

Matthew Frazier

[Website](#) | [LinkedIn](#) | [Email](#) | [\(610\) 732-8633](tel:6107328633) | St. Petersburg, FL

Senior Full-Stack Software Engineer with 10+ years of experience in data, analytics, and distributed systems development. Proven track record designing scalable microservices, REST API integrations, and high-volume data pipelines supporting large-scale applications. Delivered end-to-end solutions across backend, data, and full-stack layers, with additional expertise in AI-driven systems including LLM-powered analytics and retrieval pipelines. Ph.D. in Computer and Information Sciences with research in conversational agents intersecting HCI and applied AI.

CORE TECHNICAL SKILLS

Languages: Python, SQL, TypeScript/JavaScript, Node.js, Rust/WebAssembly (wasm-pack)

Backend & APIs: REST, gRPC, webhooks, GraphQL (Apollo Server, Apollo Client), Hapi.js, FastAPI, microservices, system design, algorithms, data structures, Apollo Federation/Subgraph, tRPC, BullMQ, Joi, Zod, JWT, OAuth2

Full-Stack Frameworks & Patterns: Next.js (App Router, Server Components, Server Actions, SSR/SSG/ISR), React 18/19, TypeScript end-to-end, GraphQL Federation (Apollo Subgraph), tRPC, REST + WebSockets, BFF pattern, Component-Driven Development (Storybook), Design Systems (MUI, shadcn/ui, Radix, Tailwind), Form & schema validation (React Hook Form, Zod, Joi)

Cloud & Infrastructure: AWS (EKS, ECS, EC2, Lambda, S3, SQS, SNS, RDS, IAM, Route 53, SM, SSM), Kubernetes, Docker, Serverless

Data Engineering & ETL Pipelines: Airflow (MWAA), Argo Workflows, Adverity, data ingestion, data modeling, S3

Databases & Storage: PostgreSQL, Redis, NoSQL databases, Redshift, Snowflake, Sequelize, Prisma, Drizzle ORM, Knex

Event-Driven Systems: AWS Lambda, SQS (FIFO), SNS, asynchronous processing, streaming workflows

AI/ML Systems: LLMs, RAG, LangChain, LangGraph, CrewAI, Qdrant, ChromaDB, Langfuse, Snowflake Cortex, OpenAI, MLflow, SageMaker, prompt engineering (CoT, ReAct, few-shot), human-in-the-loop (HITL), AWS Bedrock (AgentCore), Vercel AI SDK, Snowflake Cortex Agents

Frontend & Full-Stack UI: React 18/19, Next.js, TypeScript, Material UI, Tailwind CSS, Apollo Client, Vite, Streamlit, Chainlit, Storybook, data visualization, MUI X Data Grid Pro, shadcn/ui, Radix UI, TanStack Query/Table/Virtual, React Hook Form, Zustand, Highcharts, Nivo, Vega-Lite, D3

DevOps & CI/CD: CircleCI (Orb), GitHub Actions, containerization, deployment pipelines, Helm, environment management (dev/local, staging, production), AWS CDK, AWS SAM, Serverless Framework, Biome, Renovate

Testing: Pytest, Jest, Vitest, Storybook, Test-Driven Development (TDD), Playwright, MSW (Mock Service Worker)

Monitoring & Observability: Datadog, Rollbar, AWS Cloudwatch, Datadog RUM, Datadog APM (dd-trace), Pino structured logging

Data & Analytics Tools: Tableau, Redash, Jupyter Notebooks, Sigma

Security & Auth: OAuth, Auth0, Okta

Integrations: Google Ads, Meta, The Trade Desk (TTD), YouGov, Salesforce, SFTP

PROFESSIONAL EXPERIENCE

Senior Software Engineer (Data Science / Scaled Media Solutions) | Goodway Group | New York, N.Y. 2021 - Present

- Improved production stability of **RealValue™**, a high-throughput distributed optimization system (bid factoring, bid range, combinatorial and hyperlocal optimization) processing **40M+** impression-level decisions daily across campaign datasets, built on microservices, ETL pipelines, and DSP integrations (e.g., TTD). Re-architected error handling (Rollbar, Datadog) and validation logic within pipeline workflows, improving system reliability while reducing production errors by **90%**.
- Integrated backend microservices and REST/GraphQL APIs across 5+ external platforms (TTD, Bing, YouGov, Google Ads, Meta) using Node.js + Hapi.js + Apollo Federation and Python + FastAPI. Built high-volume ETL pipelines on Airflow (AWS MWAA), Argo Workflows, Adverity, Redshift, Snowflake, and S3 supporting analytics surfaces consumed by React/Next.js and Streamlit frontends. Co-led DevOps + AI/MLOps governance across platform and AI systems.

- Built and shipped production full-stack applications across the **GOEST™** (Goodway Outcome Engineering System) and **Goodlook™** platforms. Frontend stack: Next.js 15 (App Router, React Server Components, Server Actions), React 19, TypeScript, MUI & shadcn/ui (Tailwind, Radix), TanStack Query/Table, Zustand, React Hook Form + Zod. Backed by Hapi.js and Apollo GraphQL Federation services, tRPC type-safe APIs, PostgreSQL via Drizzle ORM, Sequelize, and Knex, with Redis caching and BullMQ background workers. Hardened with Vitest, Playwright, Storybook, and MSW; instrumented with Datadog RUM + APM and Pino structured logs.
- Architected event-driven distributed systems on AWS Lambda, SNS, SQS (FIFO), and S3 (provisioned via Serverless), replacing manual Jupyter notebook execution for the YouGov analysis pipeline with fully asynchronous processing and streaming results back to the React/Next.js and Streamlit frontends in real time.
- Designed and implemented AI-driven analytics within the **GOEST™** Next.js + tRPC platform, including RAG, hierarchical insight generation (Brand Compass), and natural-language query (NLQ) backed by Snowflake Cortex Agents, Vercel AI SDK, AWS Bedrock (AgentCore), LangChain/LangGraph, CrewAI, Langfuse observability, and vector stores (Qdrant, ChromaDB). Streamed inference responses to the React 19 UI via REST and Server Actions, with Drizzle ORM persistence and Datadog tracing.

Senior Technical Operations Engineer (Business Intelligence) | Goodway Group | New York, N.Y. 2018 - 2021

- Owned data reliability, integrity, and availability of marketing analytics systems. Managed end-to-end data operations and reporting infrastructure (Airflow, Redshift, S3, Tableau) under strict daily data freshness SLAs.
- Owned org-wide incident response, root-cause analysis, postmortem, and data discrepancy triage across pipeline and reporting systems. Adopted preventative fixes and monitoring workflows that improved system stability and reduced recurring issues.

Principal Campaign Operations Engineer | Goodway Group | New York, N.Y. 2014 - 2018

- Launched **COLT** (Cacidi On-Line Tool), a full-stack web application built on Node.js and JavaScript that augmented Adobe InDesign templates to parameterize ad copy and legal logic. Automated campaign production, reducing creative approval time by approximately **80% (from 10-12 business days to 2 business days)** and enabling scalable execution across multi-location automotive clients (e.g., Chevrolet).
- Executed, QA'd, and reported on programmatic campaigns across platforms (TTD, Google Ads, YouTube, Meta), collaborating with ad operations and media trading to improve data-driven campaign pacing and performance.

Senior Search Engine Optimization (SEO) Strategist | IONOS (1&1 Internet) | Chesterbrook, PA 2012 - 2014

- Established and analyzed SEO and Search Engine Marketing (SEM) strategies through copy and creative variation A/B testing, metatag optimization, user engagement behavior analysis (CTR, time-on-page), and keyword analysis, improving organic visibility and traffic across **300+** small business websites in US, UK, and Canadian markets (Google Analytics, SEMrush).

RESEARCH & TEACHING EXPERIENCE

PhD Researcher & Instructor | University of Delaware | Newark, DE 2018 - 2024

- Led research on conversational agents for computer science education, designing and evaluating LLM systems using prompt engineering techniques (e.g., RAG, CoT, few-shot) to develop AI learning systems that guide reasoning rather than direct answer generation, resulting in peer-reviewed publications.
- Instructed undergraduate computer science courses. Created curriculum and taught programming, data structures, and computer science ethics.
- **Research Expertise:** User Interviews, Survey Research, Usability Testing, Concept Testing, Experimental Design, Participatory Design.

Graduate Assistant & Researcher | West Chester University of Pennsylvania | West Chester, PA 2016 - 2017

- Evaluated data structures assignments (Java), assessing correctness, efficiency, and algorithmic approach.
- Developed an object detection and identity matching application (computer vision - Python, OpenCV) that analyzes university parking lot videos to detect open parking spots for lot availability.

EDUCATION

University of Delaware | Newark, DE

Ph.D., Computer and Information Sciences (Magna Cum Laude)

2024

West Chester University of Pennsylvania | West Chester, PA

M.Sc., Computer Science (Cum Laude)

2017

B.Sc., Marketing

2010

PUBLICATIONS

- Customizing ChatGPT to Help Computer Science Principles Students Learn Through Conversation (ITiCSE 2024)
- Investigating User Perceptions of Conversational Agents for Software-related Exploratory Web Search (ICSE 2022)