Ashley Barkworth

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EDUCATION

University of New Brunswick | Oct 2021
Master of Applied Cybersecurity (MACSec)
Cumulative GPA: 4.2/4.3
Capstone Project: "Detecting Credential Stuffing Bots Using Behavioural Biometrics"

University of British Columbia | May 2020
B.Sc. Honours in Computer Science with Distinction, Minor in Mathematics
Co-operative Education Program
Cumulative GPA: 91.2%
Dean's Honour List all years

WORK EXPERIENCE

Bell Canada | Cyber Security Intern   Oct 2021 – Jan 2022
- Research project inspired by MACSec capstone project to mitigate credential stuffing attacks against Bell's IMAP servers
- Coded **Python** scripts to analyze compromised account and source IP address information from MyNetWatchman threat intelligence
- Setup test **Postfix/Dovecot** mail server to create credential stuffing scenario and evaluate solutions
- Wrote **Bash** script to analyze authentication logs generated from credential stuffing scenario

Geering Up | Workshops & Summer Camp Instructor (Co-op)   May 2019 – Aug 2019
Vancouver, BC, Canada
- Instructed in-class STEM workshops for elementary and high school classes during May and June
- Designed curriculum for the junior high school (Gr. 8/9) software camps
- Taught 10 week-long coding and software camps in July and August for grades 3/4, 5/6, and 8/9
- Supervised junior instructors in grades 11/12, assigning them tasks and assisting them with campers

Grow Technologies Inc. | Junior Software Engineer (Co-op)   May 2018 – Aug 2018
Vancouver, BC, Canada
- Worked on backend web application development for Grow's enterprise SaaS banking solutions primarily using **Java**, **Python**, **JSON**, and **Google Cloud Platform**
- Created **REST API** endpoints to transfer data between backend and frontend
- Reported and resolved bugs and other issues from QA using **Jira**
- Refactored the product configuration data model that define Grow's banking products

Statistics Canada | Systems Development Programmer (Co-op)   Sep 2017 – Apr 2018
Ottawa, ON, Canada
- Part of an **Agile** team developing a **Spring MVC** web application with **Java**, **JSP**, and **XML** and testing my code with **JUnit** and **Mockito**
- Designed and coded algorithms for data parsing, normalization, and validation
- Implemented internationalization of the web app to support English and French using **resource bundles**, **HTML**, and **XML**

- Automated creation of data integrity reports with **MS SQL Server**, **SQL**, and **SSIS**

PUBLICATIONS

- *"Ransomware: Recent Advances, Analysis, Challenges and Future Research Directions"*, Craig Beaman, Ashley Barkworth, Toluwalope David Akande, Saqib Hakak, Muhammad Khurram Khan, *Computers & Security,* (2021)

SKILLS

Languages	Java, Python, Bash, SQL, JavaScript, HTML/CSS
Tools and Frameworks	Agile, Git, Google Cloud Platform, MS SQL Server

PROJECTS

C ALRM | GeekPeek   Dec 2021
- Web application that lets users submit suspicious files for analysis and zero-day malware detection
- Files submitted to multiple malware analysis service APIs and results are combined into single report
- Received "Judges special mention" award

Technologies Used: JavaScript/Vue.js, CSS/Bootstrap, Flask, Python

Detecting Credential Stuffing Bots Using Behavioural Biometrics   May 2021 – Aug 2021
- Coded GUI app with activities to collect user mouse and keystroke biometrics data
- Implemented bot scripts to automate completion of the activities
- Calculated mouse and keystroke features from biometric data to distinguish humans from bots
- Evaluated system with four supervised learning algorithms (highest accuracy achieve: 96.95%)

Technologies Used: Python, Tkinter, scikit-learn

"Spootify"   Apr 2019
- Database web application enabling users to access music tracks, artists, playlists, and track analytics

Technologies Used: Java/JSP, SQL/MySQL , HTML, CSS/Bootstrap, JavaScript

Modern Baby Online | VanHacks   Sep 2018
- Inventory management and CRM web app developed for BabyGoRound, a volunteer organization in Vancouver that provides essential items for infants

Technologies Used: Go, React, AWS, MongoDB, Calendly API, Material UI