Stanley Avril

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Education

Polytechnique Montréal **Expected Apr 2027**
B.Eng., Software Engineering
Selected coursework: Data Structures, Databases, Web Systems, Networks, Operating Systems.

Projects

CodeCell Live: Real-time Collaborative IDE Jul 2025–Present
React (TypeScript), Vite, tRPC, WebSocket, Go, Firecracker, Monaco | Git repo
- Real-time IDE to run Python code inside lightweight VMs (**Firecracker**) orchestrated by a small Go service.
- Made local start-up faster by keeping a warm VM ready (fewer cold boots during runs).
- Streamed program output to the editor over **WebSocket**; added a basic multi-cursor view in Monaco.
- Practical safety: per-run time limit, memory cap, and automatic cleanup of the temporary workspace.

Recon-only (Authorized Targets) Dec 2024–Feb 2025
React, Node/Express, Flask (Python), Playwright, Nmap | Git repo
- Combines **Nmap** for port/service discovery with **Playwright** crawling; streams progress live via **WebSocket**.
- Safety for legitimate use: input validation, **rate limiting**, and maximum crawl depth/time; clearly labeled **authorized targets only** in the UI.
- Small React + Node + Flask MVP; exports results as structured JSON for follow-up analysis.

Le Polyscope: Website Contributions May 2024–Aug 2024
React, Firebase, Material-UI | Live site
- Contributed to the **official Polytechnique student newspaper** website (Le Polyscope).
- Cleaned layouts and image sizes; smaller bundle and better page stability (less layout shift while loading).
- Fixed **12+** UI/accessibility issues; introduced hooks/context patterns for clearer state and reusable components.
- Collaborated with a small team (reviews, short sprints) to ship incremental UI improvements.

Personal Portfolio Website Dec 2024
React, Material-UI | Live site | Git repo
- Responsive one-page portfolio with JSON-driven project data, a custom MUI theme, and links to code/demos/screenshots.

Experience

Propolys: Cybersecurity Startup Accelerator May 2025–Aug 2025
Cohort Participant — Product & Engineering
- Conducted **50+** user/problem interviews to validate needs and scope the MVP.
- Built an MVP (auth, API, dashboards) and presented progress to mentors; delivered a demo-day pitch.

Technologies

Programming Languages: Python, JavaScript, TypeScript, JSX, C/C++, Java, Go, Assembly
Frontend: React, Angular, Material-UI, Vite, Monaco Editor
Backend: Node.js/Express, NestJS, tRPC, Flask, Spring Boot, WebSocket
Databases: MySQL, MongoDB, Firebase
Tools & Infrastructure: Docker, Git/GitHub, Linux (Ubuntu), AWS Firecracker (microVM), Visual Studio Code, Neovim
Cybersecurity Skills: Pentesting, SQL and XSS Injection, Reverse Shell, Binary Exploitation, Linux Privilege Escalation, Windows Exploitation, Nmap, Playwright
Languages: French (native), English (fluent)