Justin Kim

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Education

University of Wisconsin–Madison Madison, WI
B.S. in Computer Science & Data Science | GPA: 3.76 *Expected Graduation: Dec 2026*

Georgia Institute of Technology Remote
M.S. in Computer Science, Machine Learning Specialization *Expected Graduation: May 2028*

Experience

Responsible AI for Learning (TRAIL) Lab | *Undergraduate Research Assistant* | *Madison, WI* *Sep 2026 – Present*

- Developed a secure Q&A agent enabling educators to query classroom data across TRAIL Lab tools.
- Engineered a Gemini (Vertex AI) tool-calling layer with schema validation, error recovery, and user-scoped authorization.

Capital One | *Software Engineer Intern, Decisioning Platform* | *Chicago, IL* *Jun 2026 – Aug 2026*

- Built an LLM tool turning plain-English specs into card state machine configs, cutting 2+ days to under 1 hour.
- Designed a GraphRAG pipeline reaching 100% structural validity and 88% completeness on 70 leave-one-out tests.
- Engineered deterministic schema and graph validation for cycles and unreachable states, with an LLM repair loop.
- Built the AWS Lambda and DynamoDB backend persisting multi-turn chat state, adopted by 20+ intent engineers.

MadLease | *Co-Founder & Founding Engineer* | *Madison, WI* *Apr 2025 – Present*

- Founded and grew a UW–Madison sublease marketplace to 250+ accounts, 100+ listings, and 5+ building partners.
- Replaced recency-based search with PostgreSQL ranking on rent and campus proximity, plus 8 amenity filters.
- Encrypted messages at rest with AES-GCM and closed an IDOR flaw by enforcing conversation-membership checks.
- Moved image uploads to browser-direct S3 via presigned URLs, with retry and rollback across 1,000+ uploads.

Entegral | *Full Stack Software Engineer Intern* | *Madison, WI* *May 2025 – Aug 2025*

- Developed a configurable crash-intake platform, enabling insurers to customize documentation requirements per claim.
- Engineered an OCR module for VIN, plate, and odometer capture, achieving 90%+ accuracy and company-wide reuse.
- Ran Tesseract.js in a Web Worker with field-specific validation and multi-frame retries, keeping the Angular UI responsive.

Denari | *Software Engineer, Capstone Project* | *Madison, WI* *Feb 2025 – May 2025*

- Built a citation-grounded tax RAG system indexing 50,000+ documents using OpenAI embeddings and pgvector.
- Achieved 61% accuracy on 2,200+ CPA exam questions, outperforming GPT-4o-mini by 5 percentage points.

Astro AI Trading | *Machine Learning Engineer* | *Remote* *Jan 2024 – Jan 2025*

- Led 3 engineers developing forecasting models using technical, macroeconomic, and BERT-derived sentiment features, reducing held-out RMSE by 16% vs. a price-only baseline.
- Fine-tuned a BERT 3-class news-sentiment classifier (positive/negative/neutral), reaching 77% test accuracy.

Projects

QuizClash | *Node.js, React, WebSocket, AWS S3* Devpost Source Code

- Built a real-time multiplayer quiz app converting PDFs and YouTube videos into Kahoot-style games via WebSockets.
- Automated quiz generation with Whisper, T5, RoBERTa, and Sense2Vec, achieving 75% manually evaluated relevance.

Technical Skills

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

Frameworks: React, Angular, Spring Boot, Node.js/Express, Flask

AI/ML: PyTorch, Scikit-Learn, Gemini (Vertex AI), OpenAI API, pgvector, Tesseract.js, RAG

Cloud & Data: AWS (Lambda, DynamoDB, S3, CloudFront, EC2, CDK), PostgreSQL, TimescaleDB, Firebase, Docker, Git