Kaushik Chaturvedula

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SUMMARY

Software Engineer with one year of experience in high-performance software, full-stack development, and low-latency solutions. Proficient in C++, Java, Python, and frameworks like PyTorch, React, Node.js, Spring, Django, and FastAPI. Skilled in building asynchronous architectures, RESTful APIs, and working with messaging systems such as Kafka and RabbitMQ. Experienced in developing scalable web applications, fault-tolerant microservices, containerization with Docker, and database systems. Adept in systems programming, multi-threading, parallel computing, and optimizing performance-critical applications on Linux. Strong foundation in algorithms, data structures, system design, machine learning, deep learning, natural language processing, and AI/ML frameworks.

EDUCATION

Purdue University, Indiana – Master of Science in Computer Science (Jan 2024 - May 2025 | GPA: 4.0/4.0)
National Institute of Technology Warangal, India – Bachelor of Technology in Mechanical Engineering (Aug 2018 - May 2022)
Ranked: 9227 out of over 1.2 million students (top 0.8%) in JEE Mains 2018, India's national engineering entrance exam for admission.

EXPERIENCE

Purdue University (Indiana, U.S.) – Teaching Assistant and Research Assistant (Sept 2024 - Present)
- Assisting in delivering course material and grading for Programming Language Design.
- Contributing to high-performance computational cosmological simulations research using Python with datasets >300TB.
- Implementing parallel processing techniques to improve performance in HPC environments.

Wibmo (Bangalore, India) – Associate Software Engineer (Jul 2022 - Apr 2023)
- Developed and optimized backend services for a Risk-based Authentication Engine in a leading FinTech firm, enhancing fraud detection and prevention, including identifying money laundering and BIN attacks, ensuring secure transaction processing.
- Architected scalable microservices for high-traffic apps, improving reliability, performance, and optimizing transaction processing time.
- Developed asynchronous, event-driven systems with RabbitMQ and Kafka, achieving a 20% reduction in latency.

Freecharge (India) – Full Stack Developer Intern (May 2021 - Jul 2021)
- Optimized microservices, led memory caching initiatives, and improved load balancing to enhance efficiency and system reliability.

Ravgins (India) – Front-end Developer Intern (Jun 2020 - Aug 2020)
- Built web/mobile applications from scratch using various front-end frameworks (like Angular) and tools, enhancing user engagement.

PROJECTS

- **PlanPulse**: Task management platform inspired by Jira, built with Spring Boot, React, MongoDB, deployed using Docker. Features JWT-based authentication, role-based access control, task and board management, file handling, and a vibrant front-end interface.
- **Lexi-Phylax**: AI-driven hate speech classifier using CNNs with FastText embeddings and BERT transformers, achieving an incredible 99% accuracy with diverse datasets and advanced preprocessing for scalable NLP content filtering.
- **SwiftNet**: A high-performance C++ networking library designed for low-latency, scalable server applications, utilizing io_uring, kqueue, and asynchronous I/O for efficient connection handling. Incorporates request pipelining and modern C++ coroutine-based virtual thread work offloading to maximize CPU utilization and manage high-throughput workloads effectively.
- **FlashPoint**: High-performance in-memory key-value store with epoll-based async I/O and event-loop networking for low-latency, scalable access, optimized with concurrent connections, timer-based resource handling, and pipelined requests for high throughput.

TECHNICAL SKILLS

- **AI and Machine Learning**: Natural Language Processing, Computer Vision, Deep Learning, TensorFlow, PyTorch, AI tools
- **Full-Stack Development**: Spring Boot, Node.js, Express.js, Django, FastAPI, React, Angular, Jest, Cypress, Testing Frameworks
- **Software and Data Management**: Web Services, API Design, Distributed Systems, Real-time Data Processing, System Design
- **Databases and Operating Systems**: MariaDB, MySQL, PostgreSQL, MongoDB, Couchbase, MacOS, Linux, Windows
- **High Performance Computing**: Multi-threading, Virtual Threads, Coroutines, GPU Programming (CUDA), MPI, OpenMP
- **Low-Level Development**: Memory Management, File I/O, Systems Programming, Socket Programming
- **Programming Languages**: C, C++, Java, Python, C#, JavaScript, SQL, N1QL, PowerShell
- **Technologies and Platforms**: Git, Docker, Redis, RabbitMQ, Apache Kafka, Postman, JMeter, AWS, Azure, GCP, JIRA, Heroku