

JACOB WINDLE

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⚙️ SUMMARY

Full-stack technical leader with 10+ years building production systems from embedded devices to cloud-scale AI applications. Currently driving LLM innovation at Instructure while serving as part-time CTO at Hemispheres Neuro, with prior experience optimizing systems at Amazon. Proven ability to deliver end-to-end solutions independently or while leading distributed teams, with expertise spanning low-level systems (C/C++), modern web applications (Python, JavaScript, Go), AI/ML (LLMs, RAG, embeddings), and cloud infrastructure (AWS, Terraform). Track record of securing funding through technical excellence and delivering measurable business impact: millions of hours saved through automation, \$300k+ cost reductions, and 200x performance improvements. Entrepreneurial mindset with hands-on engineering expertise across the entire stack.

⚙️ SKILLS

- **AI/ML:** LLMs (GPT, Claude, Bedrock), RAG, Embeddings, Fine-tuning, spaCy, scikit-learn, Neural Machine Translation
- **Languages:** Python, Java, C++, C, C#, JavaScript, Go, Ruby, Clojure, Julia, Dart
- **Web & Frameworks:** Django, React, Spring Boot, .NET/Blazor, Flask, Ruby on Rails, Express, Flutter
- **Infrastructure:** AWS (ECS, Lambda, S3, RDS, DynamoDB), Terraform, Docker, Kubernetes, CI/CD (GitHub Actions, Jenkins)
- **Databases & Tools:** PostgreSQL, MongoDB, Redis, Airflow, Ansible, Git, Linux

👤 EXPERIENCE

Instructure Remote, Tennessee

November 2023 – October 2025

Senior Software Engineer

- Co-author of Ignite Agent, AI application featured in Forbes and AWS blogs that saves millions of hours for educators by automating Canvas workflows through natural language. Built with Spring Boot, AWS Bedrock, and SageMaker.
- Developed RAG-based tool selection system for Ignite Agent, implementing ToolRAG pattern to improve accuracy by dynamically selecting relevant tools from 10+ available integrations.
- Developed LLM-powered internationalization software, saving the company over \$300k on translation costs while expanding Canvas to 200+ languages.
- Fine-tuned m2m_100 model for low-resource language translations, expanding educational access to marginalized communities globally.
- Built DynamoDB-backed data models and architected generalized tool-calling flow for production AI agent serving thousands of educational institutions.
- Public speaker and AI advocate, driving adoption through conference presentations and stakeholder engagement across internal and external audiences.

Amazon Remote, Tennessee

September 2022 – November 2023

Software Development Engineer II

- Developed low-latency endpoint in C++, allowing customers to render customer-owned assets.
- Designed and implemented feature in Java service for customers to fix image defects by re-uploading assets, allowing customers to fix defects without any code changes on their side.
- Developed feature in C++ rendering service where customers can set release dates for assets, improving data privacy for existing customers while improving customer experience by allowing uploads.
- Created CI/CD pipelines with AWS CDK for internal tooling, automating previously manual deployments decreasing deployment errors and increasing developer velocity.
- Building consensus across teams and collaborating on bigger features.

Picnic Score, Inc. Remote, Maryland

February 2020 – September 2022

Staff Software Engineer

- Developed new architecture for core product, saving 80% on AWS spend.
- Created suite of Julia web services, to host machine learning models and compute relevant risk scores for clients.
- Wrote precompilation scripts and operated Julia service in production.
- Developed full-stack web application in Go, used to showcase the product while generating leads.
- Wrote Github Actions to increase developer velocity.
- Trained and deployed spaCy entity recognition models, to help find customer-owned entities within customer documents.
- Designed serverless architecture for web scraping software using Node.js, Chrome, Puppeteer, Supervisord and Docker.
- Led team of junior engineers, planning web scraping project and ensuring project delivery end-to-end.
- Managed the entire company's infrastructure using Terraform, increasing developer velocity by automating infrastructure creation, and allowing developers to learn about infrastructure by contributing to the code-base.
- Made company infrastructure SOC2-compliant by working with auditors, Vanta scanners, and existing infrastructure as code.

Kickback Rewards Systems Remote, Idaho

March 2019 – August 2020

Senior Software Engineer

Contributing to all areas of the organization, with active roles in embedded systems development, full-stack web development, project architecture, distributed systems development, ETL, and prototype development. Delivering systems that scale and provide value to the organization.

- Developed heartbeat protocol for embedded C application, reducing worst-case issue discovery time from 24 hours to 5 minutes.
- Developed dashboard with React and Django Rest Framework to display status of all client sites, allowing customer success staff to see status of all customers rather than wait for daily email.
- Led development of new reporting product with Python and Airflow, creating a new product and revenue stream for the company.

Verodin, Inc. Tyson's Corner, Virginia

March 2017 – March 2019

Software Engineer

- Developed license server for software with Python/Flask, allowing client installs to be licensed.
- Developed patch server for software with Python/Flask, allowing clients to opt into automatic upgrades.
- Automated manual builds with Github Actions, cutting build errors by 50%.
- Migrated frontend code to React from embedded Ruby, increasing testability and reducing bugs application.

Integral Ad Science, Inc. Chantilly, Virginia

March 2015 – March 2017

Software Engineer

- Developed model using scikit-learn and pandas to classify ad placements on web page, achieving 83% accuracy in production.
- Created Django app for labeling ad placements training data, used by in-house analysts and testers.
- Introduced CI/CD to team by writing Jenkins pipelines, increasing developer velocity

Veenome, Inc. Fairfax, Virginia

October 2014 – March 2015

Junior Developer

STARTUPS/PROJECTS/CONTRACT WORK

MAIA (workwithmaia.com) - AI-Powered Career Platform for Justice-Impacted Individuals

Contract Technical Lead

Led development team in architecting and building a multi-tenant SaaS platform from the ground up that matches incarcerated individuals with jobs and learning paths using AI/ML. Enabled clients to secure millions in funding and partnerships with correctional facilities nationwide.

- Architected scalable AWS infrastructure using ECS Fargate, Terraform IaC (7+ modules), RDS PostgreSQL, ElastiCache Redis, and CloudWatch monitoring with auto-scaling and comprehensive observability
- Designed semantic job matching engine using vector embeddings (OpenAI text-embedding-3-small) with PostgreSQL pgvector, composite scoring algorithm (technical skills 60%, education 20%, soft skills 20%), and sub-second similarity search via HNSW indexing across thousands of job postings
- Built automated job ingestion pipeline with Firecrawl web scraping, AI-powered deduplication using GPT-4o-mini (reducing duplicates 40%+), LLM-based skill extraction, and asynchronous Celery processing of hundreds of postings weekly
- Engineered multi-tenant architecture with organization-level data isolation, reducing operational costs 70%+ vs. single-tenant model while maintaining strict security boundaries across facilities
- Led stakeholder integration design and implemented LTI 1.3 integration enabling seamless embedding in any LMS (Canvas, Moodle, Blackboard) with OIDC authentication, database-driven platform configuration, and automatic user provisioning

Hemispheres Neuro, LLC Johnson City, Tennessee

Fractional CTO

- Rewrote legacy Python 2 backend in Clojure, achieving 200x speedup with reduced computing requirements
- Developed progressive web application in C#/.NET/Blazor replacing native app, reducing install size 300% and eliminating customer installation issues
- Built C#/.NET service for Tobii eye-tracking hardware integration with React-based data analysis dashboard
- Automated VPS infrastructure deployment using Ansible and Bash for Nginx, SSL, and application servers

Fytfeed

Contract Developer

- Developed integration with popular fitness trackers in Flutter application, users activity is automatically synced with their social feed.
- Built and architected backend system using Firebase, Firebase Functions, and Typescript to handle compute-intensive tasks.
- Solved several efficiency issues, improving the user experience of the application.

LLM Social Bot

Personal Project

- Built service in Clojure that runs on computer, receives Git patch files, formats and sends tweets on my behalf
- Open source: <https://github.com/jaketothepast/llm-social-bot>

EDUCATION

George Mason University, Fairfax, Virginia

2012 – 2018

Bachelor of Science, Computer Science