Tiancheng LIU

Ph.D. Candidate at The Hong Kong University of Science and Technology (Guangzhou)
Visiting Researcher at University of Amsterdam
tcliu.cc | tcliu767@connect.hkust-gz.edu.cn | +86 1521-8828-949

ABOUT ME

Tiancheng Liu is a computational media researcher and artist working across Creative AI, multimodal interaction, and culturally grounded computing. His work investigates how machines can understand, sense, and participate in human creative practices, with a particular focus on embodied cultural forms such as Chinese calligraphy. His Ph.D. research is organized around three interrelated layers of creative practice. The first layer asks how machines can analyze and interpret the aesthetic structure of finished artifacts, including layout, form, balance, and stylistic preference. The second layer asks how machines can sense the often invisible processes behind creation, such as gesture, pressure, rhythm, and other implicit micro-actions. The third layer asks how AI systems can join creative practice as collaborators, supporting co-creation, performance, and expressive interaction. Building upon this framework, he seeks to explore broader possibilities for computing approaches as a medium for interpretation, expression, and collaboration, expanding how humans and machines can sense, make, and imagine together in the cultural and artistic context.

EDUCATION

University of Amsterdam, Amsterdam, Netherlands — Apr. 2026 – Present
Visiting Researcher in MultiX, Informatics Institute

HKUST (GZ), Guangzhou / Hong Kong SAR, China — Sept. 2022 – Present
Ph.D. Candidate in Computational Media and Arts, Information Hub

Waseda University, Tokyo, Japan — Sept. 2018 – Oct. 2020
M.Eng in Information

South China University of Technology, Guangzhou, China — Sept. 2014 – Jul. 2018
B.Eng in Network Engineering

South China University of Technology, Guangzhou, China — Feb. 2015 – Jul. 2018
B.Econ in Finance

Zhixin High School Guangzhou, China — Sept. 2011 – Jun. 2014

PUBLICATIONS

To Appear

[1] T. Liu, S. Zhang, and N. Merendino. "BruSHŪ: Cross-Modal Translation of Implicit Micro-Actions in Chinese Calligraphy". In: Will be presented at SIGGRAPH 2026. New York, NY, USA: Association for Computing Machinery, 2026. [Online].

[2] S. Zhang, S. Lin, T. Liu, R. Masu, and M. Fan. "To Perform/ To Live: Decolonizing of Digital Music Instruments and Feminism with Human-AI Co-Created Embodied Experience of Daily Objects". In: Will be presented at SIGGRAPH 2026. New York, NY, USA: Association for Computing Machinery, 2026. [Online].

Published

[3] T. Liu, S. Yan, S. Zhang, C. Liang, and K. Zhang. "Computational Interpretation of Chinese Calligraphy Layout via Graph-Based Modeling and Language Models". In: *Pro-*

ceedings of the POLYU COMP - HKUST(GZ) INFH Research Student Conference. Poster presentation. Hong Kong, China, 2025.

[4] T. Liu, J. Ye, S. Zhang, K. Zhang, and C. Liang. "Quantifying Structural Aesthetic Features and Personality Trait Preferences in Kai Shu Calligraphy". In: *Proceedings of the 33rd ACM International Conference on Multimedia*. MM '25. Dublin, Ireland: Association for Computing Machinery, 2025, pp. 6730–6739. [Online].

[5] Y. Wei, Y. Fu, S. Wang, S. Gao, T. Liu, Z. Wang, and X. Tong. "A Deep-Learning Model for Edition Identification of Premodern Chinese Rare Books". In: *Digital Humanities* 03 (2025). [Online], pp. 1–10.

[6] S. Zhang, T. Liu, and M. Fan. "FinHERtip: Embodied Identity and Human-AI Co-Creation in Accessible Musical Performance". In: *Proceedings of the SIGGRAPH Asia 2025 Art Papers*. SA Art Papers '25. Association for Computing Machinery, 2025. [Online].

[7] T. Liu, L. Li, and M. Yang. "Chinese Seal Carving Aesthetic Evaluation". In: *Proceedings of the 17th International Symposium on Visual Information Communication and Interaction*. VINCI '24. Association for Computing Machinery, 2024.

[8] T. Liu, A. Wang, X. Chen, J. Yan, Y. Li, P. Hui, and K. Zhang. "PoEmotion: Can AI Utilize Chinese Calligraphy to Express Emotion from Poems?" In: *Proceedings of the 29th International Symposium on Electronic Arts: ISEA2024 Everywhen Proceedings. Volume 1: Academic Papers*. Ed. by G. Sade, A. Brown, L. Barclay, J. Seevinck, A. Tyurina, and R. Wright. Brisbane, Qld: Queensland University of Technology and ISEA International, 2024, pp. 476–483. [Online].

[9] A. L. Zhou, J. Ye, T. Liu, and K. Zhang. "Archiving Body Movements: Collective Generation of Chinese Calligraphy". In: *Proceedings of the 29th International Symposium on Electronic Arts: ISEA2024 Everywhen Proceedings. Volume 1: Academic Papers*. Ed. by G. Sade, A. Brown, L. Barclay, J. Seevinck, A. Tyurina, and R. Wright. Brisbane, Qld: Queensland University of Technology and ISEA International, 2024, pp. 862–870. [Online].

[10] T. Liu. "Blend Framework of Blockchain Technology and Cloud Computing Application in Access Control Service". Master's Thesis. Waseda University, 2020.

[11] T. Liu and K. Koyanagi. "Blockchain Technology Application in Access Control". In: *Proceedings of the 6th Waseda ORIS International Seminar for Junior Researchers*. Waseda University. Tokyo, Japan, 2020.

[12] H. Li, T. Luo, L. Li, and T. Liu. "Measuring Systemic Risk in the Chinese Financial System Based on Asymmetric Exponential Power Distribution". In: *Recent Developments in Data Science and Business Analytics*. Ed. by M. Tavana and S. Patnaik. Cham: Springer International Publishing, 2018, pp. 225–232.

Under Review

[13] Y. Li, T. Liu, B. Wang, K. Zhang, and L. Yu. "Neural and Behavioural Responses to Colour Space Orientation: Insights into Aesthetic Perception". In: *Nature Communications* (2025). Under Submission.

[14] T. Liu, S. Yan, S. Zhang, C. Liang, and K. Zhang. "Can Machines Interpret Chinese Calligraphy Pieces via Computational Aesthetics?" In: *Leonardo* (2025). Submitted.

[15] S. Yan, T. Liu, W. Yang, N. Tang, and Y. Luo. "ChartEditor: A Human-AI Paired Tool for Authoring Pictorial Charts". In: *IEEE Transactions on Visualization and Computer Graphics* (2025). Under Review.

GRANTS AND FUNDING SUPPORT

Project Researcher (Proposal Co-author) — National Social Science Fund of China (NSSFC) Major Project
HKUST (GZ) 2024–present
Topic: Application of Frontier Technology in Cultural Heritage Protection and Inheritance

- **Program:** Special Program on Cultural Heritage Protection and Inheritance Research
- **Co-applicants:** PI: Prof. Kang ZHANG
- **Grant:** No. 24VWB020

Recipient — Overseas Research Travel Grant (RTG)
HKUST (GZ) 2024, 2025 & 2026
Topic: Travel to present research at international conferences (outside Greater China)

- **Role:** Recipient
- **Funding:** RTG conference travel support

AWARDS & SCHOLARSHIP

First Prize, Model Creativity Competition, by *Red Bird Maker Space, College of Future Technology, Hong Kong University of Science and Technology (Guangzhou)* 2024
Finalist, Three Minute Thesis (3MT) Competition, by *Hong Kong University of Science and Technology (Guangzhou)*, founded by The University of Queensland 2024
Postgraduate Studentship (PGS), research studentship awarded by *Hong Kong University of Science and Technology (Guangzhou)* 2022 – Present
JASSO Scholarship — *School of Information, Production and System, Waseda University*, Tokyo, Japan 2018 – 2020
Second-Class Academic Scholarship — *School of Computer Science and Engineering, South China University of Technology*, Guangzhou, China 2015 – 2017

ACADEMIC SERVICE

- **Tutorial Contributor and Presenter**, "Understanding Art & Culture," ACM International Conference on Multimedia Retrieval (ICMR), Amsterdam, Netherlands, 2026. Contributed and will present a segment on Chinese calligraphy as a case for multimodal art understanding, covering aesthetic structure, implicit micro-actions, and human-AI co-creation.
- **Web Chair** of The 16th International Symposium on Visual Information Communication and Interaction, VINCI 2023, Guangzhou, China
- **Serving as reviewer for journals and conferences** in visual computing/graphics & imaging, information visualization and HCI, AI and society, and electronic & information engineering:
  - CONF.: ACM International Conference on Multimedia (ACM MM); International Symposium on Visual Information Communication and Interaction (VINCI);
  - JOURN.: The Visual Computer; AI & Society; Frontiers of Information Technology & Electronic Engineering; Visual Computing for Industry, Biomedicine, and Art (VCIBA).

TEACHING AND MENTORING EXPERIENCE

Teaching Assistant / Guest Instructor *HKUST(GZ)*

- *Introduction to Experimental Animation* 2023
  - Assisted in course design, delivered lectures;
  - Guided students in stop-motion animation shooting, simple animation producing, video editing and creative coding in visual computing projects.
- *Interactive Storytelling* 2024
  - Supervised student projects combining narrative design, human–computer interaction, and generative AI techniques;
  - Provided hands-on training in relevant software tools and digital media techniques, improving students' production skills.

Research Mentor in MPhil's Program, *HKUST(GZ)*

- *Research and Artistic Creation on the Aesthetics and Dissemination of Chinese Calligraphy and Scripts* 2023–2025.
  - Supervised postgraduate research on computational interpretation and aesthetic modeling of Chinese calligraphy;
  - Guided interdisciplinary collaboration between visual computing and digital humanities.
- *Multi-Modal Embodied Human–Pet Interaction via Pet Wearable Devices* 2025–present
  - Managing an interdisciplinary research project integrating embodied interaction design, multi-modal data analysis, and AI-driven affective computing for human–pet communication.

INDUSTRY RESEARCH EXPERIENCE

Network R&D Center, China Telecom Research Institution Beijing/Guangzhou, China

Applied Research Engineer (MQTT/ITS) 2021 – 2022

- Contributed to the MQTT communication module for an intelligent transportation system: designed the communication plan and implemented it in engineering, covering publish/subscribe, connection management, and stability handling to keep the edge-to-platform channel reliable.
- Supported integration and rollout: wrote API and usage notes, prepared basic ops scripts/configs, and coordinated device-side, platform-side, and operations teams to drive releases and limited trials.

Cloud Network Institute, China Telecom Research Institution Guangzhou, China

Cloud Network Researcher (Cloud-Network, ITU-T) 2020 – 2021

- Launched and drafted an ITU-T testing and monitoring framework initial for cloud-network architecture, turning requirements into executable test methods, test cases, and a report structure; completed internal reviews and revisions.
- Developed and implemented a Prometheus-based testing and monitoring system, supporting batch test execution and key-metric collection.

GF Security Guangzhou, China

Quantitative Researcher (Asset Portfolio) 2018

- Responsible for research on low-risk asset allocation in a funds-management context; defined risk and compliance constraints and produced actionable strategy and operating procedures.
- Built a prototype (demo) funds allocation and risk-control system, covering data processing and strategy execution for demonstration and method validation.

PUBLIC ENGAGEMENT, OUTREACH & LEADERSHIP

Invited Speaker — Salon: "*The Aesthetics of Innovation and Entrepreneurship in Nansha*"
Guangzhou, China *2025*

- Topic: "Seeing–Feeling–Gaining" perspectives on Nansha's innovation and entrepreneurship ecosystem.

Invited Speaker — "*'Qing Chu Yu Nan' Talent Gathering Action Plan*" Launch Event
Guangzhou, China *2025*

- Topic: Youth-friendly innovation ecosystem in Nansha; tech integration (e.g., policy support for researchers).

STEM Outreach Lecturer — Tongren No. 1 High School
Tongren, Guizhou, China *2023*

- Designed and delivered two short courses: (1) Artificial Intelligence Technology and Calligraphy Appreciation; (2) Sustainable Green Building and Future Urban Development.
- Led hands-on activities (e.g., AI demo for calligraphy style recognition) and facilitated a student showcase.

Founder — Campus Fitness Community, HKUST (Guangzhou)
Guangzhou, China *2022–Present*

- Founded and led a 300 + member student-staff community; organized group workouts and wellness events.
- Coordinated scheduling and safety protocols with the university gym; supported facility operations.
- Promoted campus wellness initiatives and peer coaching.

Solution Presenter — *ODCC Edge Computing Conference 2021*
Beijing, China *2021*

- Talk: "China Telecom Cloud–Network Convergence Innovation Platform: R&D and Application Practice."

Director — Student Art Union, South China University of Technology
Guangzhou, China *2017–2018*

- Organized and executed campus performances and events;
- Coordinated cross-department collaborations;
- Supervised teams' daily training and budgeting.

LANGUAGES

Mandarin, English, Cantonese, Japanese (N2 Level)

HOBBIES

Bamboo Flute, Calligraphy, Trekking, Triathlon, Museum, Urban Exploration