

# BALA SUBRAMANYAM DUGGIRALA

Full Stack Software Engineer

bduggirala2@huskers.unl.edu — 979-422-5067 — Lincoln, NE – 68504

linkedin.com/in/balasubramanyamd — github.com/Subramanyam6 — iamas.unl.edu

## Summary

Full-Stack Software Engineer with expertise in developing cloud-native microservices, RESTful APIs, and event-driven systems using Java (Spring Boot), Python (Flask), and AWS/GCP infrastructure. Proven track record in designing scalable, maintainable services, optimizing performance, and collaborating cross-functionally to deliver reliable production software.

## Skills

**Languages:** Java (Spring Boot), Python (Flask/Django), SQL, C/C++, Node.js

**Cloud & DevOps:** Google Cloud (Cloud Run, Pub/Sub, BigQuery, Cloud Build), AWS (ECS, EC2, S3, Lambda), CI/CD (Jenkins, Cloud Build), Docker, Kubernetes, Terraform, Git

**Frameworks & Tools:** RESTful APIs, Kafka, Event-Driven Architecture, Spring Data JPA, React.js, AngularJS, Leaflet.js, D3.js

**Databases:** MS SQL Server, PostgreSQL, Oracle, MongoDB, Google BigQuery

**AI/ML & Data:** Reinforcement Learning, TensorFlow, PyTorch, Pandas, NumPy, Scikit-learn

## Experience

**Graduate Research Assistant (Data)**      **University of Nebraska–Lincoln**      *Jan 2025 – Present*

- Built an event-driven ingestion pipeline on GCP: Canvas click events published to Pub/Sub, consumed by Python Flask services on Cloud Run, then loaded into BigQuery.
- Developed interactive analytics dashboards using D3.js to visualize student engagement metrics in real time.
- Built pytest + Flask-Testing integration tests; enforced an 85% coverage gate with automated reports.
- Configured Cloud Build CI/CD pipelines to build Docker images and deploy services to Cloud Run.

**Graduate Research Assistant (GIS)**      **University of Nebraska–Lincoln**      *Aug 2024 – Dec 2024*

- Developed a RESTful Python Flask API serving geoJSON for 100K+ data points, visualized with Leaflet.js filters and choropleth layers.
- Deployed via Docker on a Linux VM with Nginx+Gunicorn, ensuring SSL-secured, high-availability service.

**Graduate Research Assistant (AI/ML)**      **University of Nebraska–Lincoln**      *Nov 2021 – Dec 2023*

- Conducted advanced research on scalable decision-making AI algorithms (PBVI, I-POMCP-PF) for multi-agent systems, involving intricate algorithmic analysis and optimization.
- Implemented complex data structures (e.g., recursive trees, particle filters) in Cython to eliminate Python runtime overhead, reducing runtime by 40%.
- Applied TensorFlow for GPU acceleration, enabling real-time processing of millions of decision-making computations and cutting runtime from hours to seconds.
- Developed interactive R Shiny web applications to effectively present complex, high-dimensional decision data.

**Programmer Analyst**      **Cognizant, India**      *Feb 2018 – Aug 2021*

- Developed Java Spring Boot microservices (Spring Data JPA) on AWS ECS, exposing REST APIs and handling Kafka event streams.
- Refactored a monolithic application into modular Spring components using dependency injection, cutting maintenance effort by 50%.
- Designed IBM DataStage ETL jobs to process 5 TB/month of insurance claims from SQL Server and Oracle.
- Implemented Jenkins CI/CD pipelines with JUnit and Mockito tests, achieving zero post-deployment defects for two web portals (20K+ users).
- Designed microservices to meet 99.9% uptime SLAs and optimized response times under 100ms, enhancing system reliability.

## Education

**Master of Science**      **University of Nebraska-Lincoln**      *Aug 2021 – Aug 2025*

Computer Science (Thesis)

Courses: Advanced Software Engineering, Data Structures and Algorithms, Graph Algorithms, Cybersecurity, Cloud Computing, Databases, Computational Linguistics, Multi-Agent Systems

**Bachelor of Technology**      **SRM Institute of Science and Technology**      *Aug 2013 – May 2017*

Electrical and Electronics Engineering

## Projects (selected)

- Built a “Mini Equipment Marketplace” using ASP.NET Core MVC, Entity Framework Core (SQL Server), RESTful APIs, and CI/CD via Azure DevOps – project website link
- Developed an Ethereum DApp backend with Solidity and Truffle Suite—authoring and testing smart contracts and deploying them on AWS EC2 for secure on-chain business logic (see GitHub).