Rui Zhou

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Education

Beijing Institute of Technology, Beijing, China 10/2020 – 07/2024

B.S. in Software Engineering

- *Major:* Software Engineering
- *Grade:* 88.0/100

RWTH Aachen University, Aachen, Germany 09/2023 – 06/2024

Exchange student in Computer Science

- *Major:* Computer Science
- *GPA: 2.3/1.0*

University of Zürich, Zürich, Switzerland 09/2024 – Present

Master student in Artificial Intelligence, expected June 2026

- *Major:* Artificial Intelligence, Minor: Data Science
- *Grade: 5.5/6.0*

Experience

Scene Understanding and Abstraction for Human-Robot-Scene Interaction 09/2025 – Present

Python, Linux research assistant in Computer Vision and Geometry group (ETHz), Instructor: Prof. Dr. Marc Pollefeys, M.Sc. Boyang Sun

- Develop a lightweight 3D scene representations to enable robot interaction through natural language and mixed reality devices

Reinforcement Learning for Drone Control 09/2025 – 10/2025

Python, Linux research assistant in Robotics and Perception Group (UZH), Instructor: Prof. Dr. Davide Scaramuzza, M.Sc. Leonard Bauersfeld, M.Sc. Angel Romero

- Develop reinforcement learning-based controller using PPO in Flightmare simulation to enable vision-based autonomous tracking of actor drone by camera drone, incorporating domain randomization for sim-to-real transfer and real-world deployment on Agilicious platform

Continual Learning of Gaussian Splatting 07/2025 – Present

Python, Linux research assistant in Computer Vision and Geometry group (ETHz), Instructor: Prof. Dr. Marc Pollefeys, Dr. Sunghwan Hong, M.Sc. Zihan Zhu

- Develop a 3D Gaussian Splatting-based online mapping system with a dynamic scene adaptation mechanism for evolving scenes, dealing both long term and short term changes

LiDAR-inertial-visual Gaussian Splatting SLAM 02/2025 – 06/2025

Python, C++, Linux team leader in a researh project, Instructor: Dr. Daniel Barath, M.Sc. Wei Zhang, M.Sc. Zihan Zhu

- Build an efficient and accurate LiDAR-inertial-visual fusion localization and mapping system to support online Gaussian-Splatting mapping, enabling real time photorealistic reconstruction in the wild
- Project link `https://github.com/JianwenCao/3DVisionProject`

Computer Vision Research in Unseen Unknowns Segmentation 10/2023 – 05/2024

Python, Linux research assistant at Computer Vision Institute (RWTH), Instructor: Prof. Dr. Bastian Leibe, M.Sc. Alexey Nekrasov

- Reimplement U3HS framework for holistic segmentation, which do not have open-source code. Code can be found at https://github.com/RuiZhou-cn/U3HS
- Extend anomaly segmentation benchmarks to include the instance segmentation task. The benchmark website and the competition page can be found at: https://kumuji.github.io/oodis_website/
- Our paper, OoDIS: Anomaly Instance Segmentation Benchmark, authored by me as the second author, was previously VAND 2.0 Workshop at CVPR 2024, now at International Conference on Robotics and Automation (ICRA) 2025

Knowledge-driven Time Series Prediction Model 12/2022 – 07/2023

Python, Linux team leader in a research project, Instructor: Prof. Fusheng Jin

- Used web scraping and graph construction techniques to build the CU-GDELT multimodal China-US relations dataset and made predictions about future trend
- Developed the KDSCINet model being capable of extracting entity features, encoding the features, and utilising the multi-head attention mechanism for knowledge fusion; generated predictable temporal data
- Fed resulting data into the SCINet-based sequential prediction model to forecast and assess the China-US relations
- Our paper, Reimagining China-US Relations Prediction: A Multi-Modal, Knowledge-Driven Approach with KDSCINet, authored by me as the first author, was published on International Conference on Neural Information Processing 2023

Personalised Recommendation Algorithm Integrating Deep Learning and Discrete Choice Model 12/2022 – 07/2023

Python, Linux team member in a scientific research project, Instructor: Prof. Zhu Zhang

- Combined the discrete choice model and neural network to enhance the interpretability of the recommendation system and improve its accuracy and performance
- Implemented the combination of neural network with prospect theory, marginal effect theory, MNL, and other discrete choice models based on Pytorch
- Augmented the interpretability of the recommendation system while maintaining the high performance

Kunlun Digital Technology Co., Ltd Beijing, China 07/2022 – 08/2022

Summer Intern Manager: Qiuming Du

- Took charge of data analysis and designs of models and algorithms in the Research and Application Demonstration Project of Gas Leakage Detection Method in Valve Chamber Based on AI Auscultation and Infrared Thermal Imaging
- Designed and implemented detection solutions to sound events; applied STFT, Mel-spectrum, logFbank, Audacity, etc. to extract sound features; collected and classified sound data
- Built a pre-trained pans-cnn14 model; set sound features as input to build an audio recognition model; achieved an accuracy rate of 82% after iterative training

Skills

- Programming Languages: Python, C++(C), LaTeX
- Technologies and tools: Linux, Git, Docker, Pytorch, Scikit-Learn, Keras, Opencv

♡ Honours and Awards

The Honourable Mention, awarded on Mathematical Contest in Modelling 02/2023
The 1st Prize, awarded on National English Proficiency Competition for Colleges and Universities 07/2021
The Third-class Scholarship 2021-2023

MISCELLANEOUS

- GitHub: https://github.com/RuiZhou-cn
- Languages: Fluent in English
  - TOEFL 104 (Reading 30, Listening 30, Writing 23, Speaking 21), Test Date: April 9, 2022
  - GRE 326 (Verbal 156, Quantitative 170, Analytical Writing 3.5), Test Date: September 3, 2023