Ioan G. Istrate

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Work Experience

Founder & Principal Engineer Tripvento   Oct 2025 – present

B2B Travel Intelligence API, Remote

- Built a hybrid hotel ranking engine fusing geospatial analysis (PostGIS, **180K+ POI proximity vectors**) with LLM-based semantic scoring, achieving **sub-250ms API response times**.
- Designed a two-layer scoring architecture where independent geo and AI signals cross-validate to reduce false positives in intent matching (romantic, business, family, etc.).
- Architected a 4-stage ETL pipeline (supplier APIs → S3 → staging → production) with schema validation and idempotent transforms, enabling safe incremental updates without downtime.
- Shipped production API and interactive demo in **3.5 weeks** as solo founder; supports dynamic intent blending with real-time re-ranking without additional DB queries.

Sr. Software Developer U.S. News & World Report   Mar 2023 – Aug 2024

Travel team, Washington D.C.

- Architected and led the full-stack development of a new hotel ranking list, leading to a **significant, double-digit CTR increase** to partners.
- Resolved a 3rd-party API bug where a missing 'limit' parameter was **truncating hotel inventory lists by 20%**; this fix **restored the full inventory** and **repaired a primary lead generation pathway**.
- Built multiprocessing scripts using Levenshtein distance to map destination data, **significantly boosting lead generation**; identified **thousands of potential high-confidence matches**, far exceeding OKR targets.
- Optimized a critical Python data processing script runtime **from hours to minutes** using a boss/worker pattern.
- Fixed a four-year legacy caching bug, occurring weekly, in Akamai where malformed headers caused JSON to replace lead gen pages.
- Improved performance on high-traffic Django applications serving **40M+ monthly users** by optimizing the REST API, data management system, and React frontend.
- Built robust Pytest test suites for critical data scripts, **increasing unit test coverage** and enabling safe weekly production deployments across multiple teams.
- Ran A/B tests with Optimizely to evaluate new features and measure engagement impact, including the ranking list rollout, Monitored, debugged, and resolved production API latency spikes and regressions using CloudWatch and New Relic.

Lead Developer Htmlthis   Aug 2017 – Mar 2023

Founder, Remote

- Led a full stack development consultancy that specialized in building high efficiency web applications and modernizing legacy platforms.
- Led full stack migration from a legacy PHP/Angular monolith to modern React, Node, and MongoDB.

Software Developer U.S. News & World Report   Jun 2016 – Jul 2017

Travel team, Washington D.C.

- Optimized the Tripadvisor API data retrieval process by implementing multithreading for IO-bound operations using the boss-worker pattern, **significantly reducing data pull time**.
- Contributed to overhauling the online presence and successfully transitioning to a fully responsive design, which ultimately resulted in a **massive, double-digit growth in yearly unique users** and a significant rise in mobile traffic.

- Added build tools which **substantially decreased total static file size**; proposed and implemented various speed improvements (like critical CSS) that **dramatically improved frontend performance and page load times**.
- Corrected a critical backend bug in the location distance calculation by fixing the implementation of the Haversine formula in SQL tables, significantly improving the accuracy of location-based data.

Software Developer   Gauge Interactive   Aug 2015 – Apr 2016

Ecommerce, Savannah, GA

- Worked on askderm.com, theinsolestore.com, betterwayhealth.com, oldtimecandy.com, dannijo.com, shophopes.com, moscot.com. Built modules with PHP, JavaScript, MySQL. Integrated 3rd party APIs, performed data imports.

Teaching & Leadership Experience

Head Instructional Associate   Georgia Tech - CS 6200: Intro to Graduate Operating Systems
Concurrently 2018 – Present

Education, Atlanta, GA

- Architected a config driven ETL pipeline (Python) for CS 6200 to fully automate grading workflows: fetch → normalize → repo materialization with concurrency and idempotency. Programmatically generated 1,000+ local Git repos by concurrently scraping Gradescope, creating a full commit history for each student to enable submission auditing and race condition detection . Exposed a CLI with parameterized runs (class/project IDs, limits, filters) and produced run manifests for observability and auditing.
- Lead and mentor a team of ~25 TAs for a graduate level course that scaled from 200 to 1000+ students, teaching advanced topics including multithreading, multiprocessing, and concurrency.

Notable Projects:

Concurrent Job Scheduler (C++) — *github.com/iistrate/concurrent-job-scheduler*
Developed a high performance, thread safe C++17 job scheduler that achieved a ~9x performance speedup over single threaded execution. This project demonstrates modern C++ best practices for concurrency, memory safety, and API design.
- Open source implementation built entirely from scratch, demonstrating concurrency patterns.
- Priority based task queue with atomic cancellation and graceful shutdown that safely drains pending jobs.
- Memory and thread safety guaranteed through RAII, atomic flags, and idempotent lifecycle methods.

Technical Skills

Languages: Python, JavaScript, TypeScript, C++, Java, PHP, C, C#.

Backend: Django, Node.js, GraphQL, PostgreSQL, PostGIS, MySQL, MongoDB, AWS, Redis.

Frontend: React, Next.js, D3.js, Angular, Tailwind CSS, HTML, JSON, XML.

Tools: Git, Docker, Postman, Jenkins, New Relic, CloudWatch, Pytest, Jest, A/B testing, pgvector.

Licenses & Certifications

Building RAG Agents with LLMs — link NVIDIA, Oct 2025

Rapid Application Development with Large Language Models (LLMs) — link NVIDIA, Oct 2025

Building LLM Applications With Prompt Engineering — link NVIDIA, Sept 2025

Education

M.Sc. Computer Science, Computing Systems - Georgia Tech, Atlanta GA (Aug 2017 – May 2020)

B.Sc. Computer Science and Mathematics - Concord University, Athens WV (Aug 2011 – May 2015)