

# XIAOYU ZHANG

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

## Education

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**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

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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

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**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 Scaffolds for 3D Printing

## Publications

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### 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*, conditionally accepted by CHI Conference on Human Factors in Computing Systems 2023.
- [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*, conditionally accepted by IEEE PacificVis 2023.
- [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.

## Patent & Software Copyrights

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- [P1] 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.
- [P2] 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

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- [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. 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. Provided some initial work on which the project is based, detailed development and evaluation plan.

## Teaching

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### 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

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- 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

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- *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

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### Conference Paper Review

- IEEE VIS Conference 2022
- 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

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- 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 Zhao fen & Cao Qianlong Fellowship" of Xiamen University Apr. 2013
- First Prize of the Outstanding Student Fellowship Oct. 2012

## Skills

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