

EMILE IZERE

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EDUCATION

Yale University — B.S. in Computer Science & Economics; Certificate in Data Science **August 2023 - Expected May 2027**

TECHNICAL SKILLS

Languages & Frameworks: Python, Java, C, JavaScript, TypeScript, HTML/CSS, Node.js, Express, Flask, React

Distributed Systems & Data: Redis, PostgreSQL, MySQL, SQLite, rate limiting, atomic operations, horizontal scaling, Pandas, NumPy, scikit-learn, XGBoost, R

DevOps & Testing: Docker, Git/GitHub, Linux, CI/CD, Winston, Artillery, Jest, pytest, load testing

Tools & Cloud: RESTful APIs, microservices, Tailwind, Bootstrap, Jupyter, AWS, real-time systems

EXPERIENCE

Irembo.gov (IremboGov) — Kigali, Rwanda **May 2025 - August 2025**
Software Engineering Intern

- Engineered production features for Rwanda's national citizen-services portal, used by millions daily, ensuring scalability and reliability in a high-stakes environment.
- Implemented server-side validation, reducing form abandonment by 22% and transaction times by 15s per user.
- Expanded automated testing and CI/CD pipelines, lowering regression rate by 30% and improving release integrity.

Vanguard Economics — Kigali, Rwanda **May 2024 – August 2024**
Data Analyst Intern

- Worked in Agile sprints, collaborating cross-functionally under tight deadlines, co-developing data pipelines and visualization dashboards, and integrating national statistics into PostgreSQL and React.
- Cut policy insight turnaround from days to minutes; optimized data pipelines to reduce latency by 40%, experience directly transferable to financial data systems.

PROJECTS

Distributed Rate Limiter – Node.js, Express, Redis, Winston **October 2025 – Present**

- Engineered a distributed rate-limiting system with Redis atomic operations, handling 1,000+ concurrent requests/second across multiple Node.js instances, eliminating race conditions through INCR/EXPIRE commands and maintaining sub-10ms p99 latency under sustained load
- Architected tier-based API authentication system supporting 3 subscription levels (free/premium/enterprise) with granular rate limits from 5-100 requests per minute, implementing automatic key expiration and fail-open error handling for 99.9% uptime
- Deployed production infrastructure with Docker containerization, structured logging (Winston), health monitoring endpoints, and horizontal scaling capabilities, validated through Artillery load testing across distributed server instances

InternTrack – React, Node.js, PostgreSQL, Tailwind CSS **August 2025 – September 2025**

- Engineered a full-stack web application with JWT authentication and RESTful API, enabling students to track 100+ internship applications with automated email notifications, deadline reminders, and visa sponsorship filtering across a PostgreSQL database with 3 normalized tables
- Developed a responsive React frontend with dynamic search/filter, CSV import/export for bulk operations, and an interactive analytics dashboard using Recharts to visualize application trends, status breakdowns, and success metrics
- Deployed scalable production application on Vercel and Render with 99.9% uptime, implementing node-cron scheduler for automated deadline alerts and integrating external APIs (Glassdoor, LinkedIn, Levels.fyi) for seamless company research

AWARDS AND LEADERSHIP

- President, Agahozo-Shalom Youth Village Student Government (High School); Class Valedictorian
- Ranked 3rd — Global CMU Python Coding Competition (2019)
- Yale Hackathon, ColorStack, CodePath, AI4ALL, CPI, ISOMO Academy, Yale Effective Altruism