SHARVANI CHELUMALLA

✉ ch.sharvani.29@gmail.com in sharvanichelumalla ⌨ Sharvani1291 🌐 Portfolio

Computer Science graduate with **5+ years** of combined experience in Data Engineering, Software Engineering, Cloud Technology, and Machine Learning.

Experience

Resolution Life   **Aug. 2024 – May 2025**
Data Science Co-op   *Remote*
- Designed technical architectures and automated end-to-end ETL pipelines for batch and real-time use cases.
- Built an event-driven data lake ingestion framework to process diverse file types from multiple sources using PySpark, with Glue for cataloging and S3 for storage. Secured data access using Lake Formation.
- Enhanced data availability and processing efficiency by 30% by implementing robust quality checks and creating optimized Apache Iceberg tables.

UGA School of Computing   **Aug. 2023 – May 2025**
Research Assistant   *Athens, Georgia*
- Designed a cost-efficient, fault-tolerant hierarchical federated learning framework using transient virtual machines and asynchronous communication, reducing model convergence time by 20% and infrastructure costs by over 40%.
- Achieved a 7x speedup in communication by integrating an efficient gRPC implementation, accelerating model training and improving system resource utilization.

Cognizant Technology Solutions   **Dec. 2020 – July 2023**
Data Engineer - Associate   *Hyderabad, India*
- Directed software design and development to meet client needs for functionality, system designs and performance.
- Orchestrated the ETL process using AWS services (Glue, S3, DynamoDB, Lambda, EMR, EC2, EKS, RDS, Step Functions, Event Bridge, Redshift, Athena), enabling seamless data integration and analysis, resulting in data-driven business insights and improved decision-making capabilities.

Technical Skills

Languages: Python, C, HTML/CSS, JavaScript, Java, Rust, PySpark
Tools: VS Code, IntelliJ, Eclipse, Jenkins, Jira, Confluence, CI/CD, Git, Cargo, Android Studio
Technologies/Frameworks: AWS, Azure, Kubernetes, Docker, Hadoop, Hive, Kafka, Federated Learning, DevOps
Databases: MySQL, PostgreSQL, MongoDB
Data Integration: gRPC, REST APIs, JSON/XML, API Gateway, Serverless Functions, Microservices
Machine Learning & CV: PyTorch, TensorFlow, OpenCV, Scikit-learn, Diffusion Models, CNNs, NLP
Data Visualization: Power BI, Tableau, Matplotlib

Projects

SpotLight: Lightweight, Cost-efficient, Scalable FL framework | *AWS, Kubernetes, Celery, Redis*   **May 2025**
- Developed a novel scalable hierarchical federated learning framework that enhances scalability and cost efficiency by utilizing transient virtual machines, implementing robust fault tolerance mechanisms, and integrated asynchronous communication to improve model convergence and manage variability in device performance across distributed networks.
- Leveraged an alert mechanism for seamless recovery from spot instance failures, ensuring data integrity and minimal operational downtime.

RustFL: Secure and Asynchronous Federated Learning framework | *Pytorch, Machine Learning, Docker* **Nov. 2024**
- RustFL is a secure federated learning framework built in Rust that enables asynchronous training of machine learning models while preserving client data privacy through Differential Privacy and Secure Multiparty Computation, ensuring end-to-end confidentiality, secure model update aggregation, and efficient decentralized collaboration.

Movie Ticket Booking Website | *React.js, PostgreSQL, Express.js*   **Apr. 2024**
- Led the full stack development, demonstrating front-end design, database management skills and increased system robustness using Express.js in backend.

Cloud Performance and Cost Analysis for Food Apps | *Node.js, Laravel8, Flutter3.7, Bootstrap5*   **Dec. 2023**
- Spearheaded the front-end Android application development. Conducted a comprehensive cost analysis comparing Amazon web services and Microsoft Azure which aimed to determine the most cost-effective solution for hosting and managing.

Certifications

AWS certified Solution Architect – Associate | *Link*

Publications

Real Time Video Enhancement Using Camera Response Model | *Link*   **May 2020**

Education

University of Georgia   **Aug. 2023 – May 2025**
Master of Science in Computer Science   *Athens, Georgia*