

# Tristan Johnston

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[github.com/tristanc](https://github.com/tristanc)

## EXPERIENCE

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### Full-Stack Software Engineer — Client Project

*A Pet's Day Out*

Oct 2024 – Mar 2025

Birmingham, AL

- Developed a full-stack internal dashboard used daily to manage 1000+ pet records, reducing intake errors and improving processing time
- Reduced staff login friction by implementing secure authentication with Google OAuth support
- Designed PostgreSQL schema to support multi-owner, multi-pet records, reducing data inconsistency and manual oversight
- Delivered a mobile-first UI with React that enabled non-technical staff to handle daily operations with minimal training
- Integrated AWS S3 for fast, scalable image uploads and retrieval, cutting photo load times from seconds to under 100ms

## PROJECTS

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### Document Dock (RAG PDF Search) | *Next.js, FastAPI, PostgreSQL, pgvector, OpenAI API*

- Built a Retrieval-Augmented Generation system allowing natural language search over PDF documents
- Implemented a search pipeline using sentence-transformer embeddings and pgvector for sub-second semantic queries
- Developed microservices with FastAPI and Express to handle automated document parsing and storage
- Integrated OpenAI API for context-aware response generation with referenced citations and page numbers

### Parcel Data Visualization | *Next.js, React, PostGIS, Docker*

- Built an interactive 3D geospatial visualization of value-per-acre parcel data using Deck.gl and MapLibre
- Optimized interactions with datasets of 50k+ parcels using spatial index queries in a Dockerized PostGIS setup
- Implemented dynamic color interpolation and view-state clamping for clear, map-level focus in urban areas

## TECHNICAL SKILLS

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**Languages:** Python, JavaScript (TypeScript), Java

**Databases:** PostgreSQL, PostGIS, MongoDB, pgvector

**Frameworks:** React, Next.js, Node.js, Express, Flask, FastAPI

**Testing/CI:** Vitest, JUnit

**Dev Tools:** Git, Docker, AWS S3, VS Code

## EDUCATION

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### University of Alabama at Birmingham

*Bachelor of Arts in Computer Science, Minor in History*

Birmingham, AL

Aug. 2019 – Dec. 2023