ZACKARY CROSLEY

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EDUCATION

MASTER'S OF SCIENCE
Computer Science · Arizona State University · GPA 3.80 · Aug 2019

BACHELOR'S OF SCIENCE
Computer Science · Arizona State University · GPA 3.76 (Magna Cum Laude) · Dec 2017

EXPERIENCE

SOFTWARE ENGINEER II
Engineering · Censys Inc · Jun 2022 – May 2025

- Developed APIs, pipelines, and architecture for Exposure Management and Platform product.
- Created diagrams, documentation, CI/CD, protocols, and kubernetes configs for APIs/microservices.
- Designed and built service to purchase and track credits. Cron handled expiring and reloading credits; Autogenerated daily reports of credit usage and purchases for product, marketing, and sales.
- Created PR for Formance Ledger library used by Censys Consumption to add required features.
- Worked with junior engineers to assign them tasks, review their code, and help them grow as engineers.
- Developed unique CLI using BubbleTea to present a TUI with navigable tree, simplifying API adoption.
- Created gRPC Gateway to interface between Censys and Workato to manage third party integrations, adding dozens of new integrations and reducing development time for new integrations.
- Built service to poll various sources for data changes and update Postgres risk datastore, reducing update time for customer risks from a full day to minutes.
- Designed and developed pipeline for CVE Risks pulling NVD and host data over gRPC, generating risk definition, posting annotations over Pub/Sub, and storing into Google Spanner.
- Developed efficient and hierachical user configurations in Google Spanner using interleaved tables.
- Developed procedure for fingerprinting risks that reduced code repetition and improved performance. Used this methodology to quickly add dozens of fingerprints in response to vulnerability announcement.
- Created library of shared code within risks improving code quality and removing thousands of lines.

OPERATIONS RESEARCH ANALYST GS-12
The Research and Analysis Center · Army Futures Command · May 2017 – May 2022

- Served as developer on a Combined Arms Analysis Tool for the 21st Century (COMBATXXI), a stochastic (Monte Carlo), high resolution, closed-form, discrete event combat simulation.
- Developed a navigation suite in Python saving hundreds of man hours in development per scenario.
  - Created a graph data structure loaded from terrain, storing contextual data (trafficability, node or edge type) for nodes and edges to facilitate intelligent searching and knowledge representation.
  - Optimized graph via functional programming approach with memoization and lazy evaluation.
  - Implemented search methods and path manipulation algorithms to produce unit maneuvers.
- Developed Utility AI framework in Java to define utility decisions for autonomous agent behaviors.
- Developed Python script to parse wargaming tool output and generate scenario behaviors automatically.
- Developed Java terrain reasoning methodology as sequential discrete sampling and utility evaluation.
- Led model development for an analysis alternative study. Identified required model enhancements and

model behaviors and coordinated with integration team on scenario implementation.

STUDENT RESEARCHER

Security Engineering for Future Computing Lab · Arizona State University · Jul 2017 – Aug 2019

- Worked with Professor Adam Doupé and SEFCOM lab to generalize inductive programming technique presented by Sumit Gulwani (Microsoft). Methodology uses Directed Acyclic Graph intersection to isolate operations that could result in individual characters of output.
- Created novel technique to synthesize exploits in Capture the Flag (CTF) by sniffing traffic, categorizing exploits, learning logic using inductive programming, and reflecting at other players.
- Documented research in thesis and presentation at Arizona State University.

COMPUTER SCIENCE INTERN

High Performance Computing Directorate · Patuxent River Naval Air Station · Jun 2015 – Aug 2016

- Worked at High Performance Computing division on project using machine learning to evaluate existing aircraft Tactics, Techniques, and Procedures (TTPs) and identify superior TTPs.
- Implemented and tested evolutionary algorithms for learning TTPs. Validated algorithm results with Subject Matter Experts on real-world scenarios with modern aircraft data.
- Worked with team to perform IT and maintenance on Windows High Performance Computer (HPC).

PUBLICATIONS

AUTOMATED REFLECTION OF CTF HOSTILE EXPLOITS (ARCHES)

Master's Thesis · Arizona State Univeristy · 2019

MINING ASSOCIATIONS IN LARGE GRAPHS FOR DYNAMICALLY INCREMENTED MARKED NODES

International Conference on Machine Learning and Data Mining in Pattern Recognition · 2018

PROFICIENCIES

Golang	Julia	Protobuf	Kubernetes	Pub/Sub
Python	SQL	gRPC	Docker	Linux
Java	Spanner	Redis	Git	Bash
Clojure	Postgres	CI/CD	GCP	Vim

HONORS AND ACTIVITIES

Department of the Army Civilian Service Achievement Medal · 2022
Operations Research Military Applications Course Honor Graduate · 2020
Science, Mathematics, and Research for Transformation Scholarship · 2016 · 2018