

# Johnny Yutian Zhang

Shenzhen, China | zhangyt85@mail2.sysu.edu.cn | <https://thunderzh99.github.io/>

## Short Bio.

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Yutian Zhang is a graduate student pursuing a master's degree in the School of Intelligent Systems Engineering at Sun Yat-sen University, under the supervision of Prof. Haipeng Zeng. His research primarily focuses on visual analytics, interpretable artificial intelligence, and urban big data.

## Education

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**Sun Yat-sen University**, M.S student Sept 2022 – Present

- GPA: 3.96/5.0 | Rank: 1/18
- **Research Interests:** Visual Analytics, Interpretable Artificial Intelligence, Urban Big Data

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

- GPA: 3.98/5.0 (Equivalent to 3.9/4.0) | Rank: 5/69
- **Coursework:** Big Data, Machine Learning, Data Analysis, Image Processing and Computer Vision

## Publications

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**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

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**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 2nd 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

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**2024:** National Scholarship for Graduate Students, Ministry of Education of China

**2024, 2022:** First-class Scholarship for Master's Students, Sun Yat-sen University

**2021:** National Scholarship for Undergraduate Students, Ministry of Education of China

**2018 - 2021** Excellence Scholarship, Sun Yat-sen University

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

## Invited Talk

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**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)*

Tampa, Florida, US

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

July 2024

*the 11th China Visualization and 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

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**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

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**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