# Zain Dana Harper

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## Graphics and Tools Programmer

### Summary

I write renderers, shader presets and compilers and check each fast path against a reference. My Skyrim mod has 1,004,693 downloads, and 34 open-source projects have merged 41 of my pull requests. About thirteen years of programming, and eleven years of commercial tree care scoping jobs and coordinating crews.

### Selected Results

- Released Elder ENB, a Skyrim lighting preset with 38 atmosphere presets: 1,004,693 downloads (179,218 unique) and 2,418 endorsements as of November 13, 2026. nexusmods.com/skyrimspecialedition/mods/117327
- Merged 41 pull requests in 34 other people's projects, 3 of them list entries, counted November 14, 2026. Biome #11518 fixed TypeScript modifier order in the formatter. TOMLKit #549 kept sibling keys when a dotted key is replaced. Grimp #304 replaced a Rust panic with a Python error. harperz9.github.io/portfolio.html
- Shipped BuildLang 1.15.0 on crates.io, Calibrate Pro 2.0.1 and Build Color 1.0.2 on PyPI, and Superframe 0.3.0 and raw-native 0.8.0 as GitHub releases. Versions read November 14, 2026.
- Published the BuildLang systems paper, not peer reviewed: doi.org/10.5281/zenodo.21231253

### Experience

**Arboriculture and Field Operations | Legendary Tree**
Seattle area | April 25, 2015 to June 2, 2026

- Turned site assessments into estimates and job scopes; coordinated clients, crews and vendors on access, timing and hazards; watched rigging and clearances from the ground.

**Technical Networking Support | Stream/Convergys | 2014 to 2015**

- Resolved Xbox connectivity problems on a Microsoft product contract in Wilsonville, Oregon, by phone and chat, across TCP/IP, DNS, NAT, firewalls and routers; documented the steps for support handoffs.

I have not yet held a paid software role. The software on this page is independent work.

### Projects

- Built a C++23 renderer with a CPU reference beside D3D12 and WebGPU backends; release 0.8.0 passed 60 of 60 tests with MSVC and GCC, with default renders byte-identical across four builds.
- Added a Vulkan 1.3 backend whose 600 presented frames match the offscreen and D3D12 WARP renders hash for hash, and radiance cascades measured against the path trace. Merged, not yet released.
- Developed BuildLang, a language with typed capability effects and C and shader output. Release 1.15.0 adds experimental WebAssembly and x86-64 targets that need no C toolchain.
- Brought Argonaut's 1990s BRender engine to 64-bit Windows and Linux from its public source.
- Wrote guides, API documentation and release notes as a freelance technical writer, from 2017.

I write with coding agents and review, test and release the work myself.

### Education

High School Diploma | Wilsonville High School, Oregon | 2013

Credentials, 2026: security and cloud certifications from Qualys, Microsoft and Google, none in graphics.

### Skills

C++23, Rust, Python, HLSL, WGSL, TypeScript; D3D11, D3D12, Vulkan, WebGPU; CPU reference rendering and GPU parity checks; color science (Oklab, CAM16, ICC profiles); compilers and language servers; CMake.