Sharvani Chelumalla

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

Experience

Resolution Life
Data Science Co-op

Aug. 2024 – May 2025
Remote

- Designed technical architectures and automated end-to-end ETL pipelines for batch and real-time use cases.
- Developed scalable data ingestion workflows that unified structured and unstructured sources, improving data availability for analytics by 35% and reducing manual intervention through automated schema handling.
- Implemented CI/CD pipelines with AWS CodePipeline and GitHub Actions to automate deployment, testing, and monitoring of data workflows, reducing release cycles by 25%.
- Enhanced data availability and processing efficiency by 30% by implementing robust quality checks and creating optimized Apache Iceberg tables.

UGA School of Computing
Research Assistant

Aug. 2023 – May 2025
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
Data Engineer - Associate

Dec. 2020 – July 2023
Hyderabad, India

- Worked on building an event-driven data lake ingestion framework that ingested files from multiple source systems, applied transformations using PySpark, cataloged data with Glue, and stored curated data in S3 for analytics and dashboarding. Implemented Lake Formation for fine-grained data access control.
- Orchestrated the ETL process using AWS services (Glue, S3, DynamoDB, Lambda, EMR, EC2, EKS, RDS, Step Functions, Event Bridge, Redshift, Athena, SNS, Cloudwatch) and Databricks, enabling seamless data integration and analysis, resulting in improved business insights.
- Collaborated on setting up CI/CD pipelines for automated testing and deployment of data pipelines, ensuring consistency and faster delivery across environments.

Technical Skills

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

Education

University of Georgia
Master of Science in Computer Science

Aug. 2023 – May 2025
Athens, Georgia

Certifications & Publications

AWS Certified Solutions Architect – Associate | *Link*   **Jan 2024**
Real-time Video Enhancement Using the Camera Response Model | *Link*   **May 2020**

Projects

SpotLight: Lightweight, Cost-efficient, Scalable FL framework | *AWS, Kubernetes, Celery, Redis*   **May 2025**
- Designed and implemented a hierarchical federated learning framework that improves scalability and cost-efficiency by leveraging transient virtual machines, asynchronous communication, and robust fault-tolerance with automated recovery from spot instance failures, ensuring faster convergence, data integrity, and reduced 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.