

Keming Jiao

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Education

Lund University

Lund, Sweden

MSc in Virtual Reality and Augmented Reality

Aug. 2024 - Jun. 2026

- **Relevant Coursework and Grades:** Computer Graphics(5.0), Image Analysis(5.0), High Performance Computer Graphics(4.0), Computer Vision(5.0), Virtual Reality in Theory and Practice(4.0), Augmented Reality - Interaction

Shanghai Jiao Tong University (SJTU, QS ranking 36)

Shanghai, China

BEng in Electronic Science and Technology

Sept. 2020 - Jun. 2024

- **Major GPA**(EE/CS courses):**3.72/4.00**;Overall GPA:3.49/4.00
- **Relevant Coursework and Grades:** Data Structures(A), Machine Learning(A), Thinking and Methodology in Programming (C++)(A), Language Data and Python Techniques(A), Probability and Statistics(A)

Research Experience

Master Thesis on 4D Sports Scene Reconstruction

Jan. 2026 – Jun. 2026

SONY & LTH, Lund University

Advised by Prof. Viktor Larsson

- Developed a 4D sports scene reconstruction and free-viewpoint replay pipeline combining sparse multi-view videos, camera calibration, human masks, SMPL pose parameters, and 3D Gaussian Splatting.
- Reconstructed dynamic human Gaussian avatars and static environment Gaussians separately, then integrated them into a unified interactive viewer for motion replay, novel-view rendering, and scene composition.
- Improved sparse-view multi-person avatar reconstruction with pose correction, non-uniform Gaussian initialization, two-stage training, and a perceptually oriented loss-weight setting.
- Evaluated the avatar reconstruction on GalaBasketball and Hi4D using PSNR, SSIM, LPIPS, subjective assessment, and ablation studies, achieving better reconstruction quality than existing Gaussian avatar baselines.
- Implemented a viewer that renders static scene Gaussians and dynamic avatar Gaussians in a single rasterization pass, preserving consistent depth ordering and occlusion for interactive sports replay.

Bachelor Thesis on Memory Bank-based Image Anomaly Detection

Sept. 2023 – May 2024

School of Electronic Information and Electrical Engineering, SJTU

Advised by Prof. Chongyang Zhang

- Proposed two modules for anomaly detection, Input-Reference Alignment (I-RA) and Adaptive Multi-scale Ensembled Scoring (A-MES), to improve semantic anomaly localization.
- Built the Garment Printing Defects Dataset, consisting of 36 categories with pixel-level annotations.
- Achieved competitive or superior performance compared with state-of-the-art methods, especially for semantic anomalies and small-scale defect detection.

Research on Domain Adaptations in Fault Diagnosis of Roller Bearing

Oct. 2022 – Jun. 2023

School of Mechanical Engineering, SJTU

Advised by Prof. Jianfeng Tao

- Proposed a semi-supervised prototype network to address the few-shot problem in TBM main bearing fault diagnosis.
- Designed a dual-stream multi-channel architecture based on adversarial learning to mitigate domain shift across working conditions.
- Achieved over 97% classification accuracy through improved domain adaptation and representation learning.

Work Experience

Sony Europe

Lund, Sweden

Computer Vision Intern

Jan. 2025 - Dec. 2025

- Explored methods to improve 3D human pose estimation accuracy through real-time updates of camera calibration information.
- Built an internal evaluation pipeline for fairness testing on human-centered vision models.
- Developed a real-time 3D visualization pipeline for human pose estimation outputs, emphasizing scalability, readability of human motion information, and compatibility across different data formats.
- Investigated neural smoothing methods for reducing temporal jitter in 3D human pose estimation results.
- Computed sports-related motion indicators from pose sequences, including acceleration and jump statistics.
- Developed an interactive multi-camera coverage simulator to visualize field-of-view overlap, viewpoints, and imaging geometry, supporting camera system design and evaluation for dynamic scenes.

Projects

AR Fountain Designer

Sept. 2025 - Dec. 2025

LTH, Lund University

Apk

- Implemented a mobile AR fountain simulation prototype with real-time 3D visualization.
- Developed screen-space rendering techniques for efficient water visualization under mobile performance constraints.
- Built an interactive AR application for real-world fountain placement and parameter control using plane detection and touch input.
- Technical Skills:** Unity, C#, AR Foundation, Compute Shader, mobile real-time rendering

Fluid Simulation Rendered by OpenGL Ray Tracing

Nov. 2024 - Dec. 2024

LTH, Lund University

Video

- Implemented a WCSPH-based fluid simulation pipeline for dynamic fluid motion.
- Built an OpenGL-based ray tracing renderer to visualize fluid simulation results.
- Explored the integration of physically inspired simulation and graphics rendering for dynamic visual effects.
- Technical Skills:** OpenGL, Taichi, GPU-oriented rendering

Publications

CONFERENCE PROCEEDINGS

DOLLama: Promoting Anti-Bullying Education and Parent–Child Collaboration through Doll-Mediated Educational Drama
Di Liu, Zhenhao Zhang, Zhuoyi Zhang, Yufei Hu, Keming Jiao, Xueliang Li, Pengcheng An
The ACM CHI conference on Human Factors in Computing Systems, 2026, Barcelona, Spain

Enhanced Anomaly Detection Using Spatial-Alignment and Multi-scale Fusion
Keming Jiao, Xincheng Yao, Lu Wang, Baozhu Zhang, Zhenyu Liu, Chongyang Zhang
Pattern Recognition and Computer Vision, 2024, Urumqi, China

JOURNAL ARTICLES

Multi-Stream Domain Adversarial Prototype Network for Integrated Smart Roller TBM Main Bearing Fault Diagnosis across Various Low Rotating Speeds
Xingchen Fu, Keming Jiao, Jianfeng Tao, Chengliang Liu
Reliability Engineering & System Safety p. 110284. Elsevier, 2024

A Novel Semi-supervised Prototype Network with Two-stream Wavelet Scattering Convolutional Encoder for TBM Main Bearing Few-shot Fault Diagnosis
Xingchen Fu, Jianfeng Tao, Keming Jiao, Chengliang Liu
Knowledge-Based Systems p. 111408. 2024

Scholarship & Awards

2024	Lund University Global Scholarship , Lund University	Sweden
2023	Undergraduate C Scholarship (top 30%) , Shanghai Jiao Tong University	China
2023	The Best Overall Project , Imperial Data Science Winter School held by Imperial College	UK
2022	Undergraduate C Scholarship (top 30%) , Shanghai Jiao Tong University	China

Teaching

Supplementary Instruction Leader of Computer Graphics

Fall Semester 2025

LTH, Lund University

Teaching Assistant of Thinking and Methodology in Programming (C++)

Fall Semester 2021 & 2022

School of Electronic Information and Electrical Engineering, SJTU

Technical Skills

Languages	Chinese(Native), English (IELTS 7.5), Japanese(N2)
Programming	C++, C, C#, Python, CUDA, GLSL
Frameworks / Tools	PyTorch, Unity, OpenGL, taichi, AR Foundation, Qt, Docker, Git, Blender, MATLAB, Docker