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 **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

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 [J7]

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] 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.

[J4] **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).

[J5] **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).

[J6] 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.

[J7] **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.

[J8] 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.

Under Review

[R1] **Xiaoyu Zhang**, Kelvin Li, Po-Wei Chi, Senthil Chandrasegaran, and Kwan-Liu Ma: *ConceptEVA: Concept-Based Interactive Exploration and Customization of Document Summaries*, submitted to CHI Conference on Human Factors in Computing Systems 2023.

[R2] **Xiaoyu Zhang**, Xiwei Xuan, Alden Dima, Thurston Sexton, and Kwan-Liu Ma: *LabelVizier: Interactive Validation and Relabeling for Technical Text Annotations from Weak Supervision*, submitted to PacificVis 2022.

Patent & Software Copyrights

[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

[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

Instructor
- ECS32B Introduction to Data Structures (Undergraduate)   Summer 2022

Guest Lecturer
- ECS272 Information Visualization (Graduate)   Fall 2022
- ECS289H AI for Visualizing Data (Graduate)   Win 2022

Teaching Assistant
- ECS32B Introduction to Data Structures (Undergraduate)   Fall2019, Win2019
- ECS36C Data Structures (Undergraduate)   Spring2019

Student Mentoring

- Xiwei Xuan, Ph.D. Student, UC Davis [J2, R2]   June 2021 - Oct. 2022
- Po-Wei Chi, Master Student, UC Davis [R1]   Feb. 2021 - June. 2021

Invited Talks

- *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 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

- 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)