

Rajiv Sarvepalli

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EDUCATION

University of Virginia

Bachelor of Science in Computer Science

GPA : 3.906/4.0 Major GPA : 3.97/4.0

Charlottesville, VA

Aug. 2018 – May 2021

RESEARCH EXPERIENCE

Undergraduate Research Assistant

University of Virginia

Jan. 2019 - Current

Charlottesville, VA

- Designed tool to analyze docker container on docker hub collecting data for security analysis of docker containers.
- Built an Active Directory user environment through PowerShell and ESXi scripting mimicking a corporate environment.
- Assembled information about how attacks are executed by running red-team emulators collecting usable data.
- Preprocessed data with Python data science libraries to prepare for anomaly detection and classification tasks.

Research Assistant

George Mason University

June 2017 - Sep. 2017

Fairfax, VA

- Analyzed and organized data from IOT devices utilizing machine learning techniques to increase accuracy of models by 5% and leveraged python machine learning libraries.
- Implemented time series motif discovery algorithms in Python using numpy and SciPy.
- Created one of the first implementations of a novel matrix profile algorithm in Python from a paper.

RELEVANT WORK EXPERIENCE

Machine Learning Intern

Expedition Technology

May 2020 - Aug. 2020

Herndon, VA

- Researched, assessed, and adapted state of the art object detectors using PyTorch to detect small objects in a Agile team.
- Deployed docker containers to AWS P2 instances through Jenkins to train networks.
- Constructed TensorBoard live feeds to monitor validation losses and observe qualitative results quickening the model evaluation process.
- Performed exploration of reinforcement learning libraries to find the best library with priorities of concision and readability.

Data Analyst Intern

NetForecast

Nov. 2019 - Current

Remote

- Developed and documented data management and collection software to improve the structure and optimization (~5000 lines of code).
- Designed scheduled tasks using AWS to perform constant data updates improving data quality.
- Analyzed data from traceroutes and pings to predict router locations using support vector regression and force simulations.
- Designed structure to follow object oriented programming principles and design patterns.

PUBLICATIONS AND CONFERENCES

TECHCON | Conference

Sep. 2019

- Presented research work from University of Virginia.
- Illustrated the manner in which benign users are taken advantage and framed for malicious attacks.
- Assessed collected data to speculate about ways to discern between benign and abnormal user behavior.
- Proposed using anomaly detection with clustering to differentiate malignant users from benign users

Defense Against Persona Abuse Attacks | Poster Publication

Sep. 2019

- Explained modeling of a mock corporate environment and users emulators.
- Link: <https://www.src.org/library/publication/p097600/>

TEACHING EXPERIENCE

Undergraduate Teaching Assistant

August 2020 - December 2020

University of Virginia

Charlottesville, VA

- Provided weekly office hours for a Computer Architecture class with more than 300 students.
- Ran weekly laboratory sessions providing an overview and answering questions.
- Examined instructional material for understandability and clarity through reviewing assignment's overview and instructions.

HONORS AND AWARDS

Member of JUMP Undergraduate Research Initiative

Jan. 2019 - Current

- Paid applicant-based year-long structured research program for undergraduate students
- More information : <https://engineering.virginia.edu/jump-undergraduate-research-initiative>

Intermediate Honors

Nov. 2020

- Top 20% of students in Engineering Department after first 4 semesters

Dean's List

Fall 2018, Spring 2019, Fall 2019

- Earned 3.5 GPA while maintaining 15+ credits

RELEVANT COURSEWORK

Machine Learning
Natural Language Processing
Computer Vision and Language
Statistical Learning and Graphical Models
From Data to Knowledge
Probability

PROJECTS

Social Media Privacy Tool | *Python, PyTorch, Captum*

Sep. 2020 - Current

- Used machine learning to examine the potential personal information in a social media post (image + text).
- Leveraged name entity recognition to recognize potential information leaks within a post's text.
- Developed CNN for image geolocation for a small subset of locations achieving a high precision and recall.
- Made geolocation into a hierarchical classification problem through hierarchical clustering of GPS coordinates.
- Developing demo :

Docker Scraper | *Python*

Sep. 2020 - Current

- Scrapes docker hub for docker images of webserver of similar types.
- Uses variants of docker containers to do analysis of popularity and software package version numbers.
- Observed if people were updating their docker containers with newer software versions to see if any vulnerabilities were left enabling data collection for security analysis of docker containers.

User Emulator | *Powershell, ESXi, Windows Domain Controller*

Jan. 2019 - May 2019

- Created a set of powershell scripts to do basic user behavior in Active Directory.
- Imitated basic behavior such as opening shared files and accessing websites.
- Collected data from event logs to monitor and understand user behavior as a function of logged information.

Anonymous Social Media Privacy

Sep. 2020 - Current

- Senior year thesis on understanding the constraints of privacy within anonymous social media.
- Explored the sociotechnical aspect of privacy: realizing the connection between the technical and social aspects of privacy.
- Examined the impact of technology in changing perspective of privacy: from the individual to collective

TECHNICAL SKILLS

Languages: Python, R, Prolog, C, Java, OCaml

Libraries: PyTorch, TensorFlow, Stable Baselines, NumPy, SciPy, Pandas, Matplotlib, Scikit-learn

Developer Tools: Git, Docker, AWS, VS Code, MySQL, IntelliJ