SWASTIK TOPRANI

Junior Developer

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PROFESSIONAL SUMMARY

I'm a C++ developer interested in systems programming, game and engine development, and telecom-focused software. I work primarily with Linux/Unix environments, Git-based workflows, and user-space debugging, and I enjoy building engine-level components, CLI tools, and real-time networked backends. I'm particularly interested in modern C++, tooling, automated testing, and telecom/5G concepts such as packet and data processing.

PROJECT EXPERIENCE

TG_3SIXO — Real-Time Traffic Simulation Backend
Sep 2025 - Oct 2025

C++ │ JS/HTML │ CMake │ FastAPI │Python │ HackYeah(2025)

Architected a real-time routing engine in C++17 modeled after telecom-grade link-state systems.
- **Led a 6-member** team through **system architecture** and **backend delivery** to provide an **end-to-end demo**.
- Implemented a backend using **SSE** and **concurrency** primitives to stream live **ETA updates** to a JS frontend.
- Devised a **Dijkstra routing** core with **dynamic weight adjustments** for baseline vs. disrupted route comparison.
- **Established** Python sidecars to ingest **GTFS-RT** data and **decouple** external data feeds from the core.
- **Generated TransitDNA**, an analytics module that uses **pattern recognition** to **forecast expected delays**

Gnome Splash - Local Multiplayer Game
May 2025 - Jun 2025

C++ │ Unreal Engine

Directed gameplay programming for a local multiplayer split-screen PvP game.
- Developed **multiplayer instances for** up to **4 players** created **damage**, respawn, and **player spawning** systems.
- Designed **UI and HUD** features, like health bars, cooldowns, and menus.
- **Optimized** player experience by integrating enhanced input and smooth match flow from **menus to gameplay**
- Delivered the game in **7-weeks** under extreme time-constraints from **Prototyping** , Alpha , Testing and **Gold** .

Secrets of the Mansion
Dec 2024 - Jan 2025

C# │ Unity │ FMOD

Story-based click-and-move adventure with interactive puzzles, UI systems, and an immersive narrative flow.
- Designed and implemented in-game **UI elements** including menus and **HUD components**.
- Focused on UI clarity, **responsiveness**, and **player usability**.
- Worked within a **10–20** person team using **Jira** for task tracking and sprint coordination.
- Supported gameplay features by debugging UI–gameplay interactions and refining features through playtesting.

TECHNICAL SKILLS

1. **Languages & Paradigms :** C │ Modern C++ (14/17/20) │ C# │ OOP / OOD │ Unit Testing (learning) │ Python(Learning)
2. **Tools & Build Systems :** CMake │ Git │ Perforce │ Linux / Ubuntu │ Unreal Engine 5 │ Unity
3. **Libraries & Frameworks :** Boost (familiar) │STL │ OpenGL based tooling │ ImGui │ ASIO
4. **Systems & Networking :**Sockets │ Unix-like Environments │ UMTS/LTE (learning) │ Cloud & DevOps (learning)
5. **Engineering Practices :** Agile / Scrum (Jira) │ Technical Communication │ Project Ownership │ Team Collaboration

EDUCATION

Additional Skills

Diploma (Programming Specialization in Game Engine dev.)
Sep 2024 - Dec 2026
FutureGames Warsaw

Bachelor of Engineering in Computer Science
Aug 2020 - Jun 2024
Chandigarh University

PERSONAL PROJECTS

C++ Game Engine — Custom rendering pipeline (in progress)
C++20 | OpenGL | GLSL | GLM | GLFW | ImGui | Linux

Nov 2025 - Present

Developing a modular engine prototype with clear boundaries (core loop, scene layer, resource cache).
- Implemented a update loop focused on predictable timing, **clean interfaces**, and **safe memory ownership**.
- Added file **asset ingestion** with a **lightweight parser** and **caching** to reduce repeated work and allocations.
- Integrated an **in-app debug UI** to inspect **runtime state** and **speed up testing**, debugging, and iteration.

CLI To-Do List — Embedded-Style Command-Line Utility
C++17 | CMake | Linux | File System | State Management

Aug 2025 - Sep 2025

Built a deterministic command-line tool with a custom REPL loop and similar to *system diagnostic* CLIs.
- Designed a Task class with **encapsulated** state, auto-increment IDs, and safe text-file **persistence** .
- Followed industry **tooling and structure** CMake, file management and git to mirror real **workflows**.

C++ Networking — Multithreaded TCP Chat Server (In Progress)
C++20/23 | Boost.Asio | Linux (Ubuntu) | TCP/IP | Sockets | Threads

Jan 2026 - Present

Building a TCP client–chat server prototype in C++ using Boost.Asio on Linux.
- Practicing Linux Essentials topics (terminal, processes, permissions, networking tools) alongside coding.
- Following production-like workflows with g++, CMake, and git to grow toward systems roles.

Additional Projects

ADDITIONAL INFORMATION

- **Languages:** English (Fluent) , Hindi (Native)
- **Activities:** Organized a Hackathon in 2022 , Participated In Hackyeah2025
- **Interests:** Basketball | Reading | Travelling | Swimming | Discord community building

CERTIFICATIONS

1. Object-Oriented Data Structures in C++ [Course Era]
2. Cloud Virtualization, Containers and APIs [Course Era]
3. Cloud and DevOps CEE [via-EPAM (In Progress)]

REFERENCES

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