

DAVID ERIK GARCÍA ARENAS

Junior Software Engineer · Tools & 3D Pipelines

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PROFILE

Junior software engineer focused on tools and 3D-graphics pipelines (C++ · Qt · Python). Nine months at a BMW graphics supplier — Android-HMI test automation, then the 3D graphics team, building its pre-delivery QA tooling end to end; personal research in console-binary recompilation and Vulkan rendering. EU citizen, based in Munich.

EXPERIENCE

Paradox Cat GmbH (BMW supplier) · Munich

Jan 2026 – Sep 2026

QA Intern — 3D Graphics Pipeline (Apr 2026 – Sep 2026)

- Designed and built the team's **pre-delivery QA tool** for BMW 3D vehicle-configuration data: **Python** backend, web dashboard, and **Qt (PySide6)** desktop shell, shipped as a packaged Windows application and adopted by the team.
- Grew the tool to **1,300+ automated checks** per release candidate — data consistency, **scene-hierarchy validation**, export integrity, coverage — catching real defects before delivery, including a numeric constants drift between source and exported data and a duplicate paint-code identifier in shared data.
- Integrated the **Ramses 3D engine** toolchain (headless scene export and checks) into automated QA runs.
- Supported **rack flashing** and **integration testing**; worked across the full delivery pipeline (SVN, Jira, Confluence).

Test Automation Intern — Android Automotive HMI, Erasmus+ traineeship (Jan – Mar 2026)

- Built **Maestro**-based UI-automation flows and performed runtime inspection (**ADB**, **dumpsys**) for BMW in-vehicle infotainment validation; analyzed selector robustness in complex **Android Automotive** HMI environments.
- Developed a **Python/Qt** UI-inspection proof of concept (screen mirroring, hierarchy inspection, locator generation); co-presented an internal engineering talk.

Freelance AI output evaluator · Outlier (remote) · Nov 2024 – Jan 2026 — evaluation of language-model outputs against quality and safety criteria, alongside my studies.

Earlier internships (Spain): Cybersecurity & automation intern, Finanzas & I+D+i, Granada (Mar – Jun 2025) · IT technician intern, Grupo Abades (Mar – Jun 2023).

PROJECTS

RYU6Recomp — console-binary rehosting and Vulkan rendering research (personal, clean-room; 741 commits, Apr–Jul 2026): static analysis with Ghidra, console-GPU → SPIR-V shader translation, Vulkan renderer. Writeup: [\[portfolio URL\]/writups/vulkan-swapchain-hazard.html](https://portfolioURL/writups/vulkan-swapchain-hazard.html)

OR.BIS — real-time 3D audio visualizer: FFT/LUFS analysis driving generative geometry (CRIWARE ADX, Three.js); presented to CRIWARE Japan and DICO Europe.

Ink & Soul — full-stack booking and portfolio site (React, TypeScript, Supabase, Stripe) · github.com/Hawaii8888/Ink-Soul

EDUCATION

Técnico Superior — Desarrollo de Aplicaciones Web (DAW) · IES Francisco Ayala, Spain · completed 2026

Técnico Superior — Desarrollo de Aplicaciones Multiplataforma (DAM) · MEDAC, Spain · 2023 – 2025

Técnico — Microcomputer Systems & Networks · Instituto Tecnológico Granada, Spain · 2021 – 2023

Two higher vocational degrees in software development (EU-recognized) · Erasmus+ placement: Munich, 2026

Certifications: Foundations of Software Testing (University of Leeds) · Google UX Design Professional Certificate (2025)

SKILLS

- Languages & frameworks:** C++ (C++17, CMake), Python, Qt (PySide6, Widgets; QML basics), TypeScript/React, FastAPI
- Graphics & 3D:** Vulkan (synchronization, validation-driven debugging), SPIR-V, Ramses, RenderDoc, glTF · Blender (primary — shaders, rigging, VFX), Maya (working knowledge) · asset-pipeline hygiene: naming conventions, scene structure, LODs
- Practices:** test automation, Git, SVN, Windows packaging (PyInstaller), code review

LANGUAGES

Spanish (native) · English (C1 Cambridge CAE; C2 in progress) · German (basic — A1, actively learning)

References available on request — including direct references from Paradox Cat GmbH.