

Pavlo Solodrai

Software Engineer · C/C++ · Python

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SUMMARY

Self-taught software engineer who builds things from first principles. Wrote most of a ~47k-line C/C++ game engine and editor (OpenGL renderer, map editor, navigation meshes, computational geometry), recently with Claude Code. Designed and built a golf ball counting machine now in daily production. Now building backend skills in Python.

TECHNICAL SKILLS

- **Languages:** C, C++, Python
- **Graphics & platform:** OpenGL, GLFW, Win32, X11, SIMD intrinsics, miniaudio
- **Systems:** memory arenas and allocators, hot code reloading, binary file formats, profiling
- **Geometry & algorithms:** polygon clipping, triangulation, navigation meshes, pathfinding
- **Tools:** Git, Claude Code (AI-assisted development), MSVC, Clang, GCC, build scripting (Batch, Bash), Linux, Hugo
- **Other:** Arduino, mechanical design, 3D printing

PROJECTS

Kaban Engine — C/C++ game engine and editor · [GitHub](#) · 2023 – Present

- Rebuilt a *Handmade Hero*-based codebase into my own engine; ~85% of its ~47k lines are now original.
- Since Oct 2026, develop with Claude Code: I design each system in phases and review and test every change; shipped a 5-phase renderer migration in one day and a 4-phase map editor in two.
- Migrated the renderer to OpenGL 3.3 core: batching, a pixel-art world, game shaders, normal-mapped lighting.
- Built a layered tile-map editor with full undo/redo and animated tile sets, plus an asset pipeline that packs everything into the engine's own binary format.
- Built navigation mesh generation from map geometry, with obstacle cutting and agent movement.
- The editor builds games in the background and hot-reloads them on save; runs on Windows and Linux.
- Building *Spellweaver*, a top-down 2D RPG, as the engine's first full game (~5.6k lines so far).

Triangle Subtraction Algorithm — C · [GitHub](#)

- Single-precision triangle–triangle subtraction for cutting obstacles out of navmeshes.
- Reduced the problem to 20 cases and validated it on billions of randomized inputs.

Clipper-2d — C · [GitHub](#)

- Reimplemented the Clipper2 polygon booleans the engine needed, with C arrays, freelists and SIMD math.

Golf Ball Counting Machine — mechanical design · [write-up](#) · 2025 – 2026

- Pitched the machine to management at Replay Golf Supply, got it funded, and built it outside work hours.
- v1 used an Arduino and stepper motors; v2 replaced them with mechanical gates and is now in daily production.
- One operator now does work that took a team: roughly 3–5× more output per person.

EXPERIENCE

Golf Ball Technician — Replay Golf Supply Inc. · Vancouver, BC · Sep 2024 – Present

- Sort and grade used golf balls by brand, model and quality in a high-volume operation.
- Identified manual counting as the bottleneck and built a counting machine for it (see Projects).

EDUCATION

Backend Development Path — [Boot.dev](#) · Jul 2026 – Present

- 7 certificates (Python, OOP, functional programming, Git, Linux, 2 projects); 480+ exercises completed.

Self-directed study: *Handmade Hero* — Casey Muratori · 2022 – 2024

- Learned C/C++ and low-level engine programming by following the series from scratch.