Joe Samuel (MASc, BEng)

Software Development Engineer – Security

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WORK EXPERIENCE

October 2021 – Present

Software Development Engineer – Security, Ford Motor Company, Ottawa, ON

Designing and developing a **high-volume, scalable and robust in-vehicle distributed security system** for next-generation connected vehicle platforms, focused on optimizing performance and resilience through **complexity & lead time reduction**, earning **multiple Recognition Awards**.

September 2019 – September 2021

Graduate Cybersecurity & Data Science Researcher/Developer, Carleton University, Ottawa, ON

Identified and engineered **novel, data-driven methods** (**multiple publications** from this work), and **open-source tools** for organizations to **measure and manage their system's security level** during its design phase.

October 2019 – April 2021

Graduate Teaching Assistant, Carleton University, Ottawa, ON

Motivated and mentored **40+ students** in topics such as requirements engineering, design patterns, software testing, and production-grade application development resulting in **multiple nominations for Outstanding TA Award**.

May 2019 – August 2019

Internet of Things (IoT) Security Research Assistant, Carleton University, Ottawa, ON

Surveyed and advised on **security deficiencies associated with cloud based IoT platforms** helping initiate a **$2 million** research contract with **multiple industry and government partners** to **investigate and develop solutions**.

January 2018 – August 2019

Principal Developer & Research Assistant, Carleton University, Ottawa, ON

Initiated and oversaw the design and development of a **multi-award-winning** temporal annotation framework based on **Android (Java) app** and a **React** client hosted on **IBM cloud** to support advanced temporal data analysis.

RESEARCH PUBLICATIONS

1. **J. Samuel**, J. Jaskolka, and G.O.M. Yee, "Analyzing Structural Security Posture to Evaluate System Design Decisions," 2021 IEEE 21st International Conference on Software Quality, Reliability and Security (QRS), 2021.
2. **J. Samuel**, "A Data-Driven Approach to Evaluate the Security of System Designs," Carleton University, 2021.
3. J. Jaskolka, B. Hamid, A. Jawad, and **J. Samuel**, "A Security Property Decomposition Argument Pattern for Structured Assurance Case Models," European Conference on Pattern Languages of Programs, 2021.
4. **J. Samuel**, J. Jaskolka, and G.O.M. Yee, "Leveraging External Data Sources to Enhance Secure System Design," IEEE Reconciling Data Analytics, Automation, Privacy, and Security: A Big Data Challenge, 2021.

5. **J. Samuel**, K. Aalab and J. Jaskolka, "Evaluating the Soundness of Security Metrics from Vulnerability Scoring Frameworks," 2020 IEEE 19th International Conference on Trust, Security and Privacy in Computing and Communications (TrustCom), 2020, pp. 442-449.
6. **J. Samuel** *et al.*, " Diabetes Analytics and Recommendation Engine (DARE)," 2020 IEEE Eighth International Conference on Communications and Networking (ComNet), 2020, pp. 1-6.
7. A. Bekele, **J. Samuel**, S. Nizami, A. Basharat, R. Giffen, and J. R. Green, "Ontology Driven Temporal Event Annotator mHealth Application Framework," 28th Annual International Conference on Computer Science and Software Engineering (CASCON '18), 2018, pp. 309–314.

PERSONAL INITIATIVES

November 2018	**Mirage Label** Founded a **sustainable clothing label** to **empower those who work towards the greater good** to persist and persevere.
July 2015	**Techie Avenue** Built an online platform to **empower writers** to reach a **platform-agnostic audience** by publishing to **10+ different media channels**.
July 2008	**JJ Production House** Strategized, counseled, and engineered **digital transformations** for SMBs and non-profits to **broaden their reach by 25% for 1/3 cost**.

EDUCATION

September 2019 – September 2021	**Master of Applied Science: Electrical and Computer Engineering (Data Science), Carleton University, Ottawa, ON (CGPA: 4.0)** • Tentative Thesis Title: Data-driven Approaches for Secure System Design • Course work includes Data Science, Design Secure Networks & Systems, Pattern Classification & Design, Resource Management in Distributed Computing, and Security Engineering.
September 2015 – August 2019	**Bachelor of Engineering: Software Engineering**, Carleton University, Ottawa, ON • Course work includes Algorithms and Data Structures, Database Management Systems, Object Oriented Development, Operating Systems, Real-Time Concurrent Systems, Requirements Engineering, and Software Verification and Validation.

REFERENCES

Dr. Jason Jaskolka (MASc Supervisor)
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Dr. James Green (B.Eng. Research Supervisor)
Professor at Carleton University
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