Khushvendra Singh

+91-6378991682 | khushvendras99@gmail.com | github.com/1amKhush | linkedin.com/in/khushvendra-singh | Portfolio

EDUCATION

Indian Institute of Technology Jodhpur   Aug 2024 – Apr 2028
B.Tech in Artificial Intelligence and Data Science   ***CGPA: 8.85 / 10.0***

EXPERIENCE

InterIIT Tech Meet 14.0 (Gold Medalist) — Arista Networks   Sep 2025 – Dec 2025
*Research Project Member – **WiFi Radio Resource Management (RRM) Framework***
  - Designed a distributed **WiFi RRM control plane** with out-of-band sensing radios and multi-timescale loops (AP, broker, cloud), lowering hidden-node interference by **30%** in dense multi-AP deployments.
  - Implemented a **production-grade RRM software stack** with an MCP-backed admin interface and a **streaming telemetry pipeline (MQTT → Kafka → stateless microservices)**, processing across **100+ APs** with **sub-second policy propagation** and **atomic rollback**, reducing misconfiguration recovery time by ∼**80%**.
  - Demonstrated control-plane stability through **100+ MATLAB and ns-3 simulations**, yielding **25–40% QoE improvement** and ∼**30% interference reduction** over AP-centric baselines.

PROJECTS

Vectoris – High-Performance File Search Engine | C++, Next.js, MongoDB   Sep 2025 – Oct 2025
  - Constructed a **C++ search engine** using a **position-aware inverted index**, indexing **1,000+ documents** and **10,000+ terms** with support for **BM25-ranked**, boolean, and phrase queries.
  - Accelerated query execution via **Top-K heap selection**, **Bloom-filter pruning**, and **cache-aware memory layouts**, achieving **sub-50 ms** responses and a **40% latency reduction**.
  - Connected a **Next.js frontend** to a **MongoDB-backed metadata layer**, enabling real-time search with **95%+ accuracy** on structured queries.

Torrentium – Decentralized P2P File Sharing System | Go, libp2p, WebRTC   Jun 2025 – Aug 2025
  - Architected a **serverless P2P file-sharing system** using **Go** and **libp2p Kademlia DHT** with **multi-relay failover**, sustaining **99.5% connection uptime** across **5+ relay nodes**.
  - Devised an **adaptive parallel download engine** with **rarest-first selection** and **endgame mode**, cutting average completion time by **40%** while maintaining **20 concurrent WebRTC peers**.
  - Delivered a **cross-platform desktop client** featuring **priority-based queues**, **bandwidth throttling up to 10 MB/s**, and **1 MB chunked transfers** with **SHA-256 integrity checks**.

Student Senate Portal – IIT Jodhpur | Next.js, React Flow, Three.js   Apr 2025 – May 2025
  - Produced a **centralized governance visualization system** mapping **50+ institutional entities** using **React Flow**.
  - Enhanced exploratory workflows with **interactive 3D modules**, increasing average session duration by **25%**.

TECHNICAL SKILLS

Languages: C/C++, Go, Python, JavaScript, TypeScript, SQL
Frameworks & Libraries: React, Next.js, Node.js, Tailwind CSS, libp2p, WebRTC, Three.js
Tools: MongoDB, PostgreSQL, Redis, AWS, Git, GitHub, Docker, MATLAB, ns-3, Linux, Bash

POSITIONS OF RESPONSIBILITY

Coordinator, Society of Alumni Affairs   Jul 2025 – Present
Indian Institute of Technology Jodhpur
  - Expanded the **Alumni–Student Mentorship Program** to **120+ students** and **25+ alumni mentors** through structured onboarding and review cycles.
  - Spearheaded **InternBridge** and **Legacy** initiatives, securing internships for **25+ students** and raising **Rs 11+ lakhs** for campus infrastructure.

Student Guide, Student Wellbeing Committee   Jul 2025 – Present
Indian Institute of Technology Jodhpur
  - Guided **12 freshmen** through academic and social integration via structured one-on-one mentoring.
  - Coordinated orientation programs for **500+ incoming students**, improving early-semester engagement through real-time feedback.