

Yuxin Ma

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RESEARCH INTERESTS

- Visual Analytics, Information Visualization, Explainable AI

EDUCATION

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

RESEARCH EXPERIENCES

- Postdoctoral Research Associate, VADER Lab, School of Computing, Informatics, and Decision Systems Engineering (CIDSE), Arizona State University. *Apr. 2018 - Now*
 - Supervised by Prof. Ross Maciejewski
- Research Intern, Sensor-enhanced Social Media (SeSaMe) Research Center, National University of Singapore. *Jan. 2016 - Jan. 2017*
 - Supervised by Prof. Anthony K. H. Tung

PUBLICATIONS

- [21] **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*. 2020. (Early Access) (CCF A, JCR Q1)
- [20] 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*. 2020. (Early Access) (CCF A, JCR Q1)
- [19] **Yuxin Ma** and Ross Maciejewski. Visual Analysis of Class Separations with Locally Linear Segments. *IEEE Transactions on Visualization and Computer Graphics*. 2020. (Early Access) (CCF A, JCR Q1)
- [18] **Yuxin Ma**, Prannoy Chandra Pydi Medini, Jake R. Nelson, Ran Wei, Tony H. Grubestic, Jorge Sefair, and Ross Maciejewski. A Visual Analytics System for Oil Spill Response and Recovery. *IEEE Computer Graphics and Applications*. 2020. (Early Access) (JCR Q2)
- [17] **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. (CCF A, JCR Q1)
- [16] **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. (CCF A, JCR Q1)
- [15] 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*. 2019. (Early Access) (JCR Q2)
- [14] 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. (CCF B, JCR Q1)
- [13] 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.

- [12] 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.
- [11] 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. (CCF A, JCR Q1)
- [10] 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. (JCR Q3)
- [9] **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. **(2017 CVM Journal Honorable Mention Award)**
- [8] **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. (CCF B, JCR Q1)
- [7] 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. (CCF C, JCR Q2)
- [6] 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. (CCF B, JCR Q1)
- [5] **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. (CCF B, JCR Q1)
- [4] 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. (CCF B, JCR Q2)
- [3] Ramon Bospinyowong, Wei Chen, H. V. Jagadish, and **Yuxin Ma**. ExRank: An Exploratory Ranking Interface. *Proceedings of the VLDB Endowment*, 9(13):1529-1532. 2016.
- [2] **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)
- [1] **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. (CCF B, JCR Q2)

BOOK CHAPTER

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

GRANT WRITING EXPERIENCE

- “FAI: Towards a Computational Foundation for Fair Network Learning”. National Science Foundation, \$601,592, Jan. 2020 - Dec. 2022.
 - Contributed to the sections on Explainable AI systems for interpreting, auditing, and debiasing fairness issues in network learning.

OPEN-SOURCED PROJECTS

- Visual Analysis of Class Separations with Locally Linear Segments *Sept. 2020*
 - Repository: <https://github.com/wintericie/visual-analysis-class-boundary>
 - Demo: https://youtu.be/00sDXx_5hSg
- A Visual Analytics Framework for Explaining and Diagnosing Transfer Learning Processes *July 2020*
 - Repository: <https://github.com/VADERASU/visual-analytics-for-deep-transfer-learning>
 - Demo: https://youtu.be/jqfs8l_GpYI

- Explaining Vulnerabilities to Adversarial Machine Learning through Visual Analytics *July 2019*
 - Repository: <https://github.com/VADERASU/visual-analytics-adversarial-attacks>
 - Demo: <https://youtu.be/eMyhe7WcOXc>

INVITED TALKS

- “Explaining Vulnerabilities to Adversarial Machine Learning through Visual Analytics”. IEEE Conference on Visual Analytics Science and Technology (VAST). Vancouver, Canada. *Oct. 2019*
- “Data Analysis Approaches by Combining Visualization and Data Mining”. School of Computing, Informatics, and Decision Systems Engineering, Arizona State University. *July 2018*
- “Interactive Visual Data Mining”. The 9th Visualization Summer School of Zhejiang University. Zhejiang University, China. *July 2017*
- “A Visual Analysis Approach for Apache Spark Running Performance”. SeSaMe Workshop. SeSaMe Research Center, National University of Singapore. *July 2016*
- “High-dimensional Data Visualization”. The 8th Visualization Summer School of Zhejiang University. Zhejiang University, China. *Aug. 2016*
- “Mobility Viewer: Visualizing Urban Crowd Flows”. SeSaMe Workshop. SeSaMe Research Center, National University of 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*

HONORS & AWARDS

- 2017 CVM Journal Honorable Mention Award *2018*
- The Third Prize of Zengyong Lu CAD&CG High Technology Award, Zhejiang University *2016*
- Honorable Graduate Student Award, Zhejiang University *2014, 2015, 2016*

ACADEMIC SERVICES

- Reviewer, IEEE Conference on Visual Analytics Science and Technology (VAST). 2019, 2020.
- Reviewer, ACM Conference on Human Factors in Computing Systems (CHI). 2020.
- Reviewer, IEEE Transactions on Knowledge and Data Engineering (TKDE). 2018.
- Reviewer, Eurographics/IEEE-VGTC Symposium on Visualization (EuroVis). 2019, 2020.
- Reviewer, IEEE Pacific Visualization Symposium (PacificVis), 2019, 2020.
- Reviewer, China Visualization and Visual Analytics Conference (ChinaVis). 2019.
- Reviewer, Visual Informatics. 2018, 2019, 2020.

TEACHING EXPERIENCES

- Teaching Assistant, Data Visualization (Lecturer: Prof. Wei Chen), Zhejiang University. *Sept. 2013 - Jan. 2014*
- Teaching Assistant, Data Visualization (Lecturer: Prof. Wei Chen), Zhejiang University. *Sept. 2012 - Jan. 2013*

LANGUAGES

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