

TAMARA DOWIS | SOFTWARE ENGINEER

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ABOUT

Backend engineer and former science educator specializing in API development and data processing with Node.js, Python, and PostgreSQL. I bring analytical problem-solving skills and collaborative leadership experience from years of curriculum design and student assessment to building scalable, well-tested software solutions. Passionate about creating systems that solve real-world problems, from civic tech tools that democratize public data to platforms that empower small businesses.

PROJECTS

Windy Civi

Python | GitHub | JSON | CLI Tools | Logging | Error Handling | Modular Architecture | Data Validation

A local civic tech initiative (Chi Hack Night) to improve public access to state legislative data across the U.S.

- Architected modular Python data processing system with comprehensive logging, error recovery mechanisms, and timestamped outputs to handle multi-session legislative data ingestion at scale
- Standardized ETL pipelines to transform raw legislative data into Open States JSON format, ensuring consistent data validation and enabling horizontal scaling across multiple state jurisdictions
- Developed CLI tooling with batch and interactive execution modes, implementing argument parsing, configuration management, and user-friendly debugging interfaces to reduce contributor onboarding time
- Implemented comprehensive error handling and validation framework with structured logging, fail-fast mechanisms, and automated recovery to eliminate silent failures in PDF parsing workflows and ensure production pipeline reliability

Adventure Life REST API

Node.js | TypeScript | Express | PostgreSQL | Knex | Objection.js | Postman | Jest | Swagger

REST API exposing structured, relational city data via modular, testable endpoints

- Architected enterprise-grade REST API with TypeScript and Express, implementing DAO pattern and modular service architecture to transform legacy monolithic codebase into maintainable, scalable system
- Designed relational data models with PostgreSQL, Knex migrations, and Objection.js ORM, optimizing query performance

Artisan Marketplace

Ruby on Rails | PostgreSQL | RSpec | Capybara | SimpleCov | FactoryBot | BCrypt

A multi-tenant Rails e-commerce platform with role-based access control and automated testing workflows.

- Architected multi-tenant e-commerce platform with Rails MVC architecture, implementing role-based access control and secure authentication patterns for admin and artisan user hierarchies
- Designed database schema and implemented complex business logic using Active Record with optimized queries, scopes, and time-based discount algorithms for high-performance product management
- Implemented modular application architecture with namespaced routing, service objects, and maintainable code patterns to support long-term scalability and team collaboration

SciScope

Node.js | Express | PostgreSQL | Objection.js | Redis | Jest | Winston | Passport | JWT | node-cache

A scalable RESTful API for science news aggregation with user authentication, caching, and analytics.

- Architected scalable RESTful API with Express.js and PostgreSQL, implementing modular service architecture and external API integration patterns for science news aggregation
 - Built multi-layer caching system using Redis and node-cache to optimize API performance, reducing external service calls and improving response times under load
 - Implemented secure authentication and authorization with Passport.js and JWT tokens, including session management and role-based access controls for user data protection
 - Established CI/CD pipeline with Jest testing framework and GitHub Actions, automating code quality checks, test execution, and deployment workflows
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HIGHLIGHTED PROFESSIONAL EXPERIENCE

Science Educator | International & U.S. Schools

07/2016 - Present

- Developed and delivered comprehensive International Baccalaureate science curricula using project-based learning methodologies and inquiry-based laboratory experiments
- Analyzed student performance data to optimize curriculum delivery and improve outcomes
- Developed assessment systems with metrics and feedback loops for tracking student progress and program evaluation

Project Manager | SolarAid

07/2008 - 06/2009

- Designed and launched solar energy distribution program facilitating 500,000+ product sales across multiple markets
 - Managed cross-functional operations including franchise network and manufacturing plant, leading 28-person team through strategic planning and implementation
 - Established monitoring and reporting systems to track key performance indicators and provide stakeholders with real-time project data for UK carbon credit market transactions
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EDUCATION & CERTIFICATIONS

AWS Certified Cloud Practitioner | Amazon Web Services

07/2025

Back End Engineering Certificate | Turing School of Software Design

06/2022

Selective, rigorous 7-month full-time program with 1500+ hours of hands-on project work (ACCET-accredited)

Bachelor of Science With Honors in Biology Ed | Kennesaw State University

05/2015