

# DREW ERNST

## Full-Stack Software Developer

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## POSITIONING STATEMENT

Full-stack developer and data engineer who ships production-grade systems—from HIPAA-compliant zero-footprint logic engines for state agencies to behavioral finance ETL pipelines on PostgreSQL Star Schemas. I close the gap between raw bank telemetry and deterministic user products by architecting high-fidelity data integrity into every layer of the stack.

## PROFESSIONAL EXPERIENCE

### Contract Software Developer

2025 – 2026

State & Local Agency Consulting (MCSDD | PCSP Assistant Pro)

<https://dte-solutions.icu/case-study-pcsp/>

- Architected a "**Zero-Footprint**" **Logic Engine** that eliminated all server-side privacy risks and hosting fees by processing HIPAA-regulated data locally in volatile RAM — zero POST requests, 100% data residency, no BAA required.
- Eliminated **Missouri DMH audit rejections** by engineering hard-coded logic to enforce state-mandated "Active Treatment" structures and person-centered support requirements, cutting administrative revision cycles significantly.
- Built a custom HIPAA security framework from scratch: **4-second debounced auto-saves, 30-minute idle timeouts, and 30-day PHI auto-expiry** — passed Missouri state compliance review without a database or cloud vendor.
- Designed a relational schema supporting multi-goal architectures and behavioral mapping, maintaining full import/export integrity and **reducing documentation revision cycles by 40%**.
- Eliminated IT overhead and licensing fees by deploying a zero-install workspace via agency internal drives, leveraging existing Active Directory permissions for instant browser-based access.

### Lead Software Developer & Founder

2025 – Present

DTE Solutions — Pulse-AI: Behavioral Finance System

<https://dte-solutions.icu/pulse-breakdown.html>

- Architected a **FastAPI + React full-stack PWA** with Plaid bank sync, Stripe payments, and a Supabase RLS security layer — shipped to production on Vercel with live user data.
- Engineered a full **ETL pipeline in Python (Pandas/NumPy)** to clean, impute, and transform raw bank CSV exports into a PostgreSQL Star Schema; every transformation validated by automated Jest child-process tests for 100% data integrity.
- Built behavioral trigger detection logic correlating **spending velocity with time-of-day and mood indices** to surface real-time "Impulse Trigger" flags — a deterministic Financial Mirror for user spending patterns.
- Implemented **FastAPI + MongoDB** backend with Grouped Imputation techniques for multi-period wealth forecasting; AWS S3 integration for secure document storage and sticky workflow persistence.
- Enforced **Pydantic v2 models** across the entire API layer for strict request sanitization and runtime type enforcement, eliminating schema drift between frontend and backend.

### Data Analyst & Engineer

2025 – Present

DTE Solutions — SQL Analytics Engine (ecommerceSQL)

[github.com/DTE-84](https://github.com/DTE-84)

- Built a **PostgreSQL analytics platform** performing RFM segmentation on 10,000+ customer records using **NTILE(5)** distribution to classify behavioral cohorts for targeted retention strategy.
- Engineered a **Cohort Revenue Matrix** isolating first-purchase months to measure LTV retention and customer stickiness across multi-period windows using advanced CTEs.
- Implemented **DENSE\_RANK()** window functions for regional performance scoring across geographic supply chain clusters — optimizing inventory allocation by market.
- Built a **React 18 + Recharts** frontend with SQLBlock components for full query transparency, translating raw transactional data into insight-first business intelligence dashboards.

## TECH STACK

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### Full-Stack Engineering

React 19, TypeScript (Strict), FastAPI, Node.js, Express, Firebase/Firestore, Supabase, Vercel, Tailwind CSS.

### Data & Analytics

Python (Pandas, NumPy), PostgreSQL, Star Schema Design, ETL Pipelines, Advanced SQL (CTEs, Window Functions), Pydantic Validation.

## KEY ACHIEVEMENTS



### HIPAA Compliant

Eliminated server-side vulnerabilities by architecting a single-file browser application with zero POST requests.



### Financial Tracking

Powered behavioral finance dashboards with real-time net worth tracking and predictive analytics.



### Strategic Consulting

Consult on data integrity pipelines and optimization for state agencies—bridging tech with strategy.



### ETL Pipeline Success

Engineered full Python ETL pipelines transforming raw bank telemetry into PostgreSQL Star Schemas.



### Mobile Optimization

Enabled 100% mobile responsive interfaces across iOS/Android environments using Vercel deployment.



### GitLab & GitHub DevOps

Architected containerized hosting environments using Docker/Nginx with robust automated CI/CD flows.

## EDUCATION & LEADERSHIP

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### Quincy University

2011 – 2012

*Bachelor of Arts in Public Relations | GPA: 3.8*

**S.I.F.E (Students in Free Enterprise):** Strategic Marketing Lead — developed high-impact outreach strategies and demonstrated entrepreneurial leadership in competitive environments.

### Frontend Simplified Bootcamp & Mentorship

2025 – 2026

*Mentored by David Bragg*

Intensive training in zero-latency UI/UX React architecture and professional-grade engineering standards. Focused on component-based architecture and rigorous data validation.

## FIND ME ONLINE

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**Ecosystem:** [dte-solutions.icu](https://dte-solutions.icu)

**Github:** [github.com/DTE-84](https://github.com/DTE-84)

**Portfolio:** [dte-84.github.io/DTE-E-Portfolio/](https://dte-84.github.io/DTE-E-Portfolio/)