NINGMAN (CATHY) GAO

757-784-8822 | cgao2003@gmail.com | Github | LinkedIn

EDUCATION

William & Mary, Williamsburg, VA **Aug 2025 - Jan 2027**
M.S. in Computer Science (GPA: 3.95/4.0)

- **Relevant Coursework:** Machine Learning Systems, Deep Learning, Advanced Software Engineering, Systems Programming, Human Centered Computing

William & Mary, Williamsburg, VA **Aug 2021 - May 2025**
B.S. in Computer Science and Psychology (GPA: 3.87/4.0)

PROJECT EXPERIENCE

AI-Powered Google Calendar Event Visualizer **Aug 2026 - Present**

- Built a Chrome extension that automatically renders personalized images for calendar events.
- Developed a Manifest V3 content-script pipeline using JavaScript, DOM observation, and Chrome Storage, and integrated a Python/FastAPI backend with the OpenAI API and structured prompt generation to transform context-aware concepts into personalized visual content.

Satellite-Based Building Damage Detection Model **Mar 2024 - Sep 2024**

- Awarded a $3,250 Charles Center research grant to build a computer vision pipeline for building footprint detection and structural damage classification from satellite imagery in San Juan, Puerto Rico.
- Fine-tuned an ESRI building detection model on 1,800+ manually digitized footprints and trained a ResNet-34 damage classifier on 2,300+ labeled buildings using ArcGIS Pro.
- Scaled inference to 20,000+ buildings, achieving 79% accuracy and 71% recall on damaged buildings.

Cross-Model KV Cache Reuse for LLM Inference **Jan 2025 - May 2025**

- Investigated cross-model reuse of transformer KV-cache, evaluated duplication, interpolation, and learned projection methods for aligning KV representations between small and large Llama models.

RESEARCH EXPERIENCE

Metamorphic Testing of Code LLMs via Adversarial Tokenization **Jan 2026 - Present**
Graduate Researcher, William & Mary

- Developed prompt tokenization algorithms for metamorphic testing of code LLM robustness.
- Fine-tuned and evaluated models using PyTorch, Hugging Face, and LoRA; built reproducible GPU workflows with Docker, Bash, Linux, and CUDA.
- Co-first author on a manuscript in preparation.

A Scoping Review of Large Language Models for Psychotherapy **Nov 2024 - Sep 2025**
Undergraduate Researcher, William & Mary

- Analyzed end-to-end architectures of applied LLM-based psychotherapy systems, examined techniques such as prompting and reasoning workflows, RAG and multi-agent components, and evaluation pipeline.
- Mapped the landscape of LLM-based psychotherapy systems and provided HCI researchers with a framework for safer, more human-centered system design and evaluation.

AI-Powered Smart Glasses for Blind and Low-Vision Users **Jan 2026 - Sep 2026**
Graduate Researcher, William & Mary

- Conducted user interviews, coded transcripts, and performed thematic analysis to examine real-world usability and trust of AI glasses technology, and contributed to manuscript writing.

PUBLICATIONS & MANUSCRIPTS

Y. Wang, **N. Gao**, Y. Wang, B. Augustine, and Y. Zhang. "Large Language Models Acting as Psychotherapists: A Scoping Review." *PsyArXiv*, 2025.

Y. Wang, **N. Gao**, Y. Hu, G. Zhou, and Y. Zhang. "Understanding Blind and Low-Vision Users' Lived Experiences with AI-Powered Smart Glasses." *Under review at CHI 2027*, 2026.

LEADERSHIP EXPERIENCE

Volunteer Math Tutoring **Sep 2024 - Present**

- Tutor local high school students in grades 9-12 in Algebra and Calculus.

Site Leader, Branch Out Alternative Breaks **Sep 2025 - May 2026**

- Co-led student service trips through William & Mary's Office of Civic & Community Engagement, coordinating trip planning, community partnerships, participant preparation, and reflection activities.

Music Ministry Leader, Baptist Collegiate Ministry **Sep 2023 - May 2025**

- Led weekly rehearsals and worship sessions, recruited and trained team members, and supported planning for ministry events and programs.

TECHNICAL SKILLS

- **Programming Languages:**
  - Proficient: Python, Java, C++, Bash
  - Familiar: C, JavaScript, HTML, R
- **Software, Libraries & Tools:** Git, SQL, PyTorch, TensorFlow, scikit-learn, NumPy, Pandas, Linux, FastAPI, Figma, QGIS, LaTex, Power BI, SPSS
- **Research Skills**:
  - Research Design, Data Collection, Data Analysis (Quantitative and Qualitative), Data visualization, Literature Review, Interdisciplinary Collaboration

ADDITIONAL INFORMATION

Languages: Mandarin (Native), English (Fluent)
Interests: Psychopathology, Visual Art & Design, Rock Climbing