

Kai “Sam” Gu

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EDUCATION

2026 - MAY 2028	University of Texas at Austin , Austin, TX <i>Bachelor of Science in Computer Science, expected May 2028; Finis-Welch Foundation Scholar (full ride, 1 in 29)</i> • Amazon Future Engineer Scholar, 1 of ~200 nationwide, with a paid Amazon software engineering internship included. • Junior standing on entry (90+ transfer credit hours); current coursework: Honors Data Structures, Discrete Mathematics, Probability.	
2024 - 2026	University of North Texas , Denton, TX <i>Texas Academy of Mathematics & Science, early-college honors program, Computer Science concentration</i> • Coursework: Software Engineering, Algorithms, Data Structures, Linear Algebra, Multivariable Calculus, Applied Statistics.	GPA: 3.96/4.0

HONORS

2024 - 2026	USACO Gold (1st of 1,545, 2025 US Open Silver); picoCTF 22nd (2026), T-40th (2025) at CMU; National Merit Finalist . 4× Hackathon Winner , incl. 1st at Cursor x AITX; 2× Non-Trivial Fellowship Finalist (361 of 15,000).	
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EXPERIENCE

JUN 2026 - AUG 2026	Beaver Works Summer Institute, MIT Lincoln Laboratory • 🐙 SamGu-NRX/CogPortal <i>Lead Teaching Assistant, Cog*Works</i> • Taught the computer-vision (YOLO) and vision-language-model lectures to 32 high-school students and mentored the weekly capstone teams. • Advised 5 capstone papers accepted to IEEE MIT URTC 2026 as last author, setting each team's research direction. • Built the course's benchmarking platform on four surfaces: a React/Hono web app on Cloudflare Workers with a live leaderboard, a pip-installable CLI that scores a repository offline, a Modal sandbox that scores it remotely, and a Discord bot that posts each team's results. • Engineered its deterministic discovery step, which latches onto a team's functions however they are named, split, or wrapped in classes.	Remote
SEP 2024 - JAN 2025	StatOracle (acquired by Retexo Group) <i>Software Engineer Intern, computer-vision sports analytics</i> • Improved spatial-analysis precision 15%+ over the legacy system with a proof-of-concept for soccer-match analytics that derives expected goals, player heatmaps, and distance covered from YOLOv8 player identification, OpenCV keypoints, and matrix transformations. • Shipped the internal Next.js / TypeScript / Flask platform behind real-time analysis, client demos, and the model evaluation harness.	Remote

RESEARCH

SEP 2024 - MAY 2026	Active Machine Learning Lab, University of North Texas <i>Machine Learning Researcher</i> • First-authored the Einstellung Rigidity Index (ERI), a diagnostic for shortcut-induced rigidity in continual learning, with Prof. Weishi Shi. • Devised its two-phase shortcut-injection and masking protocol and benchmarked 7+ methods with it in a PyTorch pipeline on Mammoth. • Presented ERI at UNT's 3rd Annual University Research Day, and the first-author paper is accepted to IEEE ICBAIE 2025.	Denton, TX
JUL 2024 - SEP 2024	Watanabe Audio & Voice Lab (WAVLab), Carnegie Mellon University <i>Research Assistant, data and evaluation pipelines with Prof. Shinji Watanabe</i> • Organized 1,000+ hours of audio across 50+ languages to train the XEUS speech encoder behind endangered-language revitalization work.	Pittsburgh, PA

PROJECTS

SEP 2026	Caret • 🐙 SamGu-NRX/Caret <i>Cursor-style Tab autocomplete for every macOS text field, plus actions that run workflows; First Place, Cursor x AITX Hackathon</i> • Designed the two-stage model routing: one call reads the live context and decides abstain, inline edit, or action; a second picks a seeded workflow or computer task, and both stages share the same judge interface (context in, allowed choices in, exactly one validated choice out). • Built the Python core behind the Swift app (JSON-lines bridge, latest-snapshot router, Groq-backed inline completion); every offer stays a read-only preview until the user accepts it, and a latest-snapshot-wins rule drops stale evaluations so the app keeps sampling at its own rate.	
JUL 2025 - APR 2026	Sillion • 🌐 sillion.app <i>Founder, AI teaching-assistant platform for K–12 classrooms</i> • Developed the platform with UNT Honors and a16z speedrun, pitched 200+ schools, and secured 10+ Denton ISD high-school partnerships. • Wired a Canvas LMS MCP server with 50+ API-compliant integrations into the assistant so its answers draw on live course data, added a confidence-gated retrieval-augmented generation tutor, and fed sentiment and concept extraction into a teacher-facing dashboard.	
FEB 2026 - APR 2026	FridgeLuck • 🐙 SamGu-NRX/FridgeLuck <i>First Place, UNT AI in Action 2026 Poster Competition; 2nd Place, HackTAMS</i> • Built a confidence-aware human–AI collaboration framework as a Swift iOS app that pairs on-device Apple Vision and OCR with Google Gemini Live to turn a fridge photo into recipes from a bundled catalog of 1,000+ validated recipes and curated USDA nutrition data. • Designed the Bayesian confidence model behind it, which estimates how much to trust each detection from the vision, OCR, and LLM signals, asks the user to confirm only the uncertain ones, and recalibrates that trust from their ratings of the meals they actually cooked.	
FEB 2025 - MAR 2025	LinkedUp • 🐙 SamGu-NRX/LinkedUp <i>Real-time networking platform; 2nd Overall, iSTEM@Stevens Hacks 2025</i> • Led a 5-person team to 140% higher match satisfaction in a 40+-user pilot, on pgvector interest matching and live voice and video.	

PUBLICATIONS & PRESENTATIONS

OCT 2025	Gu, K., Shi, W. “Diagnosing Shortcut-Induced Rigidity in Continual Learning: The Einstellung Rigidity Index.” <i>IEEE ICBAIE 2025</i> , accepted.	
APR 2026	Invited talk on Sillion at the UNT AI in Action 2026 graduate seminar, as its sole undergraduate speaker.	

SKILLS

LANGUAGES:	TypeScript, JavaScript, Python, Swift, C++ , Java, SQL, HTML/CSS, LaTeX
ML / AI:	PyTorch, TensorFlow, scikit-learn, OpenCV, YOLOv8, Wav2Vec2, Gemini API, LangChain, pgvector, RAG, Model Context Protocol
SOFTWARE:	React, Next.js, Node.js, FastAPI, Flask, Prisma, PostgreSQL, Redis, Docker, GitHub Actions, AWS, Cloudflare Workers, Linux