GAN QING RONG

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EDUCATION

Nanyang Technological University, Singapore Aug 2023 – Apr 2027
Renaissance Engineering Programme
- Bachelor of Science, Computer Science
- Minor in Mathematics
- Master of Science, Technology Management

University of California, Berkeley
GLOBE Exchange Program Aug 2025 – Apr 2026
- Coursework in Department of Electrical Engineering and Computer Science (EECS)

SKILLS

- Languages: Python, C++, JavaScript, TypeScript, HTML/CSS, SQL, NoSQL, Java, C, Golang
- Frameworks: Node.js, Express, Langchain, React.js, Next.js, FastAPI, Tailwind, Material-UI
- Developer Tools: Firebase, Microsoft Azure, Docker, Git, Github, Gitlab, Vercel, Heroku, Render
- Libraries: TensorFlow, scikit-learn, pandas, NumPy, Matplotlib, librosa, seaborn, mmSegmentation, OpenCV

WORK EXPERIENCE

Defence Science & Technology Agency (DSTA) May 2023 – Jul 2023
Machine Learning Engineering Intern (Computer Vision)
- Evaluated computer vision-based security systems in live, large-scale event settings (~30000 people), deploying person re-identification and facial recognition technologies to detect potential threats.
- Contributed to the deployment of surveillance enhancements during NDP 2023, improving identification accuracy in high-traffic, occluded crowd environments.
- Applied and benchmarked state-of-the-art deep-learning models ArcFace and AdaFace for real-time facial recognition tasks.

NTU - A*STAR May 2024 – Jul 2024
Machine Learning Engineering Intern (3D Diffusion & Generative Models)
- Engineered and benchmarked 3D generative pipelines (SDFusion, Diffusion-SDF, DreamFusion, Magic3D), optimizing model fidelity, controllability, and generation speed for production-ready 3D assets.
- Evaluated models' ability to capture concrete attributes and abstract styles.
- Generated and repaired 3D objects with Diffusion models Blender, for mass production via PLA and resin 3D printing.
- Showcased 100 final printed 3D artifacts for the IEEE Conference 2024

DSO National Laboratories May 2025 – Aug 2025
Machine Learning Engineer Intern (Large Language Models)
- Integrated **System 2-style fine-tuning** with **context-parametric inversion** research to improve factual reasoning in large language models.
- Designed and implemented novel reasoning augmentations including **summarization**, **salient fact extraction**, and **knowledge correction** techniques to refine parametric memory.
- Contributed toward advancing interpretability and reliability of LLM responses through modular cognitive pipelines.

RESEARCH WORK

Undergraduate Research Experience on Campus (URECA) Aug 2024 – Dec 2024
Research on Real-Time Semantic Segmentaion for Autonomous Robots
- Developed real-time vision system integrating YOLOv11 tracking with semantic segmentation (DeepLabV3+, MobileNet), improving segmentation accuracy and temporal consistency in dynamic environments.
- Improved segmentation accuracy and temporal consistency in dynamic environments such as Cityscapes
- Achieved strong generalization to unseen datasets (e.g., VSPW) with zero-shot domain transfer capability
- Enhanced performance over baseline models without additional fine-tuning on new domains

PROJECTS

- **Google AI Hackathon – *Most Impactful Award (Overall 2nd Runner-up)***
  Built *NightingAIe*, an image-to-speech translation system that converts medical documents into dialects commonly used by elderly patients, improving accessibility in healthcare.
  Technologies: Flask, React, Speech-to-text, Text-to-speech, Dialect translation models
- **LTA Hackathon – *Overall 2nd Runner-up***
  Developed *ByeBike* a real-time safety alert system to notify both cyclists and pedestrians when bicyles encroach on pedestrian paths, reducing collision risk and enhancing shared-path safety.
  Technologies: Flask, React, YOLOv5
- **Hackomania 2025 – *Challenge Winner***
  Created *BreakFree*, a platform to aid individuals recovering from addiction through donation-based support. Integrated Interledger Open Payments API for secure transactions and featured recovery tracking dashboards.
  Technologies: Flask, React, PostgreSQL, Interledger Open Payments API
- **HacX! 2024 – *5th Place***
  Developed *BerthingBridge*, a real-time automated berthing system to dock emergency vessels quickly and safely, using distance measurements with object detection and ultrasonic sensors and a live-monitoring dashboard.
  Technologies: Flask, React, Arduino, YOLOX, AutoCAD, 3D Printing
- **E-Waste Recycling & Community Platform**
  Created eCycle, a web app that helps users locate nearby electronic waste recycling points. Integrated a Reddit-like forum for questions and discussions, with sentiment analysis for harmful content moderation. Deployed on Render
  Technologies: React, Flask, PostgreSQL, Render, Google Maps, API, HuggingFace, Sentiment Classifer