

ELIJAH BENT

PIPELINE ENGINEER • SOFTWARE ENGINEER • TECHNICAL ARTIST
DCC & UNREAL PLUGIN DEVELOPER • VIRTUAL PRODUCTION

Subsurface Dev & Subsurface Labs (startups)

Denver, CO • 303-253-2422 • admin@subsurfacedev.xyz

linkedin.com/in/elijah-bent • subsurfacedev.xyz • subsurfacelabs.app • elijahbent.com • github.com/elijahbentdev

Portfolio at elijahbent.com/portfolio

SUMMARY

Pipeline engineer and technical artist building production DCC tools and commercial plugins for Maya and Unreal Engine 5. Founder of Subsurface Dev and creator of Solaura, a commercially shipped C++ hair grooming plugin for Maya with a custom real-time viewport engine, Arnold rendering, and an Alembic export pipeline into UE5. End-to-end MetaHuman pipeline experience: a custom alien character modeled in Maya and ZBrush with sub-pore skin detail, retopologized to MetaHuman topology in Wrap 3D, live in UE5 with a Houdini-authored groom and iPhone facial capture driven through LiveLink. Experienced Deadline render farm operator (Maya, Houdini, Nuke) at CU Denver, with Perforce server deployment, VCS administration, and authored Houdini HDAs for procedural assets. Pipeline TD on a senior short film production, setting asset and validation standards for the full crew. Currently a Jr. AI Engineer at The Blue Angle building agentic systems, MCP servers, and GitHub Actions validation pipelines, while pursuing a B.S. in 3D Graphics & Animation at CU Denver (May 2027).

TECHNICAL SKILLS

DCC & Engines Maya API (C++ & Python), Unreal Engine 5 (ITF, Slate, UGroomAsset), Houdini, Arnold, Alembic, USD, ZBrush, Substance Painter, Blender, Wrap 3D, MetaHuman Creator, LiveLink

Languages C++, Python, JavaScript / TypeScript, Rust, MEL

Pipeline & Asset Mgmt Deadline (render farm), USD / OpenUSD, asset naming conventions, LOD pipelines, asset validation

Version Control Perforce (P4): server deployment & VCS administration; Git / GitHub

AI & Agents Claude (Code, API, MCP servers), Anthropic API, Microsoft AutoGen, agentic pipelines, GitHub Actions, LLM orchestration, custom Python tooling, OpenRouter

UI Frameworks Slate (UE5), PySide2 / PyQt5 (custom QSS), JUCE (VST/AU), Svelte, React, CMake, Git, Node.js

Backend & Infra Cloudflare Workers / D1 / R2 / KV, Asymmetric JWT, WebCrypto API, serverless licensing infrastructure, application deployment & networking

CAD & Design SolidWorks (CSWP), AutoCAD, Revit, Fusion 360, Onshape, SketchUp, 3D Printing & Scanning

Audio & Media Ableton Live, Logic Pro, Resolume Avenue, Adobe Creative Suite (After Effects, Premiere, Audition)

FEATURED PROJECTS

Alien MetaHuman Character • Full Production Pipeline

2026

Maya • ZBrush • Wrap 3D • MetaHuman Creator • UE5 • Houdini (Grooming Nodes) • LiveLink • iPhone ARKit

- ▶ Custom alien character modeled in Maya and ZBrush with sub-pore skin displacement sculpted at production detail level; self-likeness with photorealistic facial structure.
- ▶ Retopologized to MetaHuman topology using Wrap 3D; imported into MetaHuman Creator as a fully rigged, live MetaHuman compatible with Epic's facial rig and animation system.
- ▶ Groom authored using MetaHuman grooming tools and Houdini grooming nodes; exported into UE5 as a production-ready groom asset.
- ▶ Facial performance captured on iPhone using ARKit; driven in UE5 via LiveLink with full facial fidelity and real-time playback.
- ▶ Demonstrates complete end-to-end MetaHuman pipeline fluency: from custom sculpt to live, performable digital human inside Unreal Engine 5.

Solaura • Hair Grooming Plugin for Maya • Commercially Launched

2025 - Present

Subsurface Enterprises LLC • subsurfacedev.xyz/solaura • C++ • Python • Maya API • Arnold • Cloudflare Workers • Early Access \$179

- ▶ Custom real-time C++ viewport engine with multithreaded hair generation; produces up to 1 million hairs per groom node with live preview.
- ▶ Arnold rendering support and a full UE5 export pipeline via Alembic Groom Importer for production-ready handoff.
- ▶ Architected for competing with Yeti and XGen in VFX and games hair pipelines; C++ performance optimization for high strand counts.
- ▶ Serverless Cloudflare Workers licensing backend with asymmetric JWT signing; distribution via own storefront with indie and student discount tiers.
- ▶ Recognized by CU Denver Digital Animation Center faculty as the best hair work the school has produced in over 20 years.

- ▶ Operates as a registered commercial LLC with full legal infrastructure: EULA, early-access licensing terms, and zero-dollar liability caps.

Solaura for Unreal Engine 5 • In Development

2025 – Present

C++ • Unreal Engine 5 (ITF, Slate, UGroomAsset) • SolauraCore + SolauraEditor modules

- ▶ Native UE5 editor plugin enabling guide curve drawing directly in-viewport and automated UGroomAsset generation without leaving the engine.
- ▶ Two-module architecture: SolauraCore (runtime interpolation) and SolauraEditor (ITF tools, Slate UI panel, groom builder); all UI written in C++ via Slate.
- ▶ In active development; targeting public release and Fab Marketplace submission upon completion.

Procedural Chainlink Fence Generator • Houdini HDA

2026

Houdini • HDA

- ▶ Fully procedural chainlink fence generator built as a Houdini Digital Asset (HDA): parametric diamond size, wire gauge, post spacing, fence height, width, and post radius.
- ▶ Toggleable components: top rail, bottom rail, post caps, tension wire; LOD control (Low / Medium / High) with helix sample tuning for performance vs. quality tradeoff.
- ▶ Auto-generates UVs, normals, and named geometry groups (bottom_rail, posts, mesh) for clean multi-material assignment.
- ▶ Replaces hours of manual modeling, UV work, and LOD setup with a single parametric tool; demonstrates production procedural pipeline mindset.

Subsurface Dev • Storefront & Licensing Platform

2025 – Present

subsurface.dev.xyz • TypeScript • Cloudflare Workers / D1 / R2 / KV • Stripe • PayPal • Resend

- ▶ Fully serverless platform on Cloudflare Workers: portfolio, storefront, and plugin licensing from a single global edge codebase.
- ▶ Secure licensing server with asymmetric JWT signing and offline C++ signature verification; activation-limited license keys with configurable seat counts validated on plugin load.
- ▶ Customer self-service portal: users manage device activations (deauthorize and swap machines), view active licenses, and download their plugins.

Subsurface Labs • Solo Founder • Pre-Launch

2025 – Present

subsurface.labs.app • TypeScript • Cloudflare Workers / D1 / KV / R2 • LLM orchestration

- ▶ Productized AI agency in development: 22 AI agents across 5 pricing tiers (\$1,737 to \$6,897 per month) designed to automate operations for SMBs.
- ▶ Solo-building every layer: marketing site (live), Cloudflare Workers backend, multi-agent orchestration, Telegram-native delivery, and custom client dashboard.

Hygeia • Full-Stack AI Chatbot Web App • Live Beta

2025 – Present

myhygeia.app • TypeScript • Cloudflare Workers / Pages / D1 / KV / R2 / Vectorize • Clerk • Stripe • OpenRouter

- ▶ ChatGPT-style wellness AI for a functional nutrition practice, with three specialized AI personas.
- ▶ Site live with a public beta at myhygeia.app.

Rupture • VST/AU Synthesizer • Build Complete • Live Beta

2025 – Present

C++ • JUCE • Cross-Platform (Windows / macOS)

- ▶ Wavetable synthesis engine with OS-native license file storage and cross-platform app data directory management.
- ▶ Fully functional build on Windows and macOS; VST3 / AU public release pending final code-signing and notarization.

RELEVANT EXPERIENCE

Jr. AI Engineer • The Blue Angle

May 2026 – Present

Python • Microsoft AutoGen • GitHub Actions • MCP • Anthropic API / Claude

- ▶ Built agentic harnesses using the Microsoft AutoGen framework and Python, deploying agent swarms to automate skill validation across GitHub Actions CI/CD pipelines.
- ▶ Developed custom MCP servers and Anthropic API / Claude connectors used by company employees to submit skills directly into the validation pipeline.
- ▶ Designed and maintained GitHub Actions workflows for automated agent evaluation, deployment checks, and continuous system health monitoring across enterprise client environments.
- ▶ Built agent harnesses that notify companies when their AI systems are online and performing within expected parameters.

Pipeline TD / Technical Director • Senior Short Film Production

2025 – Present

- ▶ Designed and enforced asset pipeline standards for a crew of 7 across Blender, Maya, Substance Painter, and Unreal Engine 5.

- ▶ Authored asset validation standards: naming conventions, polygon budgets, LOD specifications, and texture resolution guidelines used as the production technical reference for the entire crew.
- ▶ Set up and administered the team's version control workflow using a forked UE Git plugin (github.com/elijahbentdev/UEgitplugin); managed project branching, asset commits, and integration across departments.
- ▶ Acted as the de facto technical authority for DCC, engine, and pipeline questions throughout the production.

Deadline Render Farm Operator • CU Denver Digital Animation Center

2024 – Present

Thinkbox Deadline • Maya • Houdini • Nuke

- ▶ Operated CU Denver's Deadline-based distributed render farm for Maya, Houdini, and Nuke production renders.
- ▶ Submitted, monitored, and troubleshoot render jobs across a multi-node farm environment.
- ▶ Proficient with industry-standard Deadline workflow: job submission, priority queuing, error diagnostics, and output management.

Contract DCC Plugin Developer • Subsurface Dev

2025 – Present

- ▶ Develop production C++ and Python plugins for Maya and Unreal Engine under contract and NDA for industry-recognized professional artists.
- ▶ Deliverables held to studio-grade standards; tooling distributed on self-built serverless licensing infrastructure.

SolidWorks Tutor • Wyzant

June 2023 – Present

- ▶ Teach parametric modeling, assemblies, and technical drawings to engineering and design students at all skill levels.

EDUCATION

B.S. 3D Graphics & Animation • CU Denver, Digital Animation Center

Expected May 2027

- ▶ Commercial-grade Maya plugin recognized by faculty as the best student hair work the school has seen in over 20 years.
- ▶ Focus: pipeline engineering, real-time rendering, DCC tool development, 3D technical art.

A.A.S. Computer-Aided Drafting & Design • Front Range Community College

May 2023

- ▶ Graduated 4.0 GPA, Phi Theta Kappa Honor Society; Lockheed Martin Vocational Scholarship recipient (2022).
- ▶ Certificates: SolidWorks, SketchUp, 3D Printing & Scanning, Basic CADD.

CERTIFICATIONS & RECOGNITION

- ▶ Claude Certified Architect, Foundations (CCA-F), Anthropic. In Progress (2026), employer-sponsored (The Blue Angle).
- ▶ Global Career Accelerator (CU Denver): AI-Powered JavaScript, AI Professional Skills, Web Development, Intercultural Skills (2026).
- ▶ Autodesk Authorized Developer, Subsurface Enterprises LLC (subsurfacedev.xyz).
- ▶ Certified SolidWorks Professional (CSWP), Dassault Systèmes (credentials.solidworks.com).
- ▶ Selected for early employment offer from Lockheed Martin Space prior to current degree program.

ADDITIONAL EXPERIENCE

Audio Engineer / Podcast Producer • Boulder Nutrition

Oct 2025 – Present

- ▶ End-to-end audio production: recording, mixing, mastering, and publishing for a regular podcast series.

Sound Design • Lost India (Feature Film)

2024

- ▶ Complete sound design and audio post-production for an independent feature film available online.