

# James Edward Dawson

## Full Stack Developer

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**GitHub:** github.com/DawsonJay

**Portfolio:** portfolio-production-d427.up.railway.app

**Location:** Chelmorton, Buxton, United Kingdom

**Work Authorization:** Eligible for Working Holiday visa (IEC), path to permanent residency via Canadian Experience Class after 1 year

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## Professional Summary

Full-stack developer with 3.5 years of experience building production systems at scale. Created zero-maintenance dashboards serving teams daily for 2+ years with no crashes or bug reports. Advanced proficiency in TypeScript, React, and PostgreSQL, with experience across full-stack web development, data engineering, AI/ML, and hardware integration. Track record of translating complex technical systems into intuitive interfaces and mentoring developers.

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## Technical Skills

**Languages:** TypeScript, JavaScript (ES6+), Python, HTML/CSS, Java

**Frontend:** React (19, hooks, React Query), Lexical, Vite, Tailwind CSS, Responsive Design

**Backend:** Express.js, Node.js, PostgreSQL, RESTful APIs, FastAPI

**AI/ML & Data:** Machine Learning, Data Processing, Reinforcement Learning, Database Optimization

**Tools:** Git/GitHub, Docker, Azure, Jest, React Testing Library, Agile Methodologies

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## Key Strengths

**Cross-Functional Communication** - Bridge technical complexity for non-technical users. Liaised between backend developers and sales teams to create dashboards translating complex database operations into intuitive interfaces.

**Zero-Maintenance Systems Design** - Emphasize architectural quality and structure to prevent issues before they arise. Built production dashboard serving 15+ users daily for 2+ years with zero crashes, zero bug reports, zero maintenance required. Component system design where no component is complex, but the structure is—simple code and sophisticated structure.

**Full-Stack Leadership** - Led solo projects from conception to production with full technical decision-making authority. Designed system architecture, selected technologies, and delivered production-ready solutions across frontend, backend, and infrastructure.

**Mentoring & Knowledge Transfer** - Successfully mentored 3 backend developers transitioning to full-stack roles, all now contributing confidently to frontend codebase. Created comprehensive documentation for future developers.

**Product Intuition** - Think about how users interact with systems, not just how code works. Built Integrations Dashboard that solved a real business problem by translating technical complexity into something intuitive.

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## Professional Experience

### Full Stack Developer

Nurtur | July 2022 - Present | Derby, UK

#### Major Projects:

**Integrations Dashboard (Solo Full-Stack Project)** - Rebuilt barebones buggy backend page into intuitive full-stack dashboard used daily by 15+ sales team members - Designed and implemented both frontend (React/TypeScript) and backend (API endpoints, PostgreSQL) - Liaised between backend developers and non-technical end users to bridge technical complexity - In production 2+ years with zero maintenance, zero crashes, zero bug reports—users continue expressing gratitude

**Nexus Dashboard (Current Project - Scalable Architecture)** - First developer to build dashboard for complex backend system (queues, virtual machines) - Designed architecture to adapt to major backend changes without significant frontend rewrites—built for decades of stability and maintainability - Structured for scalability with expandable space for graphs, pages, and filters as system grows - Created comprehensive documentation and setup guides for future developers - Added safety layers preventing accidental data corruption or removal

**Email Editor (Core Product Rebuild - Team Collaboration)** - Rebuilt core company product: drag-and-drop email template system for client campaigns (4-person team) - Developed complex components including link editor using Lexical framework - Mentored 3 backend developers transitioning to full-stack roles, all now contributing confidently to frontend codebase

**Technical Contributions:** - Optimized performance for large-scale databases: reduced dashboard load time from 15+ seconds to sub-5 seconds through strategic loading, count displays vs full objects, buffer systems, and React Query caching - Built RESTful API endpoints for dashboard data access - Conduct regular code reviews and provide technical guidance to colleagues - Emphasize architectural quality and structure to prevent issues before they arise

### Earlier Experience

#### Freelance Web Developer | Self-Employed | March 2021 - June 2022

Built full-stack web applications including complete e-commerce platform from scratch using React, Stripe, and Firestore. Managed client relationships, architecture decisions, and production deployment.

#### Junior Web Developer | BriefYourMarket.com | October 2020 - February 2021

Developed web applications using modern frontend frameworks. Collaborated with team members on feature development and bug fixes.

#### Volunteer Game Developer | Humanitarian Operations | March 2020 - June 2020

Worked as a volunteer on a game project to help parents home school their kids during the COVID-19 outbreak. Contributed to educational game development supporting remote learning.

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## Key Projects

### WhatNow - Self-Training Activity Recommendation System

#### Reinforcement Learning | TypeScript, React, Python, Contextual Bandits

Built activity recommendation system using contextual bandits that generates its own training data through use. Two-layer learning architecture: fast session learning (rate 0.8) for immediate refinement, slow base learning (rate 0.02) for long-term preferences. System trains itself through usage, eliminating need for massive training datasets while remaining robust to outliers.

**Technologies:** TypeScript, React, Python, FastAPI, PostgreSQL, Reinforcement Learning

## **Cirrus - Predictive Wildfire Risk Mapping**

**Data Engineering | Python, PostgreSQL, Machine Learning**

Designed system to process 242+ million historical weather records from 9,269 stations to generate predictive wildfire risk maps. Built optimized PostgreSQL database architecture handling 50GB dataset with efficient querying and indexing strategies. Used freely available NOAA historical data instead of expensive APIs—valuable learning experience in working with large-scale data systems and database optimization techniques.

**Technologies:** Python, PostgreSQL, Data Engineering, Database Optimization

## **Atlantis - Lake Bed Mapping System**

**Hardware Integration | Python, Embedded Systems, LoRa, 3D Printing**

Building surface drone boat with towed probe for autonomous lake bed mapping on \$500 budget. System maps underwater terrain using towed sensor probe while boat remains on surface for reliable control and recovery. Arduino Nano controller with LoRa communication, custom 3D-printed enclosures. Pivoted from fully submerged drone to surface boat + probe design—easier recovery, simpler waterproofing, better survivability.

**Technologies:** Python, Arduino, LoRa Communication, Sensor Integration, 3D Printing

## **Portfolio Website - Design System Architecture**

**Frontend Architecture | React 19, TypeScript, Vite, Tailwind CSS**

Built reusable diorama system combining artistic visual design with scalable technical architecture. Configuration-driven components support multiple visual themes, shapes, and animated layers while maintaining type safety. Generic component system makes complex layered visual designs reusable through configuration. Theme-based color system and clockwork animation timings create cohesive visual experience.

**Technologies:** React 19, TypeScript, Vite, Tailwind CSS, styled-components, CSS Animations

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## **Education & Certifications**

**Ironhack - Full Stack Web Development Bootcamp | May 2020**

Intensive 9-week remote bootcamp covering frontend (HTML5, CSS3, React) and backend (Express.js, Node.js, databases). Focused on clean, modular code, TDD, and deployment practices.

**Heriot-Watt University - Artificial Intelligence Program (2017-2019)**

Studied Java, Python, Logic, Algorithms, Neural Networks, Machine Learning, State Machines, and Databases. Received Certificate of Merit for first-year academic performance.

**IELTS - 8.5 overall (C2 level) | December 2024**

Listening: 9.0, Reading: 9.0, Writing: 7.5, Speaking: 9.0

**WES ECA - Educational Credential Assessment completed | March 2025**

Completed for Canadian immigration purposes. Access to Higher Education Diploma assessed as equivalent to Canadian secondary school diploma from university-preparatory program.

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