Kushagra Vardhan

Github: kushagra614 LinkedIn: Kushagra Vardhan Email: kushagravardhan619@gmail.com Mobile: +91-8858955610

EDUCATION

Vellore Institute of Technology, Bhopal   Madhya Pradesh, India
- *Bachelor of Technology in Computer Science and Engineering*   *2022 – 2026*
CGPA: 8.43

GD Goenka Public School, Lucknow   Uttar Pradesh, India
- *Class X: 92.4%*   *2020 - 2022*
Class XII: 92.2%

SKILLS SUMMARY

- **Programming Languages**: C/C++, Python, HTML, CSS, JavaScript

- **Libraries and Frameworks**: React JS, OpenCV, Boost, Qt

- **Technical Expertise**: Object-Oriented Programming, Operating Systems, Computer Networks, Computer Vision (OpenCV), Low Latency C++, Algorithmic Trading in C++, Version Control Systems (Git/GitHub)

- **Databases**: MySQL, PostgreSQL

EXPERIENCE

SRHFT   Remote
Software Developer Intern   *December 2024 – March 2025*
- **Simulation Platform Development**: Designed and implemented a modular simulation framework for backtesting trading strategies in C++ using **Boost** libraries, supporting more than **10** unique strategies and processing over **2 million** market data events per simulation run.
- **High-Performance Data Feeding & IPC**: Engineered shared memory-based data pipelines using **Boost.Interprocess**, enabling efficient real-time inter-process communication (IPC), and constructed CSV readers/writers to support high-frequency data ingestion at rates exceeding 100,000 events per second.
- **Market Data Parsing**: Architected and optimized tick-by-tick (TBT) and generic market data decoders, allowing accurate replay and analysis of historical data from **3** exchanges and supporting backtests on datasets of more than **1 million** ticks per day.
- **PostgreSQL Database Integration**: Integrated **PostgreSQL** with C++ (using `libpq`) to store, retrieve and analyze large volumes of market and simulation data, overcoming challenges in data consistency and performance.

PROJECTS

ALGO TRADING BOT: GitHub
- Created a C++ trading platform with Yahoo Finance API, implementing **5 indicators** (SMA, EMA, RSI, StochRSI, MACD) for automated trades on major stocks.
- Engineered a fast backtesting engine with JSON config, enabling strategy evaluation on **up to 5 years** of historical data and reporting 8+ performance metrics.
- Leveraged data optimizations to achieve **sub-100ms backtest latency** and process **10,000+ data points per run**.
- **Technologies:** C++17, STL, Multithreading, REST API, JSON, Python, Backtesting

CHATVERSE: GitHub
- Launched a real-time chat application using React and Firebase, enabling **instant message delivery** and secure Google authentication, tested with **10+ users** across devices.
- Designed and implemented a fully responsive user interface with dynamic room creation and joining, supporting **multiple concurrent chat rooms** and seamless user experience.
- Achieved message delivery latency typically under **300ms** in real-time chat scenarios.
- **Technologies:** React.js, Firebase, CSS3, Universal Cookie, Git, JavaScript (ES6+)

AUTO-PLATE RECOGNITION: GitHub
- Implemented a real-time vehicle and license plate recognition system using YOLOv8 and EasyOCR.
- Achieved **93% license plate recognition accuracy** on a labeled test set of **1,000** images and processed video at **28 FPS**.
- Tracked multiple vehicles and extracted license plate numbers for each unique vehicle in the video.
- **Technologies:** Python, YOLOv8, EasyOCR, OpenCV, Deep Learning

CERTIFICATIONS & ACHIEVEMENTS

- **GirlScript Summer of Code Extended** - Open Source Contributor (2024) — **5+ repositories**
- **Hacktoberfest** - Open Source Contributor (2024)
- **Cloud Computing** - NPTEL — June 2024 — **Elite Grade with 82% score**
- **The Bits & Bytes of Computer Networking** - Coursera — June 2024
- **Outstanding Academic Achievement Award** - Defence Minister, Shri Rajnath Singh (2022)
- **SOF Mathematics Olympiad Gold Medalist** (2015)