

Joseph Dinsmoor

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EDUCATION

Virginia Commonwealth University

Bachelor of Science in Computer Engineering - GPA: 3.67

Richmond, VA

Aug. 2019 – 2024

EXPERIENCE

Software Engineer

Swirl

December 2023 – February 2024

Waltham, MA

- Developed new client API that cut latency and response times by 50% using django and redis
- Implemented new connectors for private clientele and met customer needs
- Implemented ability to use multiple AI providers and parse data concurrently, resulting in higher accuracy and lower latency
- Built out application for Azure Containerization, enabling easy deployment for customers

Investigator Intern

Virginia State Police

January 2023 – December 2023

Midlothian, VA

- Conducted digital forensics for over 15 active cybercrime investigations
- Wrote custom image binary analysis tool for KaiOS devices using GoLang and Python, enabling investigators to parse KaiOS device images in seconds, rather than hours
- Built custom tools in C++ to reduce forensic processing time of device binaries by 75%

Undergraduate Researcher

Virginia Commonwealth University

June 2021 – December 2023

Richmond, VA

- Reverse engineered proprietary memory encryption algorithms and defeated built-in CPU watchdogs
- Wrote Python scripts to extract memory from PLCs, disable memory protections and analyze the results
- Performed risk analysis on potential vulnerabilities in ARM-based industrial control systems

PROJECTS

KaiOS Image Parser and Analysis Tool | *Python, OpenCV, SQLite3, PostgreSQL*

January 2023 – Present

- Created an open-source program that parses KaiOS based images for forensic analysis
- Enables investigators to promptly parse KaiOS "burner" cellphones
- Uses regex and bitwise reconstruction to comb through binary image
- Used Celery and Redis for asynchronous tasks

Vehicle Log Events and Protobuf Parser(VLEAPP) | *Python, NodeJS, React*

March 2023 – Present

- Contributed to Open-Source Vehicle Log Events and Protobuf Parser
- Contributed new artifacting methods for performing digital forensics for different vehicle infotainment systems
- Added ability to parse QNX filesystems
- Brought down parse times by 90%

Automatic Rsync Utility | *Python, C++, Rust, Django, PostgreSQL, Celery*

June 2023 – Present

- Created utility for automated Rsync backups to Azure Cloud instance
- Used Celery for multithreaded processing of files and folders
- Created api to enable compatibility with most operating systems

TECHNICAL SKILLS

Languages: Python, C/C++, GoLang, SQL (Postgres and SQLite3), Rust, Javascript, R

Frameworks: Django, Redis, Celery, React, Node.js, Terraform, Go, Docker, SQLAlchemy, Flask

Developer Tools: Git, Docker, TravisCI, Google Cloud Platform (GCP), VS Code, Azure, Amazon Web Services (AWS)

Libraries: pandas, NumPy, Matplotlib