ADITYA SINHA

SOFTWARE ENGINEER

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SUMMARY

Software engineer with 3+ years at Oracle building backend algorithms and **data pipelines**, and a year at Microsoft's Undead Labs (Xbox) writing **C++ systems and tools**. Skilled in **C++, Java, Python**, performance profiling, and production debugging.

SKILLS

- **Languages:** C++, Java, Python, C, C#, Clojure, SQL
- **Backend & Data:** REST APIs, FastAPI, Pydantic, SQLAlchemy, PostgreSQL, MySQL, Hive, AWS (EMR), data pipelines
- **Tools:** Docker, Git, GitHub Actions, Jenkins, pytest, Perforce, Visual Studio debugger, Unreal Insights, Jira, Confluence
- **Game Development:** Unreal Engine 5 (UE5) with Blueprints, GAS, UMG, EQS, and State Trees; Unity; OpenGL; raylib
- **Software Engineering:** Object oriented design, data structures and algorithms, memory management, performance profiling
- **Methodologies:** Agile, CI/CD, unit testing, code reviews, root cause analysis, technical documentation

WORK EXPERIENCE

Microsoft (Undead Labs) — Seattle, WA

Associate Gameplay Designer (Engineer) — Jan 2026 - Oct 2026

- Owned **AI and supporting C++ systems** for 3 game AI agents on Xbox's State of Decay 3, from perception to combat.
- Cut **5 spatial query** spikes (Unreal's Environment Query System) **from 12 ms to 1.5 ms** by profiling and early pruning.
- Built **reusable C++ math utilities** and **data propagation** for the **AI state machine framework** used by **9 AI agents**.
- Built **25+ C++ and UMG debug commands** covering **15+ player states**, speeding up QA and design testing **60%**.
- Built **vehicle threat detection** with **vector math** (dot products) on speed and approach angle to skip harmless cars.
- Built **stochastic nodes** for weighted random selection, refactoring **3 AI state machines** to end lockstep behavior.

Gameplay Design Intern — Sep 2025 - Dec 2025

- Built **C++ AI debug visualizations** that sped up QA and design work **50%** and cut **perception bugs 35%** in 5 sprints.

Oracle — Bangalore, India

Software Engineer — Jul 2021 - Jun 2024

- Built **15+ NCQA certified algorithms** in **Clojure** for **HealtheIntent**, Oracle Health's population health platform for **262M+ users**, covering **clinical risk scoring**, **cohorts**, and **event based care rules** across **10M+ patient records**.
- Improved **patient risk prediction accuracy 18%** with risk scoring algorithms that flag which patients need extra care.
- Validated updates across **100+ pipelines** on **AWS EMR**, checking results in **Hive** and unit testing to **100% coverage**.
- Shipped **12+ algorithm deployments** through **Jenkins**, many under NCQA certification deadlines.
- Conducted **30+ root cause analyses** on data quality failures and pipeline drift, including tracing a risk score discrepancy during NCQA certification to an outdated upstream population filter **dropping 20% of a hospital's patients**.
- Cut **delivery cycles 15%** with 100% compliance via **Agile** sprint estimation, finishing certification early **2 years running**.
- Mentored **6 junior engineers** and reviewed teammates' code and designs for correctness and efficiency.

Software Engineer Intern — Jan 2021 - Jun 2021

PROJECTS

Game Telemetry API | *Python, FastAPI, PostgreSQL, Docker* | GitHub — Oct 2026 - Present

- Built a **REST API** with **FastAPI** and **PostgreSQL** that ingests gameplay events and reports on **4,800 events per run**.
- Containerized it with **Docker Compose** and tested against a real database with **pytest** in **GitHub Actions CI**.

Design Tuning Copilot | *Python, LLM API* | GitHub | Portfolio — Oct 2026

- Built a **Python** tool that has an **LLM** tune **4,800 simulated fights**, validating output against **8 allowed settings**.

Custom C++ Game Engine | *C++, JSON, raylib* | GitHub | Portfolio — Jan 2025 - May 2025

- Built a **data driven C++ engine** from scratch where JSON defines objects, so changes need **no recompiling**.
- Added a lightweight **RTTI layer** for safe casting and a **memory service** with named heaps and coalescing allocators.
- Cut **collision detection time 60%** (1.5 ms to 0.6 ms per frame) by replacing O(N^2) checks with a **uniform spatial grid**.

EDUCATION

M.S. Interactive Entertainment, University of Central Florida, 2025, GPA 3.9
B.S. Computer Science, Manipal Institute of Technology, 2021

AWARDS

- Won **2 Oracle BRAVO awards** for resolving mission critical production issues and delivering under tight deadlines.
- Won **Best Overall Game Recreation** out of 20 for a Robotron 2084 remake written in **C and OpenGL** without an engine.