

# Zhicheng Ren

## Resume

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## Objective

- Interested in **machine learning engineering/research positions** that have significant real-world applications.
- Research assistant in Scalable Analytics Institute (ScAi) under supervision of Professor Yizhou Sun.
- Major research directions: graph representation learning, reinforcement learning and autonomous vehicle perception.
- Key skills: CV, NLP, RL, Python, C++, Java, Pytorch, Tensorflow, Sklearn, etc.

## Education

- 09/2021 – **Master of Science in Computer Science**  
03/2023 University of California, Los Angeles GPA: 3.96/4.00  
**Courses:** Deep Learning; Deep Learning Theory; Natural Language Processing; Graph Convolutional Network; Reinforcement Learning; Calculus of Variations; Adversarial Defense in Machine Learning.
- 09/2017– **Bachelor of Science in Computer Science & Applied Mathematics (Double Degree)**  
06/2021 University of California, Los Angeles.

## Professional Experience

- 06/2022 – **Aurora Innovation, Software Engineering Intern**  
09/2022 - Built novel deep learning scene classifiers for autonomous vehicle perception using Pytorch framework.  
- Achieved 99% precision on a group of scene classification tasks.
- 06/2021 – **Alibaba DAMO Academy, Machine Learning Research Intern**  
09/2021 - Developed a reinforcement learning algorithm that successfully improve the clean energy consumption in a power grid by more than 50%.  
- Won the First Award in the Smart Grid Unit Commitment Competition organized by State Grid.  
- Developed time series forecasting algorithms for short term fluctuation of clean energy output.
- 09/2019 – **Scalable Analytics Institute, Research Assistant**  
present - Twitter ideology prediction with graph neural network based models.  
- Multimodal fake news detection using both the social network graph information and text information.  
- Active learning on graphs.
- 08/2019 – **Deloitte, Summer Intern**  
09/2019 - Developed a machine learning based portfolio risk assessment model.  
- Successfully detected the portfolios that exceed the risk limit with 90% accuracy and 97% recall.

## Publications & Projects

- **TIMME: Twitter Ideology detection via Multi-task Multi-relational Embedding**  
*KDD 2020, Oral Presentation*
  - A multi-task multi-relational embedding model built from graph neural networks, that works efficiently on sparsely labeled heterogeneous real world dataset, even with incomplete input features.
- **Learning Correlated Communication Topology in Multi-Agent Reinforcement Learning**  
*AAMAS 2021, Oral Presentation*
  - This paper focuses on learning the optimum graph topology for communication within a multi-agent system (e.g. cars, UAVs) through reinforcement learning. Works well on multi robot coordination problems.
- **Dissimilar Nodes Improve Graph Active Learning**  
*NeurIPS 2022 Workshop GLFrontiers*
  - In this work, we propose 3 dissimilarity-based importance scores for graph active learning to select valuable nodes.
- **Learning Polarity Embedding in Social Networks (preprint)**
  - The goal of this project is to extract political polarity information from texts on social networks, when people use totally different expressions referring to the same concept.