Arjit Verma

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EDUCATION

Indian Institute of Information Technology, Dharwad   Karnataka
B.Tech in Computer Science and Engineering   *2022 – 2026*
− CGPA: 7.71

RESEARCH EXPERIENCE

On-Device LLM Translation Research   IIIT Dharwad, KA
Research Assistant   *Jan 2025 – Apr 2025*
− Evaluated feasibility of running **lightweight LLMs on-device** for real-time machine translation under strict memory and latency constraints.
− Benchmarked inference frameworks (MLC.ai, ONNX Runtime) on English–Hindi datasets, identifying tooling instability and RAM limits as key blockers.
− Analyzed system tradeoffs between model size, inference latency, and power consumption on Android devices.

PROJECTS

Video Streaming Engine | *Node.js, Express, FFmpeg, MongoDB, GCP*   GitHub
− Engineered full-stack video streaming platform with HLS processing (FFmpeg + Multer) for adaptive bitrate.
− Used MongoDB + Mongoose for metadata storage and retrieval.
− Deployed video storage pipeline on Google Cloud Storage, enabling scalable content storage.
− Achieved smooth video playback with end-to-end live streaming latency as low as **6–7 seconds**.

P2P File Transfer Client (BitTorrent Protocol) | *Go, TCP/IP, Concurrency*   GitHub
− Built a high-performance BitTorrent client from scratch, implementing the wire protocol for peer discovery and data exchange.
− Developed a concurrent download engine that handles connections with 50+ peers simultaneously, optimizing bandwidth usage.
− Wrote a custom Bencode parser to decode .torrent metadata and manage file piece assembly.

HTTP Caching Reverse Proxy | *Go, Docker, Prometheus, Grafana*   GitHub
− Engineered a production-grade HTTP reverse proxy with memory-bounded LRU caching and graceful shutdown handling.
− Implemented thread-safe caching using container/list and sync.Mutex to handle highly concurrent workloads.
− Integrated observability stack with Prometheus + Grafana for real-time performance monitoring.

Sensor Data Ingestion Server | Django, Firebase, LLaVA   GitHub
− Built a Django-based backend to ingest sensor data from Raspberry Pi devices over the network.
− Processed NDVI imagery and telemetry data for agricultural monitoring and analytics.
− Integrated ML/LLM components to derive insights from sensor and image data.

TECHNICAL SKILLS

Languages: TypeScript, JavaScript, Go, Python, SQL
Frameworks & Libraries: Express, Gin, React.js, Next.js, Redux, Prisma
Databases: PostgreSQL, MongoDB, MySQL, Redis, Firebase
Cloud & Infra: GCP, Docker, Linux, Git

CERTIFICATIONS

Google Cloud Skills Boost   2023
Google Cloud Platform   *Online*
− Completed 10+ hands-on labs covering Compute Engine, VPC networking, IAM, load balancing, and scalable storage.
− Gained practical exposure to distributed cloud architectures and production-grade infrastructure concepts.