

Joseph Dinsmoor

Bachelor of Science
Computer Engineering
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EXPERIENCE

•Swirl.Today

December 2023 - Present

Software Engineer

Waltham, Massachusetts

- Cut latency and response times by 50%
- Implemented new connectors for private clientele and met customer needs satisfactorily
- Created new endpoints for a custom api, and implemented new, more efficient methods of parsing data

•Virginia State Police - High Tech Crimes Division

January 2023 - December 2023

Investigator Intern

Midlothian, Virginia

- Conducted digital forensics for over 15 active cybercrime investigations.
- Wrote custom image binary analysis tool for KaiOS devices, enabling investigators to parse KaiOS device images in seconds, rather than hours.
- Performed malware reverse engineering and post attack forensic investigation.
- Built custom tools to reduce forensic processing time of device binaries by 75%

•VCU Security and Forensics Engineering Lab

June 2021 - December 2023

Undergraduate Researcher

Richmond, Virginia

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

SIGNIFICANT OPEN SOURCE PROJECTS

•KaiOS Based Image Parser

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.
- Technology Used: Python, OpenCV, SQLite3

<https://github.com/joedinsmoor/kaio.scraper/>

•Vehicle Log Events and Protobuf Parser(VLEAPP)

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%
- Technology Used: Python, NodeJS Bootstrap, HTML

<https://github.com/abrignoni/VLEAPP/>

•GSM Text Message Decoder

June 2023 - Present

Created an open-source program that analyzes GSM formatted text messages from a cellphone image.

- Wrote custom framework for parsing GSM formatted text messages on older cellphones
- Used for pre-2010 cell phones with GSM architecture, with plans for CDMA support in the near future
- Gives investigators the ability to scrape SMS messages, contacts, and call history
- Technology Used: C++, Python, SQLite3

<https://github.com/joedinsmoor/GSMDecoder/>

EDUCATION

•Bachelor of Science in Computer Engineering

2019-24

Virginia Commonwealth University

GPA: 3.67

TECHNICAL SKILLS AND INTERESTS

Languages: C/C++, Python, Terraform, HTML+CSS, Postgres, MySQL

Libraries: C++ STL, Python Libraries

Web Dev Tools: Nodejs, VScode, Git, Github

Certifications: CompTIA Security+, Associate Google Cloud Engineer

Cloud/Infrastructure: AWS, Google Cloud Platform, Cloudflare, Microsoft Azure, SAML, SCIM

Relevant Coursework: Data Structures & Algorithms, Operating Systems, Object Oriented Programming, Microcomputer Systems, Integrated Circuit Design, Software Engineering.

Areas of Interest: Software Development, Cloud Security, Digital Forensics.