SATYA A DOWLURI

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SUMMARY

Software Engineer with 3+ years of building high-throughput, scalable applications and microservices. Led the development of a PDF table extraction algorithm that cut processing time 60× and integrated it into Paycom's data pipeline. Skilled in Java, Python, AWS, React, and adept at designing high-performance algorithms and microservice architectures. Proven track record of enhancing data processing pipelines and system throughput. Seeking to apply expertise in building robust, data-intensive applications to accelerate product performance and business impact.

SKILLS

Languages & Frameworks:	Java, Python, C, Spring Boot, Spring Cloud, React, JavaScript, HTML, CSS
Databases & Tools:	PostgreSQL, MongoDB, MySQL, Apache Kafka, Protocol Buffers, Ghidra, gdb
DevOps & Cloud:	GitLab CI/CD, Apache Zookeeper, AWS, Linux shell Scripting, Docker, HAProxy
Relevant Coursework:	Operating Systems, High-Performance Computing, Software Reverse Engineering, Distributed Systems and Cloud Computing, Networking, Software Security Auditing

WORK EXPERIENCE

Graduate Research Assistant, University of Kansas, KS, USA *Jan 2025 - Dec 2025*

- Analyzed performance trade-offs in CPython 3.14 experimental JIT and PyPy, characterizing optimization efficacy across diverse workloads (numeric computing, data processing, algorithmic puzzles, template rendering, and networking).
- Extended **Python 3.14 experimental JIT** with a dynamic command-line interface to **tune 6 critical threshold parameters** at runtime, enabling fine-grained control over adaptive specialization and side-exit strategies.
- Designed and implemented a benchmark-specific JIT threshold tuning methodology, which delivered **40-60%** throughput gains on targeted benchmarks while lowering memory usage and improving cache locality.
- **Thesis**: Bytecode Specialization and Adaptive Threshold Tuning in CPython 3.14's Tier 2 experimental JIT compilation.

Software Development Intern, Paycom, TX, USA *May 2025 - Aug 2025*

- Engineered a high-performance PDF table extraction algorithm using optimized data structures, achieving **60x speedup (from 60 minutes to 1 minute)** while robustly handling edge cases, including multi-page tables, merged cells, and scanned PDFs with OCR-resistant layouts.
- Developed a full-stack web application using .NET Web API, integrating the algorithm into Paycom's data processing pipeline and reducing manual data entry workload by an estimated **80 hours/month** across the company.
- Received **MVP recognition** at Paycom's **Hackathon** for creating a project management website that allowed 120 yearly intern project selections and allocations.
- **Technologies**: **C#**, .NET Web API, React, JavaScript, MySQL, JWT

Graduate Teaching Assistant, University of Kansas, KS, USA *Jan 2024 - Dec 2024*

- Instructed **Operating Systems** labs for over **180 students**, designing hands-on exercises on kernel scheduling, memory management, and other operating systems concepts, which enhanced students' practical understanding.
- Held weekly office hours and lab sessions, providing mentorship on systems programming and debugging techniques; received positive student feedback on lab clarity and technical rigor.

Software Engineer, Hatio Innovations, KL, India *Jun 2021 - Jun 2023*

- Developed **Hatio Payouts**, integrating **Citibank**, **ICICI Bank**, and **Paytm Payments Bank** APIs via gRPC, delivering secure, high-performance B2C payouts processing **10K+ daily transactions** and **99.9%** uptime.
- Introduced features like Manual Deposit and Withdrawal processes to **Coinome**, a cryptocurrency broker web application, boosting speed and elevate user satisfaction.
- Achieved **20-30x** performance improvement by replacing 10+ complex multi-table analytical queries with materialized views.
- Designed **Operations Admin Portal** with fine-grained RBAC serving **50+ compliance and customer service staff**, managing **4+ workflows** addressing critical business needs.
- Served as **Scrum Master**, rotating with peers across 2-month sprint cycles, applying agile methodologies and Git version control to ensure timely project delivery, fostering team collaboration, and guiding a shift to test-driven development practices.
- **Technologies**: **Java**, **Kotlin**, Spring Boot, PostgreSQL, Protocol Buffers, gRPC, Git, GitLab CI/CD, Apache Kafka, AWS

EDUCATION

Master's in Computer Science, University of Kansas, GPA: 4.0/4.0 *Aug 2023 - Dec 2025*

Bachelor's in Electronics and Communication, NIT Calicut *Aug 2017 - May 2021*

PERSONAL PROJECTS

Fault Tolerant Distributed Search Engine

- Designed and implemented a **horizontally scalable, fault-tolerant asynchronous** distributed search system using a parallel task-based **TF-IDF algorithm**, handling dynamic node failures and network partitions with zero query loss.
- Implemented dynamic leader election and service discovery with **Apache Zookeeper**, enabling automatic fail-over.
- Built loosely coupled backend components with **Java Object serialization** for inter-node communication and **Protocol Buffers** for cross-language compatibility.

Project Management Software

- Developed **full-stack web application** with real-time collaboration features (WebSocket chat, live notifications, issue tracking).
- Implemented JWT-based authentication and subscription service with **Razorpay** payment integration.
- Implemented automated **email notifications** for project activities (e.g., new issues, comments), ensuring seamless communication
- **Technologies**: **Java**, Spring Boot, REST API, JSON Web Token, React, MySQL, Spring Starter Mail, and Tailwind.

CERTIFICATIONS

- Distributed Systems and Cloud Computing in Java (Udemy)
- Multi-threading, Parallel & Asynchronous Coding in Java (Udemy)
- Microservices with Spring Boot and Spring Cloud (Udemy)