

# Matthew Frazier

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

---

Senior 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

**Backend & APIs:** REST, gRPC, webhooks, GraphQL, microservices, system design, algorithms, data structures

**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

**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)

**Frontend & Visualization:** React, Next.js, Streamlit, data visualization

**DevOps & CI/CD:** CircleCI (Orb), GitHub Actions, containerization, deployment pipelines, Helm, environment management (dev/local, staging, production)

**Testing:** Pytest, Jest, Vitest, Storybook, Test-Driven Development (TDD)

**Monitoring & Observability:** Datadog, Rollbar, AWS Cloudwatch

**Data & Analytics Tools:** Tableau, Redash, Jupyter Notebooks, Sigmacolor

**Security & Auth:** OAuth, Auth0, Okta

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

## PROFESSIONAL EXPERIENCE (select)

**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 APIs across **5+** external platforms (TTD, Bing, YouGov, Google Ads, Meta). Built high-volume ETL data pipelines (Airflow, AWS MWAA, Argo Workflows, Redshift, Snowflake, S3) supporting large-scale data and analytics systems. Led DevOps initiatives and co-led AI initiatives with Data Science leadership, driving best practices and cross-team MLOps governance alignment across platform and AI systems.
- Architected full-stack and event-driven distributed systems, including AWS Lambda, SNS, SQS (FIFO), and S3 workflows to automate YouGov analysis pipelines, replacing manual Jupyter notebook execution with asynchronous processing. Deployed frontend (React/Next.js, Streamlit) and data visualization systems for real-time insights.
- Designed and implemented AI-driven analytics capabilities within the **GOEST™** (Goodway Outcome Engineering System) platform. Created signal-based insights (Snowflake Cortex) by transforming campaign data into structured features (SQL fact tables, benchmark thresholds, tradeoff logic) to enable LLM inference. Integrated natural language query-based retrieval and RAG pipelines (Snowflake Cortex Agents) via REST APIs with streaming responses to frontend applications. Built a hierarchical insight generation system (Brand Compass) using structured prompt engineering (CoT, ReAct, few-shot) in agentic workflows (CrewAI, LangChain, vector stores, memory, Langfuse).

**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 web-based automation system augmenting Adobe InDesign templates that parameterized 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 (select)

- 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)