

LUIS FERNANDO BENAVIDES

COMPUTER ENGINEER

As a passionate and detail-oriented Computer Engineer, I specialize in designing innovative software solutions while deepening my expertise in Cloud Computing, DevOps, Full-Stack Development and Game Development. I actively seek challenging opportunities to bridge academic knowledge with real-world problems, delivering impactful results for teams and organizations.

Thriving in cross-functional environments, I leverage strong communication skills, a collaborative mindset and creative problem-solving to drive projects forward. My proactive attitude, adaptability, and self-taught drive empower me to continuously refine my technical and professional skills through hands-on projects and independent exploration of emerging technologies.

What excites me most about engineering is the chance to constantly learn, evolve, and grow, while creating meaningful solutions that help people.

EDUCATION

Instituto Tecnológico de Costa Rica
Computer Engineering
2023 – Expected 2026

LANGUAGES

Spanish
Native Language
English
Level B2

SKILLS

- Programming languages like **Python, Java, C, C++, JavaScript** and **TypeScript**.
- Database management with **SQL Server, MySQL, PostgreSQL, MariaDB, Elasticsearch** and **MongoDB**.
- Containerization & orchestration with **Docker** and **Kubernetes**.
- Development tools like **Git** and **Visual Studio Code**.
- Web development using **Angular**.
- Comfortable working on **Linux** environments.

PROJECTS

Semantify

- Built a semantic search engine for song lyrics using Hugging Face embeddings and Elasticsearch, enabling intelligent lyric-based queries.
- Developed a robust Python/Flask API with caching, observability, and endpoints for vector encoding and user interactions.
- Implemented logging, metrics, unit testing, and followed DevOps best practices for maintainability.
- Containerized with Docker for seamless deployment and scalability.

TuneStay

- Created a full-stack web platform integrating both PostgreSQL and MongoDB to manage song lyrics and Airbnb listings.
- Enabled semantic accommodation recommendations using vector embeddings and Elasticsearch-powered search.
- Architected microservices with Docker and Helm Charts for automated, scalable deployment.

Crossref Search


- Designed a scalable pipeline to process over 1M scientific articles from AWS S3 using Python CronJobs and Spark SQL.
- Automated metadata enrichment via Crossref API and stored results in Elasticsearch for fast semantic retrieval.
- Integrated RabbitMQ and MariaDB for job orchestration and state tracking.
- Achieved full automation of data ingestion, transformation, and infrastructure provisioning.


Battle City

- Rebuilt the classic NES game Battle City in pure Java with 8+ levels, enemy AI, a level editor, and dynamic power-ups.
- Applied 6+ design patterns to address game architecture—Command for controls, Prototype for tank variations, Observer for live UI updates, and Decorator for power-ups.
- Developed an extensible enemy spawn system using the Factory Pattern with randomized behaviors per level.

CONTACT

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