

RISHIKESH BALAJI

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PROFESSIONAL EXPERIENCE

Gigamon

Software Engineering Intern (Network/Security)

📅 June 2020 – August 2020

📍 Santa Clara, California

- Ported Suricata IDS/IPS security framework onto existing Gigamon embedded systems hardware using C, C++, Python scripting, and Bash
- Wrote protocol rules and configured engine to interface with PFRing and DPDK APIs, improving packet processing performance by 10x

Wave Computing

Software Engineering Intern (Machine Learning)

📅 May 2019 – August 2019

📍 Campbell, California

- Constructed and optimized a single-shot image detector for retail stores to acquire and analyze product data through security camera footage, achieving over 90% accuracy
- Developed mask prediction model for dense object detection and semantic segmentation to process surroundings for autonomous vehicles, increasing accuracy by 20% while decreasing computational cost
- Deployed a Docker and Kubernetes web application leveraging Matplotlib and Tableau to visualize incoming data streams in an easy and accurate fashion

Imagination Technologies

Software Engineering Intern

📅 May 2017 – August 2017

📍 Santa Clara, California

- Collaborated with lead software engineer in developing Voice over IP software and cloud computing applications while utilizing technologies such as Python, HTML5, CSS, and JavaScript
- Developed a MySQL database system with a Python Flask interface to manage back-end testing data while also organizing incoming data

RESEARCH EXPERIENCE

University of Illinois, Computer Vision Group

📅 Aug 2019 – May 2020

📍 Champaign, Illinois

- Engineered a convolutional neural network to analyze human-object interactions on a given image, by examining various interactions between unique human poses and object types, using Python, Pytorch, and the HICO-DET dataset
- Researched optimization of existing models by adding convolutional layers and various feature transformers to detect human-object interactions under Professor Derek Hoiem

University of Illinois: SRTI Labs

📅 Sept 2019 – May 2020

📍 Champaign, Illinois

- **Software Developer: Security Team** [Jan 2020 – May 2020]
 - Collaborated with the University of Illinois Office of Privacy and Security to analyze data and prototype new techniques to protect students, staff, and faculty from cyber threats
 - Wrote scripts in Python to analyze large data stores within Splunk
- **Software Developer: Computer Vision Team** [Sept 2019 – Dec 2020]
 - Developed algorithm using OpenCV and AWS Kinesis to extract features from video streams from custom Raspberry Pi units and cameras across campus to identify vehicle traffic across campus

EDUCATION

University of Illinois at Urbana-Champaign

B.S. in Computer Science and Mathematics

📅 Fall 2018 – Spring 2022

- Dean's List, ACM, ADISA

SKILLS

- Java, Python, C++, C, Go,
- JavaScript, PHP, React.js, Node.js, HTML, CSS
- Tableau, OpenCV, AWS, MySQL, MongoDB, Git, Kubernetes, Docker
- MIPS, Bash, Unix, OCI Protocol (TCP/IP)
- Pytorch, Tensorflow, Caffe, Keras
- Data Structures, OOP, Algorithms, Relational Databases, Distributed Systems

RELEVANT COURSES

Data Structures, Computer Architecture, Machine Learning, Algorithms, Numerical Methods, Discrete Mathematics, Linear Algebra, System Programming

PROJECTS/AWARDS

Poultry Perfection - AGCO Hackathon Winner

- Built an algorithm that uses Deep Learning to optimize poultry farms by allowing farmers to maximize chicken weights and profits
- Used HTTPS protocols (TCP/IP) to network with barns, actively monitoring their parameters and created scripts to parse these large datasets and filter out redundancies
- Created a convolutional neural net to use all available barn data and created an optimization function to allow farmers to maximize poultry yield as well as interactive React frontend

Algorithmic Wealth Management App

- Constructed a wealth management app that used stock data and machine learning algorithms to help people intelligently invest
- Devised backend to pull all current stock data from the IEX Trading API and devised an haptic front-end displaying Java that displays all of the user's data in a simple and discernible manner

Internet Word Visualizer

- Created application in C++ that examined and modeled the frequency of words within various internet forums to better visualize language trends within various subcultures.
- Designed fluid backend that extracted and filtered dynamic data from various online APIs, as well as the Reddit API
- Built an interactive frontend that creatively displayed data