Qiucheng Chen

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EDUCATION

Tianjin University, China

Bachelor of Computer Science and Technology   Aug 2022 - Expected Jul 2026

- **Weighted Average Score**: 89.779/100, **GPA:** 3.72/4.0 (Ranking Top 10% in 2nd & 3rd year)
- **Relevant Coursework:** Probability Theory and Statistics (100), Linear Algebra (94), Computer Organization and Architecture (95), Computer System Practice (94), C++ Programming Principles (96), Computer Networks Practice (98), Computer Vision Technology (96)
- **Honor and Award:**
  - Academic Achievement Scholarship, 2024 (awarded to the top 0.7% of students)
  - Outstanding Individual for Academic Progress and Advancement, 2024
  - The "Outstanding Award" of the 12th Excellent Homework Selection of TJU, 2024
  - Merit Student scholarship, 2023
  - Outstanding Student of Sunshine Sports Initiative, 2023 (awarded to the top 1% of students)
  - Liu Bao Scholarship, 2022 (awarded to the top-scoring student in the National Entrance Exam from each province, representing the top 0.6% of students)

WORKING PAPER

[1] **Qiucheng Chen** and Bo Wang. "*Valuable Hallucinations: Realizable Non-realistic Propositions.*" ArXiv abs/2502.11113 (2025): n. pag. *(Under Revision)*

[2] Lingbo Gao, Xiran Ma, **Qiucheng Chen**, Guohong Li, and Yiyang Zhang. *"Foundation Models for Prognostics and Health Management in Industrial Cyber-Physical Systems: A survey and roadmap."* *(Awaiting Submission)*

RESEARCH EXPERIENCE

Research at LMc (Language and Mind computing) Lab with Dr. Bo Wang   Apr 2024 - present

- Formalized the definition and evaluation criteria of "Valuable Hallucinations" and systematically classified them within existing hallucination taxonomies (intrinsic/extrinsic; factuality/faithfulness)
- Proposed a "Controlled Innovation" mechanism integrating prompt engineering and reflection-based self-correction to maintain factual grounding while preserving valuable fictional components, achieving controllable creativity without architecture modification or retraining
- Developing a small-scale benchmark (ValBench) for evaluating creativity−factuality trade-offs in open-ended LLM outputs, contributing to a forthcoming publication in trustworthy AI evaluation
- Conducting two key experiments in a human-computer interaction (HCI) project: analyzing decision-making through the Prisoner's Dilemma with LLM and human participants

Data Driving Failure Diagnosis Project with Dr. Yu Wang   Apr 2024 - May 2025

- Conducted in-depth literature research on Large-Scale Foundation Models (LFMs), focusing on their fundamental methodologies and the effective application of multimodal foundation models in the Industrial Cyber-Physical Systems (ICPS)
- Designed modular architectures for integrating temporal reasoning into GAT-based diagnostic pipelines, improving anomaly detection accuracy by 8.4% on SECOM

Semantic-Guided Periodic Tiling Pattern Generation with Diffusion Models & Symmetry Group

Embedding with Dr. Liang Wan & Dr. Di Lin   Apr 2025
- Designed a contour-aware shape matching sub-module (for the project's intelligent Wallpaper Group recommendation system) using IoU as the core metric, evaluating 6 fundamental polygons (rectangle, regular hexagon, etc.) against target image masks to select optimal initial tiling units
- Enabled seamless pipeline integration: Mapped non-rectangular optimal polygons to corresponding Wallpaper Groups for direct tiling; triggered downstream transformation selection for rectangles, enabling automation of symmetric structure recommendation

PROFESSIONAL EXPERIENCE

4Paradigm   MLE Intern   April 2025 - present

Developed solution strategies (including algorithms and models) and conducted cross-sectional analyses for multiple business challenge boards, participated in their preliminary research, and ranked among the **top 10%** in the company's internal challenge board points ranking for a month.

Project: Video Cover Text Integrity Detection for Super-App Video Recommendation
- Curated a high-quality dataset of 10,500 cover images from platforms (Xiaohongshu, Bilibili, Douyin, Kuaishou) containing cover screenshots, integrating PaddleOCR and internal OCR models with confidence-threshold filtering to verify text presence
- Engineered an automated data augmentation pipeline using multi-processed random cropping to generate diverse training samples, paired with manual annotation of text cropping status
- Developed a PyTorch Lightning image classification framework with a ResNet backbone and custom classification head
- Designed training scripts (data processing, dataset splitting, model initialization, checkpointing) and implemented efficient training on multi-GPU environments

Project: Standardized Benchmarking for Large Language Model-Powered Mobile Q&A Systems (iOS, Bilingual: Zh/En)
- Screened, cleaned, and integrated 1.5M+ diverse samples from HuggingFace, constructing a bilingual (Chinese/English) dataset that covers multi-domain linguistic scenarios
- Fine-tuned base models using Supervised Fine-Tuning (SFT) via the LLaMA Factory framework, and merged LoRA (Low-Rank Adaptation) weights with the base model to enhance task-specific performance while maintaining model efficiency
- Performed multi-precision quantization to balance model performance and storage footprint, achieving optimal trade-offs for mobile deployment
- Delivered the top-performing strategy in internal evaluations, with a normalized score of 0.71 and an average response time of only 65ms, ranking **1st** among all company strategies for comprehensive performance

SKILLS & INTERESTS

IT Skills: C/C++, Python, PyTorch, System Verilog, HTML, JavaScript, CSS, SPSS, SQL, LaTex
Research Interests: Multimodal LLMs, LLM Reasoning, Reinforcement Learning, Multi-Agent Interaction
Language: English (IELTS 7.5), Mandarin (Native)
Interests: Swimming, Basketball, Badminton, Piano, Guitar, Zither, Painting