

XIAOYU ZHANG

✉ xybzhang@ucdavis.edu · 🏠 [Homepage](#) · 🎓 [Google Scholar](#)

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 **visual analytics, information visualization, and human-computer interaction**. Specifically, I contribute interactive tools that incorporate visual analytics (VA) techniques with state-of-the-art machine learning techniques, especially **natural language processing**, to support **knowledge exploration and exploitation** processes for domain practitioners.

Professional Experience

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

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 [J1]

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 [J2]

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 [J9]

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**, 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**
- [J2] 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.
- [J3] **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.
- [J4] **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).
- [J5] 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.
- [J6] **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).
- [J7] **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).
- [J8] 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.
- [J9] **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.
- [J10] 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] 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: A Method for Estimating the Performance of Slice-Based Machine Learning Model Optimizations. US Patent (to appear).
- [P2] Jorge Henrique Ono, **Xiaoyu Zhang**, Huan Song, Liang Gou, Liu Ren: A Visual Analytics Framework for Slice-Based Machine Learning Model Evaluation and Iteration. US Patent (to appear).
- [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

- 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

- 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 Textual Data*
Guest Lecture for ECS273 Visual Analytics, University of California, Davis Jan. 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

Conference Session Chair

- ACM CHI Conference on Human Factors in Computing Systems 2023

Conference Paper Review

- IEEE VIS Conference 2022, 2023
- ACM CHI Conference on Human Factors in Computing Systems 2022
- 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

- Fall Graduate Studies Travel Award Sep. 2022
- 2022 GGCS Best Graduate Researcher Award (1 out of 320) June 2022
- Spring Graduate Studies Travel Award May 2022
- GGCS Graduate Program Fellowship 2020-21 Apr. 2021
- VMWare Excellent Student Fellowship Nov. 2017
- "Graduate of Merit/Triple A graduate" of Zhejiang University Nov. 2017
- "Award of Honor for Graduate" of Zhejiang University Nov. 2017
- Academic Scholarship of Zhejiang University Sep. 2015
- "Young Eagle Fellowship" of 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 (MCM) 2014 Apr. 2014
- "Excellent Merit Student" of Xiamen University Dec. 2014
- "Jin Zhaofen & Cao Qianlong Fellowship" of Xiamen University Apr. 2013
- First Prize of the Outstanding Student Fellowship Oct. 2012

Skills

- Computer: Python, D3, Javascript, C/C++, OpenGL, Maya, Unity 3D
- Languages: English (fluent), Madarin (native)

References

Kwan-Liu Ma, Ph.D. (Ph.D. Advisor)
Distinguished Professor
Department of Computer Science
2063 Kemper Hall
University of California-Davis
One Shields Avenue
Davis, CA 95616-8562
klma@ucdavis.edu

Liu Ren, Ph.D.
VP and Chief Scientist
Integrated Human-Machine Intelligence (AI)
Robert Bosch Research, Bosch Center for AI
384 Santa Trinita Ave
Sunnyvale, CA 94085, U.S.
liu.ren@us.bosch.com

Senthil Chandrasegaran, Ph.D.
Assistant Professor
Faculty of Industrial Design Engineering
Delft University of Technology (TU Delft)
Leeghwaterstraat 5
2628 CA Delft, The Netherlands
r.s.k.chandrasegaran@tudelft.nl

Bin Zheng, Ph.D.
Associate Professor
Department of Surgery
Division of Surgical Research
11207 - 87 Ave NW
Edmonton, AB T6G 2S2, Canada
bzheng1@ualberta.ca