Albert Bogdan

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Education

B.S. Statistics and Computer Science, University of Illinois Urbana-Champaign Expected May 2028
- GPA: **3.91/4.00**
- Honors: Edmund J. James Scholar (Honors Student), Dean's List (SP25/FA25), H&R Block 2025 CAPS Scholar
- Relevant Coursework: Data Structures and Algorithms, Systems, Databases, Machine Learning System, Computer Architecture, Numerical Methods, Reinforcement Learning, Statistics and Probability

Professional Experience

Founding Engineer | PromoPigeon – iVenture Accelerator Cohort 12 Feb. 2026 – Present
- Launched Gemini tool-calling agent that parses client emails, maps logo design instructions to OpenCV/PIL image functions, and generates product mockups at scale, cutting order time from **2 days** to **<60s**
- Expanded tool coverage to **500+ product SKUs** by building a Konva.js logo bounding box placement tool that cut onboarding time from **5 min to 3s** per item
- Enabled reliable deployment by containerizing the FastAPI backend on AWS with Docker, PostgreSQL, and S3, supporting both email and browser-based order submission to handle **35% more orders**

Software Engineer Intern | TekWeld Manufacturing May 2025 – Dec. 2025
- Developed an end-to-end direct mail automation platform that identifies local businesses as sales targets using Playwright, BeautifulSoup, and Google Places API to generate **90,000+ enriched leads** with a **93% success rate**
- Used GPT-image-1 to generate logo-matched backgrounds and automatically flag low-quality artwork for quality analysis review, increasing the number of orders handled by **15x**
- Deployed a serverless image enhancement service on AWS Lambda with a Real-ESRGAN ONNX model for **4x logo upscaling** to process client logos before artwork generation
- Shipped the full-stack platform in TypeScript, React, and PostgreSQL on AWS Lightsail, integrating TekWeld APIs for order fulfillment and an analytics dashboard for promo code and order tracking

Research and Activities

Undergraduate Researcher | Illinois Mathematics Lab Aug. 2025 – Dec. 2025
- Built a statistical analysis pipeline in Python to detect and quantify systematic AP Top 25 voter bias favoring high-profile NCAA conferences over comparable teams from smaller conferences for **250,000+ historical ballots**
- Isolated **10** most extreme voter–team bias pairs from **1,000+ candidates** via custom Weighted Spearman footrule scoring pipeline
- Surfaced bias patterns across **60+ schools** with an interactive R Shiny geospatial heatmap for UIUC Research Symposium

Software Engineer | Aurelius Partners Inc. Aug. 2025 – Dec. 2025
- Built automated Python reporting pipeline for a quantitative bond analytics platform, cutting generation from **10 min to 2s** across **50-slide** investor decks and PDFs
- Architected visualization engine rendering **25+ stress curves** and tornado plots with matplotlib, NumPy, and its gridspec module
- Built CI/CD pipeline in GitHub Actions with Docker-containerized pytest, catching **4x more regressions** pre-deploy on AWS

Software Engineer | Fantasy Trading Room Aug. 2024 – Dec. 2024
- Built a fantasy football trade evaluation tool integrating Sleeper and ESPN APIs to compare **500+ player valuations** in real time
- Engineered XGBoost regression model achieving **22% higher trade valuation accuracy** over flat point-total baselines on **3+ seasons** of historical data; validated via k-fold cross-validation using **15+ engineered features**

Course Assistant | University of Illinois CS-173, CS-374 Jan. 2025 – Present
- Taught dynamic programming, induction, reductions, and graph modeling to **500+ students** via tutorials and weekly office hours
- Boosted exam performance by **15%** (**90% of course grade**) by leading weekly review sessions for **250+ students**
- Selected as **1 of 3** lead CAs for summer cohort, improving problem comprehension **85%** via structured in-class walkthroughs

Projects

DeFlock Fitness | GitHub
- Built a privacy-first fitness route planner that automatically reroutes around **31,000+ real-world ALPR surveillance cameras**
- Reduced camera load time by **5×** by deploying on Cloudflare Workers, using edge runtime to cache geospatial queries and proxy API traffic without hitting the origin server
- Enabled cross-device route sync by integrating Neon Postgres with Clerk OAuth, migrating localStorage routes to DB on first login

Database Systems Final Project – CityRank (CS-411)
- Architected a full-stack relocation ranker, cutting research time **70%** across **5,000+ U.S. cities** via React, Flask REST API, and Cloud SQL on GCP
- Increased ranking relevance **88%** via Gemini LLM pipeline converting prompts to weights using MySQL procedures and triggers

Technical Skills

Full-Stack: React, NodeJS, MySQL, PostgreSQL, CloudSQL, Flask, Java Spring Boot, FastAPI, Vite, JWT, TanStack
Languages: TypeScript, JavaScript, Python, R, SQL, Java, C++, C, Bash, Swift, HTML, TailwindCSS
Data Science / AI: R, NumPy, Pandas, Matplotlib, Jupyter, OpenAI, Scikit-learn, XGBoost, OpenCV, Pydantic, Gemini, Claude
Other: Git, GitHub, GitHub Actions, Linux, Docker, AWS, Cloudflare, Vercel, Google Cloud, Jira, Playwright, BeautifulSoup