — SUMMER 2021

- Summer intern within the Safe Autonomy team, where I led self-guided research into the robustness of neural network controllers designed for a series of reinforcement learning benchmarks (publication in preparation)

Data Scientist Consultant, Tessella Inc — NEEDHAM, MA
Data scientist for analytics consulting services company, promoted every year; selected project history: 2016 - 2019

- Implemented bayesian statistical models for a large pharmaceutical company to simulate clinical trials (WPF, C#, .NET)
- Developed LIMS application to track biomarkers for a biotech company (full-stack: Postgres, Java API, Aurelia JS, AWS-hosted)

Co-Founder, Shock Analytics LLC — 2016-2019
Designed system for noninvasive measurement of systemic vascular resistance, a biomarker of cardiovascular health

- Built the initial prototype and developed software for data collection/modeling; accepted into the DevelUPmed startup incubator

LEADERSHIP/AWARDS

- Grace Hopper Conference scholarship recipient, 2020
- TA training ambassador for the College of Engineering and Applied Science, Stony Brook University
- Executive board member of the CS Graduate Student Organization and the Graduate Women in Science and Engineering org

PUBLICATION/PATENT

- Azarion AA, Wu J, Davis KA, Pearce A, Krish VT, Wagenaar J, Chen W, Zheng Y, Wang H, Lucas TH, Litt B, Gee JC. An open-source automated platform for three-dimensional visualization of subdural electrodes using CT-MRI coregistration. Epilepsia. Dec 2014
- Patent WO2017173284A1 2016: Methods, Systems, and Computer Readable Media for Measuring Systemic Vascular Resistance

TECHNICAL SKILLS

- Core Software Development: Java, Python, SQL/Postgres (5+ yrs), AWS Deployment, SQL/Postgres (5 yrs), essential C/C++/shell
- Machine Learning and Optimization: MATLAB (5+ yrs), Pytorch, Tensorflow (2yrs), Open AI Gym, RLlib (1yr)
- Front-end Development: Javascript (5 yrs), React JS, Aurelia JS, D3.js, matplotlib