

USMAN AHSAN PERVEZ

Flight Simulation Software Engineer — C++ · SimConnect · Prepar3D · 6-DOF Motion & XR

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PROFESSIONAL SUMMARY

Flight-simulation software engineer at a flight-training-device manufacturer, building full-motion, multi-DOF fixed-wing and rotorcraft simulators for commercial and military training. Develops core simulation software in C++, Rust and Lua over the SimConnect API (Prepar3D, AIR Manager) and integrates the complete hardware chain: Brunner control loading and motion platforms, avionics from analog gauges to glass-cockpit EFIS, and Varjo XR mixed-reality cockpits. Combines an Electrical & Electronics Engineering degree (FAST-NUCES) with full-stack and DevOps experience for simulator tooling, dashboards and telemetry. Available for remote simulation, XR and C++ development from Pakistan (UTC+5); open to full-time, part-time and contract engagements.

CORE SKILLS

Simulation: Full-motion flight training devices, 6-DOF motion integration, control loading, motion cueing, SimConnect API, Prepar3D, AIR Manager

Avionics & Cockpit: Analog (steam-gauge) instruments to glass-cockpit EFIS (Genesys Aerosystems, Garmin-class panels), cockpit hardware integration

XR / Visual Systems: VR and mixed-reality cockpit integration (Varjo XR), immersive visual environments

Hardware Interfaces: IO mapping, interface validation, TCP/UDP telemetry streaming, UART/SPI/I2C exposure

Programming: C++, Rust, Lua, JavaScript/Node.js, Python (scripting)

Supporting Stack: React/Next.js dashboards and tooling, AWS, Docker, Kubernetes, CI/CD

PROFESSIONAL EXPERIENCE

Flight Simulation Software Engineer / Simulator Development Engineer Feb 2025 – Present

FSDC AeroSolutions — flight training device manufacturer, Rawalpindi, Pakistan

- Engineer full-motion, multi-DOF flight training devices — fixed-wing and rotorcraft — for commercial and military pilot training, working across both the hardware and software sides of each build.
- Design and implement core software for flight-dynamics interfacing, control loading, motion cueing and immersive visual systems, programming in C++, Rust and Lua.
- Build real-time integrations between simulation engines and custom cockpit hardware using the SimConnect API, Prepar3D and AIR Manager.
- Integrate complete avionics suites — from classic analog panels to modern glass-cockpit EFIS (Genesys Aerosystems, Garmin-class) — into training-ready cockpits.
- Deliver VR/mixed-reality cockpit environments built on Varjo XR headsets, with control-loading and motion platforms from Brunner Innovation.
- Tune 6-DOF motion systems for realistic motion cues and high-fidelity, type-specific handling that improves pilot-training outcomes.
- Collaborate with cross-functional teams on IO mapping, interface validation and TCP/UDP telemetry between simulator subsystems.

Full-Stack Developer & Technical Lead

Mar 2024 – Feb 2025

Apex IT Solutions — software agency, Rawalpindi, Pakistan (US & UK clients)

- Delivered full-stack applications (MERN, Next.js, microservices) and cloud operations (AWS, Docker, Kubernetes, CI/CD) for US/UK clients — skills now applied to simulator tooling, dashboards and data pipelines.
- Mentored developers and managed projects to budget and timeline.

Web Developer & E-commerce Specialist

Jan 2023 – Mar 2024

Apex Marketings — digital agency, Islamabad, Pakistan (clients in Pakistan, UK, US)

- Built client websites and e-commerce platforms (React, PHP/Laravel) and automated delivery workflows for an international client base.

Technical Support & Developer

Nov 2021 – Dec 2022

NovTek — *technology services company, UK (remote)*

- Provided remote technical support and software development for UK clients — issue diagnosis, fixes, SQL database upkeep and client-facing troubleshooting.

ADDITIONAL EXPERIENCE

- **Technical Assistant — Pakistan Television Corporation, Islamabad · Jun – Aug 2022:** operated and maintained broadcast transmission equipment and video/audio control systems for live national coverage, including the Commonwealth Games 2022 and the Pakistan vs Sri Lanka cricket series.

EDUCATION & CERTIFICATIONS

BS, Electrical & Electronics Engineering

2017 – 2021

FAST-NUCES (National University of Computer and Emerging Sciences), Islamabad

Web 3.0 & Metaverse Developer (Certification)

2022 – 2023

Panaverse

LANGUAGES

English (professional working proficiency) · Urdu (native)