

SAMUEL BOULAIN HOLSTAINE

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PROFILE

- Software engineer specialising in real-time 3D and systems programming, working mainly in C, C++ and C#. I build interactive interfaces and simulations (drone-swarm control, live lidar visualisation, procedural worlds) with game engines (Godot, Unity, Unreal) and low-level tooling. Trained at École 42 through building and peer-reviewing real software end to end. Grew up across Asia (ten years in India, four in China) and settle quickly into international teams.

SKILLS

- PROGRAMMING: C, C++, C#, Python, JavaScript, Rust (learning)
- REAL-TIME 3D & SIMULATION: Godot, Unity, Unreal Engine, Blender (3D modelling), GLSL shaders · procedural generation (Perlin noise, Wave Function Collapse)
- SYSTEMS & INTEGRATION: Linux, Bash, Docker, NGINX, MariaDB, Git, HTTP servers, WebSockets, REST APIs, ROS2
- LANGUAGES: French (native), English (fluent), Mandarin (B2, working toward HSK4)

EXPERIENCE

EMERGENT SWARM SOLUTIONS | AEROSPACE INNOVATION HUB

Delft, Netherlands

Software Engineering Intern — Drone Swarm Control Interface

February 2025 - June 2025

- Sole developer of the operator interface for an autonomous drone swarm: a cross-platform 2D/3D application in Godot for planning missions and monitoring drones live in the field.
- Built the integration layer to the team's ROS2 drone software: a Python ground station that intercepted the drones' published messages and relayed telemetry to the UI over WebSockets, in both directions.
- Integrated a colleague's C++ path-planning algorithm via Godot's C++ modules, so planner and front end ran as one system.
- Rendered live lidar point clouds using multi-mesh instancing and custom shaders, with rendering options that kept large survey areas responsive.
- Designed the UI in Figma with the founders; shipped guide overlays, self-explanatory controls and spreadsheet-driven localisation in 3 languages (French, English and Dutch).
- Ran a demo day with my software at a defence trade fair, where the Dutch Ministry of Defence used the interface first-hand.

KEY PROJECTS

- Wave Function Collapse Map Generator C#, Godot | 2023 Implemented the WFC algorithm from scratch to generate coherent 2D maps from an adjacency rule set. github.com/P1tayaa/GODOTWFC
- Procedural Biome Generation Raylib, Odin | 2024 Built a collecting game set in a procedurally generated 2D world, layering Perlin-noise functions to produce distinct biomes.
- Systems & Backend (42 School) Webserv C++ | 2024 Built an HTTP server hosting a live website as a team; personally responsible for the Python CGI execution and directory auto-indexing. github.com/omathot/webserv
- Inception Docker | 2024 Deployed a full containerised infrastructure, a WordPress site on NGINX backed by a MariaDB database. github.com/P1tayaa/Inception_42_sboulain
- Minishell C | 2023 Wrote a Bash-like shell from scratch, deepening low-level understanding of processes, pipes and Linux internals. github.com/P1tayaa/minishell

EDUCATION

SHANGHAI JIAO TONG UNIVERSITY

Mandarin Language Programme

Shanghai, China

2025 - 2026

ÉCOLE 42 NETWORK, AMSTERDAM (CODAM)

42 Core, Software Engineering

Amsterdam, Netherlands

2022 - 2025

- Selective, project-based program: two years of C/C++ and systems projects built and peer-reviewed to production standard.

ADDITIONAL INFORMATION

- FREELANCE WEB DEVELOPER, INDIA (2020): built a website for two French-owned small businesses.
- INTERESTS: tabletop RPGs (organiser & game master), game development, cooking