Johnny Yutian Zhang

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Short Bio.

Yutian Zhang is a graduate student pursuing an M.S. degree in the School of Intelligent Systems Engineering at Sun Yat-sen University, under the supervision by Prof. Haipeng Zeng. His research interests include visual analytics, urban big data and interpretable artificial intelligence.

Education

Sun Yat-sen University, Postgraduate — Sept 2022 – Present

- GPA: 3.96/5.0 (Rank 1/18)
- **Research Interests:** Visual Analytics, Data Visualization, Transportation Big Data

Sun Yat-sen University, B.S. in Traffic Engineering — Sept 2018 – June 2022

- GPA: 3.98/5.0 (Rank 5/69)
- **Coursework:** Traffic Big Data, Machine Learning, Internet of Vehicles, Image Processing and Computer Vision

Publications

CSLens: Towards Better Deploying Charging Stations via Visual Analytics —— A Coupled Networks Perspective — July 2024

Yutian Zhang, Liwen Xu, Shaocong Tao, Quanxue Guan, Quan Li, Haipeng Zeng

IEEE Transactions on Visualization and Computer Graphics (IEEE VIS 2024)

MARLens: Understanding Multi-agent Reinforcement Learning for Traffic Signal Control via Visual Analytics — April 2024

Yutian Zhang, Guohong Zheng, Zhiyuan Liu, Quan Li, Haipeng Zeng

IEEE Transactions on Visualization and Computer Graphics

EVCSeer: An Exploratory Study on Electric Vehicle Charging Stations Utilization via Visual Analytics — April 2024

Yutian Zhang, Shuxian Gu, Quan Li, Haipeng Zeng

IEEE Computer Graphics and Applications

Projects

Human-Controllable Image Generation in Autonomous Driving — Sept 2023 - Present

- Developed an interactive interface to assist users in generating test samples for autonomous driving, including extreme weather, light conditions and adding objects

Charging Station Location Problem based on Visual Analytics — Jan 2022 - Present

- Applied data mining and machine learning techniques to analyze key factors, such as traffic hotspots, points of interest and charging price
- Developed visual analytics systems to support the decision-making process for charging station deployment
- One prototype system won 3rd prize in the 17th National Competition of Transport Science and Technology for Students (July 2022)

Interpretability of Reinforcement-learning-based Traffic Signal Control — Jan 2023 - April 2024

- Utilized novel visual design and model-agnostic algorithms to understand agents' policies and reveal the decision-making process
- Developed visual analytics systems to explore reinforcement-learning-based traffic signal control models
- One prototype system won 2rd prize in the 18th National Competition of Transport Science and Technology for Students (July 2023)

ChinaVis 2023 Visual Analytics Challenge May 2023 - June 2023

- Designed and developed a visual analytics system to explore the spatial-temporal patterns of a road network
- Tools Used: Python, QGIS, D3.js, Vue.js

Cellular Data Analysis Oct 2022 - Dec 2022

- Preprocessed raw cellular data and analyzed city-level mobility
- Tools Used: Python

Honors and Awards

2021: National Scholarship, Ministry of Education of China

2018 - 2021 Excellent Student Scholarship, Sun Yat-sen University

2019 - 2021 Traffic Education Scholarship, School of Intelligent Systems Engineering, Sun Yat-sen University

Invited Talk

CSLens: Towards Better Deploying Charging Stations via Visual Analytics —— A Coupled Networks Perspective Oct 2024

the 2024 IEEE Visualization and Visual Analytics Conference (VIS 2024)

St. Pete Beach, Florida, US

CSLens: Towards Better Deploying Charging Stations via Visual Analytics —— A Coupled Networks Perspective July 2024

the 11th China Visualizationand Visual Analytics Conference (ChinaVis 2024)

Hong Kong, China

MARLens: Understanding Multi-agent Reinforcement Learning for Traffic Signal Control via Visual Analytics May 2024

GAMES Webinar Vol.332: Human-AI Collaboration & Forum for Graduate Student Growth

Online

Teaching Assistant Experience

Visualization and Visual Analytics Feb 2024 - July 2024

- Prepared code examples for D3.js and web development, designed assignments and projects

Software Engineering Feb 2023 - July 2023

- Refined course materials and designed quizzes

Skills

Coding: Python, JavaScript, SQL

Data Analysis: Pandas, Matplotlib, Numpy

Machine Learning: Scikit-learn, PyTorch

Web Development/Design: D3.js, Vue.js, Bootstrap, Flask/Django, Figma

Other: Photography, Piano