

Isaac Willson

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EDUCATION

Rutgers University-New Brunswick

Expected May 2029

B.S. Computer Science and B.S. Data Science (Double Major)

New Brunswick, NJ

Relevant Coursework: Data Structures, Computer Architecture, Linear Algebra, Intro to Discrete Structures I & II, Inference for Data Science

TECHNICAL SKILLS

Languages: Python, Java, TypeScript, JavaScript, SQL, C#, HTML/CSS

ML & Data: scikit-learn, pandas, NumPy, matplotlib, Jupyter, PostgreSQL, Redis, LLM tool-use

Web & Backend: React, Next.js, Node.js, FastAPI, REST APIs, Tailwind CSS

Tools & Infra: Git, GitHub Actions, Docker, AWS Lambda, AWS ECR, Vercel, VS Code

PROJECTS

Pondview Pool Status | *Next.js, TypeScript, PostgreSQL, Redis, Vercel* | pondviewpool.vercel.app June 2026 – Present

- Built and deployed a full-stack occupancy dashboard used by 300+ unique visitors (PostHog) across a 1,000+ unit residential community, giving residents real-time visibility into pool status, crowd levels, and weather
- Engineered a REST API (6 endpoints) that ingests occupancy readings into PostgreSQL, computing hourly activity curves, weekly stats, and live trends server-side so clients stay lightweight and every view derives from a single source of truth
- Secured admin routes with Bearer-token and HMAC-signed cookie auth to keep untrusted clients from spoofing readings, and built a Redis-backed override that lets staff instantly force-close the pool and propagates to residents' screens in seconds

Pool Arrival Forecasting | *Python, scikit-learn, Docker, AWS Lambda* | pondviewforecast.vercel.app July 2026 – Present

- Built an hourly arrival-forecasting pipeline over 250 hours of hand-transcribed sign-in data (1,589 arrivals, 29 days) joined to Open-Meteo weather, keeping verified zero-turnout hours so the model learns the bad-weather signal instead of dropping it
- Cut mean absolute error 23% below an hour-of-day × weekend baseline (2.97 vs. 3.86 arrivals/hour) under leave-one-day-out cross-validation, splitting by day to prevent weather leakage; a feature ablation confirmed weather, not calendar, drove the gain
- Deployed the model as a containerized FastAPI service on AWS Lambda (/forecast, /whatif, /chat) behind a three-view Next.js frontend on Vercel, with GitHub Actions path filters so web commits do not redeploy the API
- Built a natural-language assistant (Claude Haiku 4.5) that answers turnout questions by calling the forecast endpoints as tools, with a 24-case eval suite asserting on the tool-call trace: routing, argument extraction, and out-of-scope refusals

WORK EXPERIENCE

Pool Attendant (Seasonal)

May 2025 – Present

Garden Homes

Wharton, NJ

- Manage safety and access compliance for the sole pool facility serving a 1,000+ unit residential community, contributing to zero safety incidents across two consecutive summers
- Log and verify resident visits against detailed records of 1,000+ units, handling confidential resident data in line with community privacy standards
- Identified residents' lack of visibility into pool conditions and independently built the Pondview Pool Status dashboard and Pool Arrival Forecasting (see Projects)

Sales Associate

Aug 2024 – Present

Journeys

Dover, NJ

- Exceeded daily and weekly sales goals by 20% on average through product expertise, upselling, and personalized customer service