

Mohammad Ahmad

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SUMMARY

PhD student in Computer Science at UTSA advised by Dr. Mimi Xie, specializing in computer architecture, TinyML, and in-memory computing. Current research focuses on processing-in-memory architectures using domain wall memory. Experienced in full-stack AI engineering with a strong foundation in computer systems research.

RESEARCH INTERESTS

- Computer architecture
- Domain wall memory
- ML on novel hardware
- In-memory computing
- TinyML
- IoT

EDUCATION

Doctor of Philosophy in Computer Science Jan 2025 - Present

The University of Texas at San Antonio (UTSA), TX, USA

- Research focus: Processing-in-memory using domain wall racetrack memory.

Master of Science in Computer Science Aug 2022 - May 2024

The Pennsylvania State University (Penn State), PA, USA

- Research focus: Hybrid LSTM-HMM based model for vehicle lane-change prediction.

Bachelor of Engineering in Computer Science Sep 2016 - Jun 2020

The University of Hong Kong (HKU), HK, HKSAR

- Final year project: AI skincare advisor using ML-based skin problem scoring and product recommendation pipeline.

EXPERIENCE

Graduate Research Assistant at ASIC Lab at UTSA Jan 2025 - Present

Research, Computer architecture, Computer systems, In-memory computing

- Research **processing-in-memory architectures** using domain wall racetrack memory; designing and implementing algorithms and ML workloads on novel hardware and evaluating via simulations.
- Review literature across research interests; author and co-author **research papers**.

Software Engineer at GoGoX Sep 2020 - Jul 2022

Full-stack Development, React.js, Next.js

- **Developed in-house transport management system** to replace third-party legacy app, achieving **40% regional cost reduction**, later scaled to other operating regions.
- **Revamped signup and order flows**, reducing **flow abandonment by 15%** through fewer steps, updated branding, and reusable components.
- Consolidated design components for **uniform branding** across web applications and **improved test coverage from 40% to 75%**.
- Collaborated with product and design teams to ensure smooth delivery of software across multiple regions.

Software Engineer Intern at Set Sail Software May 2019 - Aug 2019

Front-end Development, Vue.js

- Eliminated manual report-making by building an **on-demand, real-time analytics dashboard**.
- Supported the product development lifecycle by implementing **user-behavior analytics**.

PROJECTS

Vehicle Lane-change Prediction - Master's Project (Penn State) [link](#) Dec 2023

Deep Learning, Prediction System, Autonomous Driving, Sequence Classification

- Built a **hybrid LSTM-HMM model** for vehicle lane-change prediction on the NGSIM dataset, outperforming standalone LSTM and HMM baselines.

Skin Infection Detection Apr 2023

Deep Learning, Classification System, Android, Flask, Node.js, PostgreSQL, Docker

- Built and deployed a **real-time skin infection detection app** with a full-stack distributed architecture (Android, Flask, Node.js, PostgreSQL, Docker).
- Enabled early diagnosis through on-device image classification, reducing reliance on in-person consultations.

AI Skincare Advisor - Final Year Project (HKU) [link](#) Apr 2020

Artificial Intelligence, Image Processing, Data Analysis, Machine Learning, Recommendation System

- Built a **CV and ML pipeline** to analyze user images and score skin problems, then recommend products from a Sephora-sourced database using NLP and ML techniques.

SKILLS

Languages: Python, C/C++, JavaScript/TypeScript, Go, Java, bash/shell

Frameworks/Libraries: React.js, Next.js, Node.js, Express.js, PyTorch, NumPy, Pandas, Flask, PostgreSQL

Tools: LTSpice, Docker, Git, Linux

Technical Skills: Computer Architecture, Processing-in-Memory, TinyML, AI/ML, Full-stack Development, System Design, CI/CD, RESTful APIs