

Technical Skills

- Programming Languages: **JavaScript**, TypeScript, Python, C/C++, C#, Java, Golang,
- Web Technologies: **React.js**, HTML5, CSS, Node.js, **Ant Design**, moment.js
- Game Development: **Unity**, **Unreal Engine**, SDL
- Database & Tools: **MongoDB**, **SQL**, Git, VS Code, Visual Studio
- Security & Infra Tools: Scapy, GDB, Wireshark, Vagrant, Metasploit, Terraform, **AWS CLI**

Technical Experience

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| JavaScript Developer Co-op | Semios | Jan 2022 – Aug 2022 |
| <ul style="list-style-type: none">• Built and maintained React components following Agile methodologies, ensuring consistent delivery quality.• Built reusable UI components using Ant Design library, implementing features like data tables, forms, and interactive map interfaces.• Resolved front-end bugs and implemented UI/UX improvements through effective collaboration with QA team.• Enhanced application functionality by implementing robust form validation, content sorting, and date/time management using moment.js. | | |
| Web Developer | Bluvec Technologies Inc. | Sep 2021 – Dec 2021 |
| <ul style="list-style-type: none">• Developed company's landing page using React, ensuring responsive design and brand consistency.• Implemented automated testing suite using Golang to improve code reliability.• Built automated image management system using GoCV for timestamp processing and file cleanup. | | |

Technical Projects

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| Music Stats Page | Next.js, React, Tailwind CSS, Redis | June 2025 |
| <ul style="list-style-type: none">• Integrated APIs from Last.fm, iTunes, and Spotify to fetch top tracks/artists and enrich album artwork and links• Built responsive React components display listening history with fallback handling• Implemented Redis caching with 1-hour TTL to reduce API calls and support manual/automatic cache refresh• Optimized data fetching using Promise.all and normalized JSON structures from multiple APIs | | |
| TCP Network Attack Simulation | Python, Scapy, Vagrant, GDB | April 2025 |
| <ul style="list-style-type: none">• Simulated and evaluated TCP-layer attacks in a 3-node virtual network using Vagrant.• Launched a TCP SYN flood to exhaust server backlog and observed mitigation via SYN cookies.• Executed a TCP RST injection to forcibly terminate active Telnet/SSH sessions.• Crafted spoofed packets to hijack Telnet sessions, inject shell commands, and validate impact via packet capture and file system changes. | | |
| ROP Exploitation | C, Python, GDB, ROPgadget | Mar 2025 |
| <ul style="list-style-type: none">• Developed and tested ROP chains against a custom x64 Linux binary with NX protection enabled and ASLR disabled.• Used GDB and ROPgadget to locate gadgets and construct precise exploit payloads, including handling register constraints and gadget chaining.• Wrote Python scripts to automate ROP payload generation and gadget chaining using offsets from libc. | | |
| PrediQL | Python, GraphQL, Ollama | Sep 2024 – Dec 2024 |
| <ul style="list-style-type: none">• Developed an AI-assisted fuzzing pipeline targeting GraphQL endpoint vulnerabilities such as SQL Injection, DoS, and batching attacks.• Designed Python scripts to automate LLaMA-based query generation via Ollama.• Converted LLaMA outputs into structured JSON payloads and used them to test GraphQL APIs, iteratively refining queries based on error responses. | | |

Bluetooth Cryptographic Protocols	Python	Sep 2024 – Dec 2024
<ul style="list-style-type: none"> • BLE Pairing Simulation: Implemented the Just Works pairing method, validating implementation using Bluetooth specification samples. • Legacy Pairing Analysis: Simulated the Passkey Entry pairing process, exposed vulnerabilities via a brute force attack. • Bluetooth Mesh Provisioning: Implemented provisioning protocols for secure network key distribution and designed advanced attacks, including a reflection attack and a malleable commitment attack based on research findings, to exploit vulnerabilities. 		
Cloud Infrastructure Deployment	EC2, VPC, IAM, DynamoDB	Nov 2024
<ul style="list-style-type: none"> • Deployed a secure VPC network on AWS using the web console, including public/private subnets, Internet Gateway, NAT Gateway, Route Tables, and Security Groups. • Launched EC2 instances and configured a Node.js web server accessible on port 8081. • Created and managed IAM users, groups, and roles, applying the principle of least privilege. • Built a DynamoDB table and securely connected it to EC2 via role-based permissions. • Implemented Elastic IPs and studied their behavior on instance restarts. 		
Serverless API Development	AWS Lambda	Nov 2024
<ul style="list-style-type: none"> • Built a serverless REST API using AWS Lambda and API Gateway, eliminating the need for EC2 servers. • Developed a Lambda function to support both GET and POST requests for a comment system. • Secured the POST endpoint via AWS Cognito, implementing JWT-based authorization. • Validated API with Postman, tested user-based access control, and discussed JWT tamper-resistance mechanisms. 		
Eggly Buddy	C++, OpenGL, ECS Framework	Sep 2023 – Dec 2023
<ul style="list-style-type: none"> • Programmed interactive elements using C++, enabling in-game pet mechanics and mini-games. • Implemented visual effects using custom shaders, including dynamic parallax background and animations. • Developed save/load system using nlohmann/json library for persistent game state. 		
Swag the North	Unity, C#	Sep 2023
<ul style="list-style-type: none"> • Top 12 Finalist out of 200+ projects in Hack the North. • Spearheaded development of an immersive game using Unity and C#, featuring innovative swag collection mechanics. • Implemented core gameplay systems including player controls, item spawning, and scene management. • Led version control workflow and mentored team members in Git best practices. 		
Locative Audio	Unity, C#	Jan 2023 – Apr 2023
<ul style="list-style-type: none"> • Developed a GPS-based mobile app that lets users discover Vancouver’s cultural audio content at specific locations. • Built an efficient content management system using XML data structure and integrated AR Foundation for image detection. • Created an interactive map interface with iGUI featuring custom camera controls and smooth user navigation. 		
FREN	React, JavaScript, MongoDB, Express, Redux	Jun 2021 – Aug 2021
<ul style="list-style-type: none"> • Built a social networking app with user recommendation system and real-time chat functionality. • Implemented Redux state management and routing for seamless user experience. • Developed responsive chat interface with custom pop-up components for friend recommendations. 		
Education		
Vancouver, BC	Simon Fraser University	Sep 2024 – Present
<ul style="list-style-type: none"> • Master’s in Professional Computer Science (Focus: Cybersecurity) 		
Vancouver, BC	University of British Columbia	Sep 2018 – May 2024
<ul style="list-style-type: none"> • Graduated with a BS in Computer Science, with Distinction 		