

Joe Samuel (B.Eng.)

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Graduate Cybersecurity & Data Science Researcher/Developer

EDUCATION

September 2019 – Present **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.

WORK EXPERIENCE

September 2019 – Present **Graduate Cybersecurity & Data Science Researcher/Developer, Carleton University, Ottawa, ON**

Identifying and engineering **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.

RECENT PROJECTS

- January 2020 – April 2020 **Duration Estimation for Canadian Armed Forces (CAF)**, Carleton University, Ottawa, ON
- Collated and examined historical mission data using **Python, R** and derived insights (patterns/correlations) that helped improve CAF mission planning.
- September 2018 – April 2019 **Diabetes Analytics & Recommendations Engine**, Carleton University, Ottawa, ON
- Architected **Cloud Native app** using **Docker, Python, React Native** to **estimate glucose levels** and **provide recommendations** for diabetic patients to manage their health using existing smart devices (Amazon Alexa, Apple Watch).

PUBLICATIONS

1. [To Appear] 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.
2. **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.
3. **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.
4. **J. Samuel et al.**, "Diabetes Analytics and Recommendation Engine (DARE)," 2020 IEEE Eighth International Conference on Communications and Networking (ComNet), 2020, pp. 1-6.
5. 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**.

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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