Minglai Yang

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EDUCATION

University of Arizona, College of Science   **Tucson, Arizona**
Bachelor of Science in Computer Science   Expected Grad: Dec 2025
GPA: 4.0/4.0, <u>Top 1</u>
Honors: Academic Year Highest Academic Distinction, Global Wildcat Tuition Award, Dean's List with Distinction

TECHNICAL SKILLS

Programming Languages: Python, Matlab, Java, Javascript, Swift, PHP, HTML, CSS, MySQL, Visual Basic, C
Tooling: OpenCV, YOLOv10, MAMP, AWS, Nginx, Docker, GitLab, MongoDB, Pinecone, Node.js, Selenium

WORK EXPERIENCE

CoreTechs Consulting Inc.   **Kensington, Maryland**
Software Engineer Intern (Full Time)   May 2024 – Present (on-site)
- Orchestrate end-to-end website development, including design, deployment, and management on AWS with **Nginx**, **Docker**, and services like **EC2**, **RDS**, and **S3**.
- Utilize HTML, CSS, JavaScript, and PHP, alongside **GitLab** for version control and deployment.
- Build intelligent bots for Discord and Slack, employing GPTs and Pinecone for natural language processing and document retrieval, integrating Slack into official websites through live chat in Javascript.
- Create **React** "Live-Chat" applications to optimize workflows and enhance user experience.
- Simulated <u>500</u> concurrent users with **Selenium** to rigorously stress test the web application's performance.

The University of Arizona, Institute for Computation and Data-Enabled Insight   **Tucson, Arizona**
AI Engineer   Mar 2024 – Present
- Lead and optimize **GPT**-based models to process <u>40%</u> more tokens per request, reducing operational costs by <u>25%</u> while maintaining high model performance.
- Increasing accuracy of roadway defect detection by <u>15%</u> using **OpenCV** library and **YOLOv10** model.
- Develop an AI for Minecraft using video training, reinforcement, and imitation learning, achieving <u>25%</u> improvement in task execution speed and adaptability in dynamic environments.

The University of Arizona, ML4AI LAB and IVILAB   **Tucson, Arizona**
Research Assistant   Oct 2023 – Present
- Develop the application of dynamic Bayesian networks and Theory of Mind concepts within the ToMCAT project, enhancing AI's ability to interpret complex human behaviors and predict their plans and goals.
- Collaborate with Dr. Kobus Barnard, Dr. Clayton Morrison and Dr. Adarsh Pyarelal to translate advanced machine learning research into practical, deployable AI systems for real-world impact.

PROJECTS

ToMCAT Project ($7.5M DARPA funded), University of Arizona, ML4AI and IVILAB
- Developed AI models utilizing dynamic Bayesian networks and Theory of Mind concepts. Integrated physiological data from fNIRS and EEG, along with facial expressions, to enhance predictions of individual behaviors and team dynamics in search and rescue missions, increasing decision-making accuracy by <u>30%</u>.
- Conducted cross-validation and correlation analysis on coordination data to improve model performance.
- Analyzed pupil data with cognitive science principles to enhance human-computer interactions.

Darts Game Website Deployment with AWS and Docker
- Designed and deployed a darts game website using **Nginx** and **Docker**.
- Hosted on **AWS** with **EC2** for server management, **RDS** for database handling, and **S3** for data storage.
- Managed versioning and automated deployment via **GitLab**, boosting workflow efficiency and reliability.

Bot Development for Discord and Slack
- Leveraged RAG (Retrieval-Augmented Generation) for advanced natural language processing.
- Employed prompting and fine-tuning methods to customize responses and enhance performance.
- Integrated **Pinecone** for efficient document retrieval, solving hallucinations in communication channels.

Google Calendar Integration with ChatGPT Discord Chat Bot via Node.js:
- Deployed the chatbot on **Amazon EC2** for continuous operation and accessibility.
- Integrated the **Google Cloud API** using Nginx for users to schedule and manage events through Discord.
- Implemented and tested advanced error handling and logging mechanisms to ensure robust operation.

CERTIFICATIONS & TRAINING

Citi program, Social & Behavioral Research Investigators
Citi program, Native American Research