Kaushik Chaturvedula

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SUMMARY

Software Engineer with one year of experience in high-performance software, distributed systems, and full-stack development, specializing in scalable, asynchronous, and low-latency architectures. Proficient in Java, Python, C++, and frameworks like Spring Boot, Node.js, React, FastAPI, and Django. Skilled in building RESTful APIs, microservices, and robust backend systems, with expertise in designing and deploying optimized cloud-native solutions using Docker. Experienced in delivering user-centric products through collaboration. Passionate about leveraging cutting-edge technologies to solve real-world challenges with innovative solutions.

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, 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.

PERSONAL PROJECTS

- **PlanPulse**: Task management platform inspired by Jira, built with Spring Boot, React, and MongoDB. Features JWT-based authentication, role-based access control, task and board management, file handling, and a smooth, vibrant front-end interface. Backend containerized with Docker and hosted on Google Cloud Run initially, optimized for scalability and performance.
- **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

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