

Sebastian Navas Chaparro

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Skills

Technical: TypeScript, Python, C, C++, C#, SQL, Java, Linux, OpenStack, AWS, Arduino

Databases: Relational (MySQL, PostgreSQL and DB2) and Non-Relational (MongoDB)

Concepts: Software Development and Testing, Full Stack, Cloud, User-Oriented Development, Data Analysis, Agile

Personal: Problem Solver, Team Player, Effective Communicator, Self-Starter, Passionate Learner

Education

IBM Data Engineering Professional Certificate

Apr. 2024 – Present

Coursera

- **Relevant Coursework:** Python, Relational Database Design (MySQL, PostgreSQL, DB2)

Bachelor in Computer Science

Sept. 2018 – Nov. 2023

Carleton University

- **GPA:** 11.5 / 12.0
- Provost Scholar Award (2023)

Experience

Software Developer

Jan. 2024 – Present

Carleton's Human-Oriented Research in Usable Security Lab

- Translated web development project requirements into **OpenStack** infrastructure configurations, deploying **Linux** VMs and **MySQL** instances
- Refactored a **C++** server that responds to HTTP requests with heat cues by adopting internet-enabled **Arduino** hardware, reducing software dependencies
- Captured HTTPS information of actively browsed websites using **JavaScript** by developing a browser extension to track and respond to user events

Software Developer

Jan. 2022 – April 2022

2Keys – An Interac Company

- Enabled applications to query cybersecurity data by implementing a **GraphQL API** using Apollo Server and **Node.js**
- Developed **UI** components to display cybersecurity data using **React** to help analysts respond effectively to threats
- Tested new features to ensure they met functional requirements by implementing comprehensive **unit tests**

Full-Stack Software Developer

Sept. 2020 – Dec. 2020

Apption

- Architected an Excel scanner by leveraging the Open XML SDK using **C#**, extending tool compatibility for clients
- Ensured implementation of all functionality requirements by testing software behaviour against SpecFlow **unit tests**
- Maintained continuous development progress by discussing project advancements and obstacles in **Agile** meetings

Software Developer

May 2020 – Aug. 2020

Carleton's Human-Oriented Research in Usable Security Lab

- Controlled heat levels of an **Arduino** device by integrating a Peltier module and TMP102 sensor, enhancing the safety and accuracy of heat-based security notifications
- Developed a **Node.js** server to process browser security information and signal Arduino using **UDP** and **OSCP5**
- Enabled analysis of non-visual security notifications by deploying a cloud-based **NoSQL database** to store device usage and survey data

Publications

- [1] Napoli, **Navas Chaparro**, and Chiasson. Enhancing the Experience of Security and Privacy Warnings with Smell, Taste, and Temperature. In *ACM CHI Workshop on Smell, Taste and Temperature Interfaces (STT)* (2021).
- [2] Napoli, **Navas Chaparro**, Chiasson, and Stobert. Something Doesn't Feel Right: Using Thermal Warnings to Improve User Security Awareness. In *USENIX SOUPS* (2020). <https://usenix.org/conference/soups2020/presentation/napoli>.

Projects

Personal Website | AWS (API Gateway, Lambda, S3, SES, Route 53, Amplify), TypeScript, React

- Architected an email delivery service by triggering a **Lambda** function to send emails via **SES** based on information received from an **API Gateway** call
- Simplified global access to my resume by deploying the document using **S3**, making it available through **CloudFront**, and adding a personalized domain using **Route 53**
- Organized information about my professional experience by developing a web app using **React** and **TypeScript**, deploying it using **AWS Amplify**

Password Constellation | TypeScript, React, Javascript, D3.js, Git

- Engineered a web application using **React** and **TypeScript** to enable users to filter network data by node degree, frequency and Levenshtein Distance
- Designed a network visualization for password data using **Javascript** by connecting passwords using the Levenshtein Distance and colouring nodes based on Louvain clustering algorithm
- Documented the project's security background, software design and testing procedures by writing a comprehensive report, enhancing the text with tables and visualizations

Electrical Stimulation Device Simulator | Object-Oriented Design, C++, QT, Git

- Emulated a Cranio-Electro Stimulation device by developing a desktop app using the **QT C++** framework and **object-oriented** design
- Ensured thorough **requirements development and testing** by compiling and enforcing use cases, sequence diagrams and traceability matrix
- Tracked and organized development efforts by designating separate branches for every new feature using **Git**

RARS: Real-Time Agricultural Response System | C, QNX Neutrino, R, Git

- Automated greenhouse management tasks by implementing a program to track and manipulate real-time agricultural variables using **C**
- Modularized the application by employing **QNX RTOS'** inter-process message-passing functionality, streamlining component communication
- Documented the project's rationale, technical components and performance by **writing** a comprehensive report and designing data visualizations in **R**

Leadership

Computer Science Lead

Sept. 2022 – April 2023

Science Student Success Centre, Carleton University

Ottawa, ON

- Organized 2 academic events for undergraduates, by **cooperating** with a team of 15 mentors, resulting in record attendances of 50 and 120 students respectively
- Led a team of 5 in implementing an interactive workshop to introduce novice students to **AI**, iterating over the design and content to serve attendees effectively
- Spearheaded a group initiative to change academic and social spaces, fostering **diversity and inclusion** within the Computer Science culture

Peer Mentor

July 2019 – April 2023

Science Student Success Centre, Carleton University

Ottawa, ON

- Supported at least 2 students per semester in achieving their goals by providing academic, career, and social skills through **mentoring**
- Guided 50 undergraduate students through Computer Vision basics using the OpenCV library in **Python** by developing a technical challenge
- Helped students forecast their grades by automating a GPA calculator using **object-oriented** design and **Java**