Daniel **Brodsky**

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Extracurricular

FOUNDING MEMBER OF THE UBC CTF TEAM   *Feb 2019 – Present*

- Solved cybersecurity-related problems in various domains (**Linux**, **Windows**, **Embedded**) using a variety of different techniques, tools, and languages (**Python**, **C**, **C++**, **Rust**) in **60+ CTFs**, achieving **1st place** in Canada for 2019 and 2020
- Organized events and provided presentations/mentorship to the team related to binary exploitation and reverse engineering, helping grow the team to **100+ members**

Research

HUMAN INTERACTION WITH SYMBOLIC EXECUTION   *Jun 2020 – Sep 2020*

- Examined possible methods of leveraging humans to improve binary analysis when using dynamic and static symbolic execution tools and vice-versa as part of a DARPA research project between UBC, and ASU SEFCOM
- Developed an academic understanding of binary analysis and decompilation to direct our research moving forward
- Created prototypes for adding functionality to angr, an open-source concolic execution framework, with the goal of improving human understanding during analysis

Projects

WEBRTL

- Designed and built an FPGA simulator in **Rust** for simulating hardware design netlists in the browser using **WebAssembly**
- Wrote several demo designs in Clash (**Haskell**) for demonstrating functionality of the simulator

XEROS KERNEL

- Wrote a Xeros-like operating system in **C** and **x86 assembly**, learning about operating system internals in the process
- Implemented core kernel functionalities such as memory allocation, context switching/dispatching, IPC, and I/O

Experience

SAP

SOFTWARE SECURITY ENGINEER INTERN   *May 2019 – Dec 2019*

- Designed and built an application using **Python**, **Go**, and **Terraform** for aggregating access privileges for all cloud-related assets
- Improved on a SIEM for alerting on abnormal AWS events, **achieving ~100% uptime** and **improving performance by ~40%**
- Maintained a security scanner for automated discovery of vulnerabilities in **over 100 active projects**

HSBC

CLOUD SECURITY DEVELOPER INTERN   *May 2018 – Aug 2018*

- Built a prototype in **Python** for an authentication layer that makes an internal IAM service act as an OAuth2 server without direct modification, saving on development time and costs compared to a conventional solution
- Created an OAuth2 authentication service for the launch of several new cloud-based applications

TELUS

SECURITY DEVELOPER INTERN   *Sep 2016 – Apr 2017*

- Created data transformation pipelines for a SIEM processing **100M+ events per day** to detect internal network intrusions, moving relevant events to a **SQL** database and custom interface for client viewing
- Automated the detection of malformed data transformation pipelines and documentation of new pipelines added to the system

Education

Bachelor in Computer Science, University of British Columbia

VANCOUVER, BRITISH COLUMBIA, CANADA   *Jun 2020*

- Notable courses include Operating Systems, Parallel Computing, Distributed Systems, Advanced Algorithms Analysis