Tong Wu

alleytongwu@gmail.com • (503)443-8896 • www.linkedin.com/in/alley-wu • https://alleytongwu-4cc85.web.app/

EDUCATION

University of Washington, Seattle (June 2026) | Bachelor of Science in Informatics: Data Science & Software Development | Annual Dean's List

PROFESSIONAL EXPERIENCE

AI Engineer Intern, Captus.ai, Seattle, WA   **June 2025 - Present**

- Owned full-cycle delivery of Captus's core AI platform, bridging business requirements and technical execution to deploy scalable, production-ready solutions.
- Designed and deployed 7+ production AI agent systems, including Retrieval-Augmented Generation (RAG) and multi-agent (swarm) pipelines, leveraging OpenAI, Gemini, Vertex AI, Claude, and Perplexity APIs for scalable LLM orchestration.
- Increased chatbot response accuracy from 20% to 80% by implementing evaluation frameworks, reinforcement-style optimization, and prompt tuning, resulting in measurable NLP model performance gains.
- Developed an end-to-end retrieval pipeline using LlamaParse for structured document extraction, Vertex AI/Gemini for embeddings, and Supabase vector search to power high-accuracy multi-agent reasoning and semantic retrieval.
- Built real-time analytics dashboards in JavaScript/HTML/CSS to visualize client metrics and AI performance insights.
- Communicated AI architecture, feature specifications, and workflow decisions to Google teams and client partners, driving alignment across engineering, research, and product stakeholders.

Student Researcher, Social Media Algorithms Research Studio | UW iSchool, Seattle, WA   **September 2025 - Present**

- Cleaned and merged multi-million–row Community Notes datasets in Python and extracted 3-factor embeddings for analysis.
- Ran k-means clustering in 3-dim latent factor space on high-intercept misleading notes, experimenting with different K values and sampling strategies to get coherent, stable clusters.
- Generated positive/negative exemplars and used LLM prompting to produce interpretable topic labels, validating with manual checks.
- Built violin/box/histogram plots and an interactive 3D scatter visualization to compare factor and intercept distributions across top modeling groups and inspect factor–topic structure.

Teaching Assistant, UW iSchool, Seattle, WA   **September 2025 - Present**

- Mentored students in Python fundamentals, guiding them through building social-media automation tools (reply bots, auto-posting scripts) and implementing NLP techniques for sentiment and media-bias analysis.
- Led 25+ class sessions and weekly office hours on social-media ethics, data mining, and algorithmic accountability.
- Evaluated projects involving bots, recommendation systems, and API-based automation, providing feedback on system design and implementation quality.

TECHNICAL SKILLS AND PROJECTS

Languages: Python, Java, JavaScript, SQL, TypeScript, HTML, CSS, R
Frameworks/Tools: React, Node.js, Supabase, PostgreSQL, Pytorch, Numpy, Pandas, Git, n8n, Firebase, REST APIs, Azure, Render, MongoDB
Strengths: Communication, Collaboration, Problem Solving, Adaptability, Creativity
Core Competencies: Artifical Intelligence, Data Structures & Algorithms, Recommendation and Search System, Machine Learning, Full-Stack Development, Authentication, CI/CD, RAG/ Swarm Pipelines, Data Visualization/Analysis/Interpretation

- **Lead Engineer, Game Agent**
  - Built a K-in-a-Row agent with minimax, alpha-beta pruning, and custom heuristics for fast, intelligent move selection.
  - Integrated Gemini to generate contextual, persona-driven utterances via structured prompting, API calls, and dynamic fallback logic.
  - Debugged complex search and LLM integration issues with targeted tracing and instrumentation.
- **Lead Engineer, Search and Recommendation System for Finding Recipes**
  - Integrated BM25, TF-IDF, and LLM retrieval to rank recipes, improving query relevance
  - Applied multiple AI/ML libraries to clean/ structure datasets for analysis
  - Designed a responsive search UI (JavaScript, CSS, HTML) for faster discovery
- **Lead Engineer, Personalized Meal Planner**
  - Built a React UI with 20+ interactive components; improved cross-device usability by 35%
  - Implemented Firebase auth and database for secure access and efficient data retrieval/storage
  - Set up a CI/CD pipeline with auto-deployments, streamlining reviews, and accelerating delivery
- **Lead Engineer, Coding Platform for ADHD Children**
  - Designed and Developed coding lessons with real-time feedback and gamified features to boost engagement
  - Engineered accessibility tools (screen reader, dark/light mode, progress tracking), improving usability for neurodiverse students

LEADERSHIP EXPERIENCE

- **INFO Freshmen Mentor, UW iSchool (March 2025 – Present):** Guide first-year students through academic success, mental-wellness support, and community belonging while leading weekly sessions on resources, major pathways, and core computing skills.
- **Vice President, Husky Help Organization | UW RSO (May 2024 – June 2025):** Organized 20+ student events, securing $5K in sponsorships, driving engagement through cross-functional collaboration, and mentoring 25+ new members to improve retention and leadership growth.