Yuxin Ma

Associate Professor
Department of Computer Science and Engineering mayx@sustech.edu.cn
Southern University of Science and Technology (SUSTech) http://cse.sustech.edu.cn/faculty/~mayx/
Shenzhen, Guangdong Province, China

RESEARCH INTERESTS

- Data Visualization, Visual Analytics, Explainable AI, Human-Computer Interaction

EDUCATION

- Ph.D. in Computer Science, Zhejiang University, China. *Sept. 2012 - Dec. 2017*
  - Supervisor: Prof. Wei Chen
- B.Eng. in Software Engineering, Zhejiang University, China. *Sept. 2008 - June 2012*

PROFESSIONAL EXPERIENCE

- **Tenure-Track Associate Professor**, Department of Computer Science and Engineering, Southern University of Science and Technology. China. *Dec. 2022 - present*
- **Tenure-Track Assistant Professor**, Department of Computer Science and Engineering, Southern University of Science and Technology. China. *July 2021 - Dec. 2022*
- **Postdoctoral Research Associate**, VADER Lab, School of Computing, Informatics, and Decision Systems Engineering (CIDSE), Arizona State University. USA. *Apr. 2018 - May 2021*
  - Supervised by Prof. Ross Maciejewski
- **Research Intern**, Sensor-enhanced Social Media (SeSaMe) Research Center, National University of Singapore. Singapore. *Jan. 2016 - Jan. 2017*
  - Supervised by Prof. Anthony K. H. Tung

PUBLICATIONS

- corresponding author; **bold** - mentored student

[1] Shuangcheng Jiao, Jiang Cheng, Zhaosong Huang, Tong Li, Tiankai Xie, Wei Chen, Yuxin Ma#, Xumeng Wang#. DPKnob: A Visual Analysis Approach to Risk-aware Formulation of Differential Privacy Schemes for Data Query Scenarios. *Visual Informatics*, 8(3):42-52. 2024.

[2] **Zherui Zhang**, **Fan Yang**, Ran Cheng, and Yuxin Ma#. ParetoTracker: Understanding Population Dynamics in Multi-objective Evolutionary Algorithms through Visual Analytics. *IEEE Transactions on Visualization and Computer Graphics*. 2024. (to appear)

[3] **Huanchen Wang**, Minzhu Zhao, Wanyang Hu, Yuxin Ma, and Zhicong Lu. Critical Heritage Studies as a Lens to Understand Short Video Sharing of Intangible Cultural Heritage on Douyin. *ACM CHI Conference on Human Factors in Computing Systems*. 2024.

[4] Yingchaojie Feng, Xingbo Wang, Bo Pan, Kam Kwai Wong, Yi Ren, Shi Liu, Zihan Yan, Yuxin Ma, Huamin Qu, and Wei Chen. XNLI: Explaining and Diagnosing NLI-based Visual Data Analysis. *IEEE Transactions on Visualization and Computer Graphics*, 30(7):3813-3827. 2024.

[5] **Yansong Huang**, **Zherui Zhang**, **Ao Jiao**, Yuxin Ma[#], and Ran Cheng. A Comparative Visual Analytics Framework for Evaluating Evolutionary Processes in Multi-objective Optimization. *IEEE Transactions on Visualization and Computer Graphics*, 30(1):661-671. 2024.

[6] Fan Lei, Yuxin Ma[#], Stewart Fotheringham, Elizabeth Mack, Ziqi Li, Mehak Sachdeva, Sarah Bardin, and Ross Maciejewski. GeoExplainer: A Visual Analytics Framework for Spatial Modeling Contextualization and Report Generation. *IEEE Transactions on Visualization and Computer Graphics*, 30(1):1391-1401. 2024.

[7] Fumeng Yang, Yuxin Ma, Lane Harrison, James Tompkin, and David H. Laidlaw. How Can Deep Neural Networks Aid Visualization Perception Research? Three Studies on Correlation Judgments in Scatterplots. *ACM CHI Conference on Human Factors in Computing Systems*. 2023.

[8] Xiaolin Wen, Yong Wang, Meixuan Wu, Fengjie Wang, Xuanwu Yue, Qiaomu Shen, Yuxin Ma, and Min Zhu. DiffSeer: Difference-Based Dynamic Weighted Graph Visualization. *IEEE Computer Graphics and Applications*, 43(3):12-23. 2023.

[9] Ziliang Wu, Wei Chen, Yuxin Ma, Tong Xu, Fan Yan, Lei Lv, Zhonghao Qian, and Jiazhi Xia. Explainable Data Transformation Recommendation for Automatic Visualization. *Frontiers of Information Technology and Electronic Engineering*, 24(7):1007-1027. 2023.

[10] Arlen Fan, Yuxin Ma[#], Michelle Mancenido, and Ross Maciejewski. Annotating Line Charts for Addressing Deception. *ACM CHI Conference on Human Factors in Computing Systems*. 2022. (**Honorable Mention Award**)

[11] Tiankai Xie, Yuxin Ma, Jian Kang, Hanghang Tong, and Ross Maciejewski. FairRankVis: A Visual Analytics Framework for Exploring Algorithmic Fairness in Graph Mining Models. *IEEE Transactions on Visualization and Computer Graphics*, 28(1):368-377. 2022.

[12] Brandon Mathis, Yuxin Ma, Michelle Mancenido, and Ross Maciejewski. Exploring the Design Space of Sankey Diagrams for the Food-Energy-Water Nexus. *IEEE Computer Graphics and Applications*, 41(2):25-34. 2021.

[13] Ross Maciejewski, Yuxin Ma, and Jonas Lukasczyk. The Visual Analytics and Data Exploration Research Lab at Arizona State University. *Visual Informatics*, 5(1):14-22. 2021.

[14] Yuxin Ma, Arlen Fan, Jingrui He, Arun Reddy Nelakurthi, and Ross Maciejewski. A Visual Analytics Framework for Explaining and Diagnosing Transfer Learning Processes. *IEEE Transactions on Visualization and Computer Graphics*, 27(2):1385-1395. 2021.

[15] Tiankai Xie, Yuxin Ma, Hanghang Tong, My Thai, and Ross Maciejewski. Auditing the Sensitivity of Graph-based Ranking with Visual Analytics. *IEEE Transactions on Visualization and Computer Graphics*, 27(2):1459-1469. 2021.

[16] Yuxin Ma and Ross Maciejewski. Visual Analysis of Class Separations with Locally Linear Segments. *IEEE Transactions on Visualization and Computer Graphics*, 27(1):241-253. 2021.

[17] Yuxin Ma, Prannoy Chandra Pydi Medini, Jake R. Nelson, Ran Wei, Tony H. Grubesic, Jorge Sefair, and Ross Maciejewski. A Visual Analytics System for Oil Spill Response and Recovery. *IEEE Computer Graphics and Applications*, 41(6):91-100. 2021.

[18] Yuxin Ma, Tiankai Xie, Jundong Li, and Ross Maciejewski. Explaining Vulnerabilities to Adversarial Machine Learning through Visual Analytics. *IEEE Transactions on Visualization and Computer Graphics*, 26(1):1075-1085. 2020.

[19] Yuxin Ma, Anthony K. H. Tung, Wei Wang, Xiang Gao, Zhigeng Pan, and Wei Chen. ScatterNet: A Deep Subjective Similarity Model for Visual Analysis of Scatterplots. *IEEE Transactions on Visualization and Computer Graphics*, 26(3):1562-1576. 2020.

[20] Minfeng Zhu, Wei Chen, Jiazhi Xia, Yuxin Ma, Yankong Zhang, Yuetong Luo, Zhaosong Huang, and Liangjun Liu. Location2Vec: A Situation-Aware Representation for Visual Exploration of Urban Locations. *IEEE Transactions on Intelligent Transportation Systems*, 20(10):3981-3990. 2019.

[21] Kezhi Kong, Yuxin Ma, Chentao Ye, Junhua Lu, Xiqun Chen, Wei Zhang, and Wei Chen. A Visual Analytics Approach for Traffic Flow Prediction Ensembles. In *Proceedings of the Pacific Conference on Computer Graphics and Applications (Short Paper)*, 61-64. 2018.

[22] Honghui Mei, Wei Chen, Yuxin Ma, Huihua Guan, and Wanqi Hu. VisComposer: A Visual Programmable Composition Environment for Information Visualization. *Visual Informatics*, 2(1):71-81. 2018.

[23] Jiazhi Xia, Fenjin Ye, Wei Chen, Yusi Wang, Weifeng Chen, Yuxin Ma, and Anthony K. H. Tung. LDSScanner: Exploratory Analysis of Low-Dimensional Structures in High-Dimensional Data. *IEEE Transactions on Visualization and Computer Graphics*, 24(1):236-245. 2018.

[24] Honghui Mei, Yuxin Ma, Yating Wei, and Wei Chen. The Design Space of Construction Tools for Information Visualization: A Survey. *Journal of Visual Languages & Computing*, 44:120-132. 2017.

[25] Yuxin Ma, Wei Chen, Xiaohong Ma, Jiayi Xu, Xinxin Huang, Ross Maciejewski, and Anthony K. H. Tung. EasySVM: A Visual Analysis Approach for Open-Box Support Vector Machines. *Computational Visual Media*, 3(2):161-175. 2017. (**CVMJ Honorable Mention Award**)

[26] Yuxin Ma, Jiayi Xu, Wei Chen, Xiangyang Wu, and Fei Wang. A Visual Analytical Approach for Transfer Learning in Classification. *Information Science*, 390:54-69. 2017.

[27] Junhua Lu, Wei Chen, Yuxin Ma, Junming Ke, Zongzhuang Li, Fan Zhang, and Ross Maciejewski. Recent Progress and Trends in Predictive Visual Analytics. *Frontiers of Computer Science*, 11(2):192-207. 2017.

[28] Tianye Zhang, Xumeng Wang, Zongzhuang Li, Fangzhou Guo, Yuxin Ma, and Wei Chen. A Survey of Network Anomaly Visualization. *Science China Information Sciences*, 60(12):121101. 2017.

[29] Yuxin Ma, Tao Lin, Zhendong Cao, Chen Li, and Wei Chen. Mobility Viewer: An Eulerian Approach for Studying Urban Crowd Flow. *IEEE Transactions on Intelligent Transportation Systems*, 17(9):2627-2636. 2016.

[30] Xumeng Wang, Tianye Zhang, Yuxin Ma, Jing Xia, and Wei Chen. A Survey of Visual Analytic Pipelines. *Journal of Computer Science and Technology*, 31(4):787-804. 2016.

[31] Ramon Bespinyowong, Wei Chen, H. V. Jagadish, and Yuxin Ma. ExRank: An Exploratory Ranking Interface. *Proceedings of the VLDB Endowment*, 9(13):1529-1532. 2016.

[32] Yuxin Ma, Zhendong Cao, and Wei Chen. A Survey of Visualization-driven Interactive Data Mining Approaches. *Journal of Computer-Aided Design and Computer Graphics*, 28(1):1-8. 2015. (in Chinese)

[33] Yuxin Ma, Jiayi Xu, Dichao Peng, Ting Zhang, Chengzhe Jin, Huamin Qu, Wei Chen, and Qunsheng Peng. A Visual Analysis Approach for Community Detection of Multi-Context Mobile Social Networks. *Journal of Computer Science and Technology*, 28(5):797-809. 2013.

BOOK CHAPTERS

- Yuxin Ma, Wei Chen. "Chapter 3: Data" in *Data Visualization*, 1st Edition (in Chinese). ISBN:9787121211546. Publishing House of Electronics Industry. 2013.

HONOR & AWARDS

- "Outstanding Comprehensive MC1 Submission" Award for IEEE VAST Challenge 2023 *2023*
- ACM CHI 2022 Paper Honorable Mention Award *2022*
- Outstanding Reviewer for ChinaVis 2021 *2021*
- Computational Visual Media Journal (CVMJ) Honorable Mention Award in 2017 *2018*
- Lu Zengyong CAD&CG High-Tech Award (Third Prize) *2016*

INVITED TALKS

- "Visual Analytics on Intelligent Decision Making". School of Computer and Electronic Information, Nanjing Normal University. Nanjing, China. *Nov. 2023*
- "Visual Analytics on Explainable Machine Learning". College of Computer Science and Technology, Zhejiang University of Technology. Hangzhou, China. *Feb. 2023*
- "Recent Topics on Visual Analytics". CCF Conference on CAD/CG 2021+2022. Dalian, China. *Aug. 2022*
- "Visual Analytics on Intelligent Decision Making". CCF Conference on BigData 2021. Guangzhou, China. *Jan. 2022*
- "Exploring the Design Space of Sankey Diagrams for the Food-Energy-Water Nexus". IEEE VIS 2021 (CG&A Session). Virtual. *Oct. 2021*
- "Visual Analytics on Explainable Machine Learning". China Visualization and Visual Analytics Conference (ChinaVis). Wuhan, China. *July 2021*
- "Visual Analytics on Explainable Machine Learning". Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences. Shenzhen, China. *July 2021*
- "Explaining Vulnerabilities to Adversarial Machine Learning through Visual Analytics". IEEE Conference on Visual Analytics Science and Technology (VAST). Vancouvor, Canada. *Oct. 2019*
- "Data Analysis Approaches by Combining Visualization and Data Mining". School of Computing, Informatics, and Decision Systems Engineering, Arizona State University. Tempe, USA. *July 2018*
- "Interactive Visual Data Mining". The 9th Visualization Summer School of Zhejiang University. Hangzhou, China. *July 2017*

- "A Visual Analysis Approach for Apache Spark Running Performance". SeSaMe Research Center Workshop, National University of Singapore. Singapore. *July 2016*
- "High-dimensional Data Visualization". The 8th Visualization Summer School of Zhejiang University. Hangzhou, China. *Aug. 2016*
- "Mobility Viewer: Visualizing Urban Crowd Flows". SeSaMe Workshop. SeSaMe Research Center Workshop, National University of Singapore. Singapore. *Jan. 2016*
- "EasySVM: A Visual Analysis Approach for Open-Box Support Vector Machines". IEEE VIS Workshop on Visualization for Predictive Analytics. Paris, France. *Nov. 2014*

ACADEMIC SERVICES

- Poster Co-Chair, Graphics And Mixed Environment Symposium (GAMES). *2022*
- Symposium Committee Member, China Visualization and Visual Analytics Conference (ChinaVis). *2022, 2023, 2024*
- Program Committee Member, IEEE VIS. *2022, 2023, 2024*
- Program Committee Member, China Visualization and Visual Analytics Conference (ChinaVis). *2021, 2022, 2023, 2024*
- Program Committee Member, PacificVis Visualization Meets AI Workshop. *2021, 2022*
- Program Committee Member, AAAI Conference on Artificial Intelligence. *2021*
- Program Committee Member, Computational Visual Media Conference (CVM). *2023*
- Member, Young Advisory Board, Visual Informatics. *2021 - present*
- Member, Technical Committee on Visualization and Visual Analytics, China Society of Image and Graphics (CSIG). *2021 - present*
- Member, Technical Committee on CAD and Graphics, China Computer Federation (CCF). *2021 - present*
- Reviewer, IEEE VIS 2019, 2020, 2021.
- Reviewer, ACM CHI Conference on Human Factors in Computing Systems (CHI) 2020.
- Reviewer, Eurographics/IEEE-VGTC Symposium on Visualization (EuroVis) 2019, 2020, 2021.
- Reviewer, IEEE Pacific Visualization Symposium (PacificVis) 2019, 2022.
- Reviewer, China Visualization and Visual Analytics Conference (ChinaVis) 2019.
- Reviewer, IEEE Transactions on Visualization and Computer Graphics (TVCG).
- Reviewer, IEEE Transactions on Knowledge and Data Engineering (TKDE).

TEACHING EXPERIENCE

- Lecturer, Principles of Database Systems (CS307), SUSTech. *Spring 2022, Spring 2023, Spring 2024*

- Lecturer, Introduction to Computer Programming (CS102A / CS109), SUSTech.
  Autumn 2021, Autumn 2022, Autume 2023
- Teaching Assistant, Data Visualization (Lecturer: Prof. Wei Chen), Zhejiang University.
  Autumn 2012, Autumn 2013

MENTORING

- PhD Students: Huanchen Wang (2022 - present, co-supervised with Zhicong Lu from CityU of Hong Kong); Jiaping Li (2024 - present)
- Masters Students: Zherui Zhang (2021-2024; First Job at China Life Insurance Company); Yusong Cui (2022 - present); Fang Zhu (2022 - present); Yingying Huang (2023 - present); Bao Zhang (2023 - present); Kejie Zhao (2023 - present); Wenjia Hua (2023 - present); Wencheng Zhang (2024 - present); Xufei Zhu (2024 - present); Shiqiang Hong (2024 - present)

LANGUAGES

- **Chinese (Mandarin)** - Native
- **English** - Professional working proficiency