XIAOYU ZHANG

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Education

Ph.D. Degree: Computer Science, University of California, Davis, USA   Sep. 2018 - June 2023
- Research interests: Visual Analytics, Information Visualization, Human-Computer Interaction
- Advisor: Prof. Kwan-Liu Ma

Master's Degree: Computer Science, Zhejiang University, China   Sep. 2015 - Mar. 2018
- Research interests: Computer Graphics, Medical Image Processing
- Advisor: Prof. Kun Zhou, Prof. Zhong Ren

Bachelor's Degree: Digital Media Art, Xiamen University, China   Sep. 2011 - Jun. 2015
- Major: Digital Media Art (GPA: 3.86 / 4.0)
- Minor: Advertising (GPA: 3.58 / 4.0)

Research Interests

I am broadly interested in research topics related to **data visualization, human-computer interaction (HCI) and human-AI collaboration**. Specifically, I contribute interactive tools that incorporate visual analytics (VA) techniques with state-of-the-art machine learning techniques to support knowledge exploration and exploitation for **education, smart manufacturing, and human well-being**.

Professional Experience

City University of Hong Kong, School of Creative Media   Aug. 2024 - Present
- Tenure-track Assistant Professor

ETH Zurich, ETH AI Center   Aug. 2023 - July 2024
- Postdoctoral researcher, mentored by Prof. Mrinmaya Sachan and Prof. Torbjørn Netland
- Topic: Human-in-the-loop visual knowledge discovery and human-centered AI [J1]

Bosch Research, Visual Analytics & eXplainable AI Group   Sep. 2022 - June 2023
- Research Intern, supervised by Dr. Liu Ren, Dr. Jorge Piazentin Ono, and Dr. Wenbin He
- Topic: A Visual Concept-Based Slice Finding Approach for Image Data

Meta, Data Infrastructure Group   May 2022 - Aug 2022
- Research Data Scientist Intern, supervised by Dr. Jian Shen
- Topic: Stacktrace Theme Analysis and Anomaly Detection with NLP Techniques

Bosch Research, Visual Analytics & eXplainable AI Group   June 2021 - May 2022
- Research Intern, supervised by Dr. Liu Ren, Dr. Liang Gou, and Dr. Jorge Piazentin Ono
- Topic: A Data Slice-Driven Approach for Machine Learning Model Validation [J2]

Microsoft Research Asia, Visual Computing Group   May 2018 - Aug. 2018
- Research Intern, supervised by Dr. Weiwei Cui
- Topic: Automatic Generation of Infographics from Natural Language Statements [J3]

NetEase Games, Game Engine Group   Jan. 2017 - Mar. 2017
- Senior Research & Development Intern
- Topic: Customized Character Face Creation in MMORPG Games based on Skeleton-Driven Animation

University of Alberta, Surgical Simulation Research Lab   Mar. 2016 - Sep. 2016
- Visiting Scholar, supervised by Prof. Bin Zheng
- Topic: Define Interior Structure for Better Liver Segmentation Based on CT Images [J10]

Hong Kong University, Department of Computer Science   July 2014 - Sep. 2014
- Research Assistant, supervised by Prof. Wenping Wang
- Topic: Automated Steady Scaffoldings for 3D Printing

Publications

Peer-Reviewed Journal and Conference Publications

[J1] **Xiaoyu Zhang**, Fei Xue, Alexander Albers, Torbjørn Netland: *"It's impressive, but in practice...": Experiencing a Realistic Digital Transformation in and beyond the Classroom*, In Proceedings of the 2025 CHI Conference on Human Factors in Computing Systems.

[J2] Li Nan, Fan Shi, **Xiaoyu Zhang**, April Wang: *MRISA: A Visual Analytics Approach for Comparing Locomotion Policies in Robotics Training*, In Proceedings of Graphics Interface (GI) 2025.

[J3] Lennart Wittke, Peter El Hachem, Yuan Chen, Joseph Ollier, Bingjie Cheng, Shkurta Gashi, **Xiaoyu Zhang**: *Classifying Cognitive Load in Digital Textbook Reading using Electroencephalogram Signals*, In Proceedings of the 13th International Conference on Information and Education Technology (ICIET), 2025.
🏆 **Best Presentation Award**

[J4] Peng Cui, Vilém Zouhar, **Xiaoyu Zhang**, Mrinmaya Sachan: *How to Engage Your Readers? Generating Guiding Questions to Promote Active Reading*, In Proceedings of the 62nd Annual Meeting of the Association for Computational Linguistics (ACL 2024).

[J5] **Xiaoyu Zhang**, Jorge Henrique Ono, Wenbin He, Liang Gou, Mrinmaya Sachan, Kwan-Liu Ma, and Liu Ren: *Slicing, Chatting, and Refining: A Concept-Based Approach for Machine Learning Model Validation with ConceptSlicer*, In 29th Annual ACM Conference on Intelligent User Interfaces (IUI 2024).

[J6] **Xiaoyu Zhang**, Kelvin Li, Po-Wei Chi, Senthil Chandrasegaran, and Kwan-Liu Ma: *ConceptEVA: Concept-Based Interactive Exploration and Customization of Document Summaries*, In Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems.

[J7] **Xiaoyu Zhang**, Xiwei Xuan, Alden Dima, Thurston Sexton, and Kwan-Liu Ma: *LabelVizier: Interactive Validation and Relabeling for Technical Text Annotations from Weak Supervision*, In 2023 IEEE 16th Pacific Visualization Symposium (PacificVis).

[J8] **Xiaoyu Zhang**, Jorge Henrique Ono, Huan Song, Liang Gou, Kwan-Liu Ma, and Liu Ren: *SliceTeller: A Data Slice-Driven Approach for Machine Learning Model Validation*, IEEE Transactions on Visualization and Computer Graphics (2022).
🏆 **Best Paper Honorable Mentioned Award on IEEE VIS 2022**

[J9] Xiwei Xuan, **Xiaoyu Zhang**, Oh-Hyun Kwon, and Kwan-Liu Ma: *VAC-CNN: A Visual Analytics System for Comparative Studies of Deep Convolutional Neural Networks*, IEEE Transactions on Visualization and Computer Graphics 28, no. 6 (2022): 2326-2337.

[J10] **Xiaoyu Zhang**, Senthil Chandrasegaran, and Kwan-Liu Ma: *Conceptscope: Organizing and visualizing knowledge in documents based on domain ontology*, In Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems (pp. 1-13).

[J11] **Xiaoyu Zhang**, Takanori Fujiwara, Senthil Chandrasegaran, Michael P. Brundage, Thurston Sexton, Alden Dima, and Kwan-Liu Ma: *A Visual Analytics Approach for the Diagnosis of Heterogeneous and Multidimensional Machine Maintenance Data*, In 2021 IEEE 14th Pacific Visualization Symposium (PacificVis) (pp. 196-205).

[J12] Senthil Chandrasegaran, **Xiaoyu Zhang**, Michael P. Brundage, and Kwan-Liu Ma: *Using Text Visualization to Aid Analysis of Machine Maintenance Logs*, Model-Based Enterprise (MBE) Summit 2020.

[J13] Weiwei Cui, **Xiaoyu Zhang**, Yun Wang, He Huang, Bei Chen, Lei Fang, Haidong Zhang, Jian-Guan Lou, and Dongmei Zhang: *Text-to-Viz: Automatic Generation of Infographics from Proportion-Related Natural Language Statements*, IEEE Transactions on Visualization and Computer Graphics 26, no. 1 (2019): 906-916.

[J14] **Xiaoyu Zhang**, Yixiong Zheng, Bin Zheng: *Define Interior Structure for Better Liver Segmentation Based on CT Images*, In CCF Chinese Conference on Computer Vision, pp. 77-88. Springer, Singapore, 2017.

[J15] Yingying She, Qian Wang, **Xiaoyu Zhang**, Wenyong Zheng, Yao Fu, Yishi Shi: *The Approach of Micro-blog Explosive Events Detection and Analysis in Real-time*, International Conference on Computer Engineering and Information Systems. Atlantis Press, 2016.

Workshop and Demos

[W1] Daria Martynova, Jakub Macina, Nico Daheim, Özge Nilay Yalçın, **Xiaoyu Zhang,** Mrinmaya Sachan: *Can LLMs Effectively Simulate Human Learners? Teachers' Insights from Tutoring LLM Students*, In Proceedings of the 20th Workshop on Innovative Use of NLP for Building Educational Applications (BEA), 2025.

[W2] Qingxiaoyang Zhu, **Xiaoyu Zhang**, Shuyan Dai, Noriko Satake, and Hao-Chuan Wang: *ZoombaTogether: A Video Conference Add-on for Generating Interactive Visual Feedback for Online Group Exercise Through Real-Time Pose Tracking*, ACM SIGCHI Conference on Designing Interactive Systems (DIS) 2023.

Patent & Software Copyrights

[P1] Jorge Henrique Ono, **Xiaoyu Zhang,** Liang Gou, Liu Ren: System and method for efficient analyzing and comparing slice-based machine learn models. US Patent (US20240135160A1).

[P2] Jorge Henrique Ono, **Xiaoyu Zhang**, Huan Song, Liang Gou, Liu Ren: System and method for a visual analytics framework for slice-based machine learn models. US Patent (US20240135159A1).

[P3] Yingying She, **Xiaoyu Zhang**, Wenyong Zheng, Yao Fu, Yishi Shi: Micro-blog Explosive Events Detection and Analysis System V1.0. Xiamen University. Registration No.: 2015SR218554.

[P4] Yingying She, **Xiaoyu Zhang**, Wenyong Zheng, Yao Fu, Yishi Shi: Micro-blog Explosive Events Detection and Analysis System (iOS Version) V1.0. Xiamen University. Registration No.: 2015SR218546.

Contribution to Funded Grants

[G1] *Visualizing and Structuring Semantic Information in Machine Maintenance Logs based on Domain Ontology*.
(PI: Kwan-Liu Ma) National Institute of Standards and Technology, 2021-NIST-MSE-01, $89,505.00.
Proposed research ideas and wrote the majority of the proposal.

[G2] *Visualization-Guided Technical Language Processing for Machine Maintenance Logs*.
(PI: Kwan-Liu Ma) National Institute of Standards and Technology, 2020-NIST-MSE-01, $89,505.00.
Provided some initial work on which the project is based, detailed development and evaluation plan.

Teaching

Instructor

• SM6351 Information Visualization (Graduate)	Fall 2025
• SM2705 Creative Coding (Undergraduate)	Spring 2025
• SM1103 Introduction to Media Computing (Undergraduate)	Fall 2024
• 263-5051-00L AI Center Projects in Machine Learning Research (Graduate)	Spring 2024
• ECS 32B Introduction to Data Structures (Undergraduate)	Summer 2022

Guest Lecturer

• ECS 273 Visual Analytics (Graduate)	Win 2023
• ECS 272 Information Visualization (Graduate)	Fall 2022
• ECS 289H AI for Visualizing Data (Graduate)	Win 2022

Teaching Assistant

• ECS 32B Introduction to Data Structures (Undergraduate)	Fall2019, Win2019
• ECS 36C Data Structures (Undergraduate)	Spring2019

Student Mentoring

• Yi Xu, Ph.D. Student, City University of Hong Kong	Sep. 2024 - Present
• Yunzhong Luo, Ph.D. Student, CityU & Xi'an Jiaotong University Joint Program	Sep. 2024 - Present
• Vincent Dorig, Undergraduate Student, ETH Zurich	Sep. 2023 - Present
• Xiwei Xuan, Ph.D. Student, UC Davis [J4, J5]	June 2021 - Oct. 2022
• Po-Wei Chi, Master Student, UC Davis [J3]	Feb. 2021 - June 2021

Invited Talks

- *Visual Analytics for Machine Learning Model Validation*
  The 13th International Conference on Computational Visual Media (CVM 2025) Workshop Apr. 2025

- *Harmonizing Assistance: Moderating Visual and Textual Aids in AI-Enhanced Textbook Reading*
  ETH Zurich Refresh Teaching Series Seminar Mar. 2025

- *Use of Color in Reporting Academic Results*
  Kowloon Interaction Center (KLIC) Academic Seminar Oct. 2024

- *Interactive Human-AI Collaboration for Knowledge Exploration and Exploitation*
  Digital Doman x CityU Faculty Symposium, City University of Hong Kong, Hong Kong Aug. 2024

- *Fight or Friend? Unraveling the New Evolution of Education with VIS×LLM*
  Lightning Talk at 6th Workshop on Visualization for AI Explainability, VIS 2023 Oct. 2023

- *NLP x Visualization for Interactive Knowledge Exploration and Exploitation*
  Meta x ETH AI Center Fellow Symposium, ETH Zurich Sep. 2023

- *Visual Text Analytics*
  Guest Lecture for ECS273 Visual Analytics, University of California, Davis Jan. 2023

- *Visual Analytics for Knowledge Exploration and Exploitation in Industry 4.0*
  VAT Valves x ETH AI Center Fellow Symposium Aug. 2023

- *Visual Analytics for Knowledge Exploration and Exploitation*
  Lab Tour for San Joaquin Delta College Student, University of California, Davis Nov. 2022

- *Visual Analytics for Knowledge Exploration and Exploitation*
  Center of Digital Media Computation, Xiamen University Oct. 2022

- *Text Data Visualization*
  Guest Lecture for ECS272 Information Visualization, University of California, Davis Oct. 2022

- *Visual Analytics for Knowledge Exploration and Exploitation*
  Envision UC Davis, University of California, Davis Oct. 2022

- *Text Data Visualization*
  Guest Lecture for ECS289H AI for Visualizing Data, University of California, Davis Feb. 2022

Service

Program Chair
- Greater Bay ACM SIGCHI Chapter Pre-CHI Symposium 2025 2025

Associate Chair
- ACM CHI Conference on Human Factors in Computing Systems 2025, 2026

Conference Session Chair
- ACM CHI Conference on Human Factors in Computing Systems 2023, 2025

Conference Paper Review
- IEEE VIS Conference 2022, 2023, 2024, 2025
- ACM CHI Conference on Human Factors in Computing Systems 2022, 2023, 2024, 2025
- ACM Conference on Intelligent User Interfaces 2022

Invited Journal Review
- ACM Transactions on Interactive Intelligent Systems 2022

Volunteer
- Bay Area Science Festival 2022 2022
- Siggraph Asia 2016 2016

Student Club

- President of ZJU Toastmasters Speech Club, Toastmasters International 2017

Awards

- GGCS Fall Graduate Studies Travel Award, UCDavis Sep. 2022
- 2022 GGCS Best Graduate Researcher Award (1 out of 320), UCDavis June 2022
- GGCSSpring Graduate Studies Travel Award, UCDavis May 2022
- GGCS Graduate Program Fellowship 2020-21, UCDavis Apr. 2021
- VMWare Excellent Student Fellowship Nov. 2017
- "Graduate of Merit/Triple A graduate", Zhejiang University Nov. 2017
- "Award of Honor for Graduate", Zhejiang University Nov. 2017
- Academic Scholarship, Zhejiang University Sep. 2015
- "Young Eagle Fellowship", Xiamen University June 2015
- Second Prize of the Computer Software Design Contest of Fujian Province Dec. 2014
- Second Prize of the National College Artificial Intelligence Design Contest July 2014
- Meritorious Winner (First Prize) of American College Mathematical Contest in Modeling Apr. 2014
- "Excellent Merit Student", Xiamen University Dec. 2014
- "Jin Zhaofen & Cao Qianlong Fellowship", Xiamen University Apr. 2013
- First Prize of the Outstanding Student Fellowship, Xiamen University Oct. 2012