# Jia Chen

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## EDUCATION

**McMaster University** — Hamilton, Canada
***MSc. Computer Science*** — Jan. 2024 – Present
- Research area: Computer Animation Generation
- GPA: 3.95/4.00
- Supervisor: Prof. Yingying Wang

**Hangzhou Dianzi University** — Hangzhou, China
***B. Computer Science*** — Sep. 2018 – Jun. 2022
- GPA: 4.39/5.00 (89.11/100)

## PUBLICATIONS

**Conference paper**
- Jia Chen, Fangze Liu, Yingying Wang, "Masked Diffusion Transformer for 3D Human Motion Generation from Text" in *2025 IEEE International Conference on Artificial Intelligence and eXtended and Virtual Reality (AIxVR)*, 2025. (Under review)

**Journal papers**
- Jianqi Wang, Jieni Yan, Yinzhe Xu, Jia Chen, "A Computer Vision Engineering Management System for Automated Defect Detection in Electronic Components Manufacturing, *International Journal of Uncertainty, Fuzziness and Knowledge-Based Systems*, vol.32, no. 04, pp. 515-534, Jun. 2024.
- Jianqi Wang, Jieni Yan, Jia Chen, Yinzhe Xu, "Psychological factors in project team performance prediction models based on the SVM algorithm", *International Journal of Mental Health Nursing* vol.32, no. SI, pp. 155-156, Dec. 2023.
- Jia Chen, Tao Chen, Mengqi Shen, Yunhai Shi, Dongjing Wang, Xin Zhang, "Gated three-tower transformer for text-driven stock market prediction, *Multimedia Tools and Applications*, vol.81, no. 21, pp. 30093-30119, Sep. 2022.

**Patents**
- Xin Zhang, Jia Chen, Tao Chen, Dongjing Wang, Yunhai Shi, "Intelligent manufacturing equipment fault prediction method based on three gated towers", *Chinese Patent*, CN113626597B, Apr. 2022.
- Ping Li, Jia Chen, Jiachen Cao, Xu Xianghua "A classroom action recognition method based on dual-scale space-time block mutual attention", *Chinese Patent*, CN113626597B, May. 2022.

**Copyright**
- Zhuoyang Gao, Jia Chen, Fujun Zhu, Jiawei Lu, Weilong Cai, "Classroom Teaching Auxiliary System Based on Action Recognition," *Chinese Software Copyright*, 2020SR1766020, Dec. 2020.

## RESEARCH EXPERIENCE

**Computer Animation And Motion Lab, Mcmaster University**
***3D Human Motion Generation from Text*** — Jan. 2024 – Present
- Designed and implemented a novel method for generating diverse and accurate 3D human motions from text descriptions, with a focus on enhancing both quality and efficiency.
- Developed and integrated the Kinematic Chain Quantization (KCQ) for creating a diverse codebook, and the Masked Diffusion Transformer (MDT), which utilizes a masking strategy and a deconstructed diffusion process. These innovations significantly improved motion diversity, semantic accuracy, and generation speed.
- Validated the method through extensive quantitative experiments and qualitative motion rendering, demonstrating clear improvements over previous methods. A paper detailing these advancements is currently under review.

**Intelligent Information and Software Engineering Lab, Hangzhou Dianzi University**
***Text-driven Stock Market Prediction*** — May. 2021 – Aug. 2021
- Led the design and implementation of the $GT^3$ model, which integrates numerical and textual data for stock market prediction using a novel combination of Channel-Wise, Shifted Window, and Text Tower Encoders.
- Developed a Cross-Tower Attention mechanism to enhance the model's ability to capture trend-relevant information, improving the integration of multi-scale temporal and textual features.
- Achieved state-of-the-art performance on real-world datasets, resulting in a peer-reviewed publication and a granted patent.

**Institute of Graphics and Image Processing, Hangzhou Dianzi University**

***Classroom Teaching Auxiliary System Based on Action Recognition*** June. 2019 – Jul. 2021

- Conceived and implemented the action recognition method, employing a dual-scale spatial-temporal patch encoder with mutual attention to effectively classify and track student behaviors from classroom videos
- Engineered an advanced method that synthesizes multi-scale spatial-temporal features, significantly boosting the accuracy of student action recognition in both online and offline learning environments.
- Achieved improved performance over previous methods, leading to a granted patent and software copyright. The computer vision and deep learning knowledge from this project has been successfully integrated into subsequent research endeavors.

## INDUSTRIAL EXPERIENCES

**Huawei Technologies Co., Ltd.** Shenzhen, China

***Software Develop Engineer*** Sep. 2022 – Jun. 2023

- Responsible for the back-end development of Huawei's attendance management system, completed the reconstruction with Domain Driven Design (DDD) and data migration from SQL database to OpenGauss and Redis.
- Developed a computing engine based on artificial intelligence and high-performance computing, implemented the functions of rapid attendance calculation for 100,000+ users per month and 1000,000+ data records covering offices in 147 countries of varying attendance rules.

## TEACHING EXPERIENCES

**Department of Computing & Software, McMaster University** Jan. 2024 – Apr. 2024

***Teaching Assistant***

- Assisted in teaching the undergraduate course, "Dynamic Systems and Control," by supporting the overall instructional process.
- Prepared MATLAB lab content, graded assignments, proctored midterm and final exams, and provided extensive student support during weekly office hours, as well as answering student questions outside of class time, ensuring they understood the material and successfully completed their assignments.

## SELECTED COURSES

**Master's Courses**

- Computer Animation
- Software Design
- Theoretic Methods in Trustworthy Machine Learning
- Theoretical Foundations of Unsupervised Learning

**Bachelor's Courses**

- Data Structure
- Principle of Computer Organization
- Computer Network
- Operating System
- Introduction to Artificial Intelligence

## AWARDS

Outstanding Graduate (Top 17/563), Jun. 2022
Zhejiang Province Government Scholarship (Twice, Top 6%) Dec. 2019, Dec. 2021
Merit Student (Top 5%), Oct. 2021
1st Prize in 2021 Mathematical Contest in Modeling (Top 7%) Apr. 2021
3rd Prize in China Undergraduate Mathematical Contest in Modeling (Zhejiang Province Division) Dec. 2020
3rd Prize in RoboMaster University Championship Aug. 2020
1st Prize in 2020 Mathematical Contest in Modeling (Top 6%) Apr. 2020

## SKILLS

**Programming:** Python (Pytorch, Tensorflow, OpenCV, Sklearn, Matplotlib), C++, Java, MATLAB , Linux, MySQL
**Graphics:** OpenGL, Blender
**English:** TOEFL: 105 (R: 30; L: 29; S: 20; W: 26)