

# Ziqiao Ma

UNDERGRADUATE · COMPUTER SCIENCE · MACHINE LEARNING

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## Education

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### University of Michigan

Ann Arbor, U.S.

#### B.S. COMPUTER SCIENCE (DUAL DEGREE)

Aug. 2019 - May. 2021 (Expected)

- Cumulative GPA: 4.00/4.00
- Minor in Mathematics
- Course Works: Machine Learning (A+), Artificial Intelligence (A), Web System (A), Natural Language Processing (In progress), Deep Learning for CV (In Progress), Computer Vision (In progress)

### Shanghai Jiao Tong University

Shanghai, China

#### B.S. ELECTRICAL AND COMPUTER ENGINEERING (DUAL DEGREE)

Sep. 2017 - Aug. 2021 (Expected)

- Cumulative GPA: 3.81/4.00
- Course Works: Discrete Mathematics (A), Logic Design (A), Honors Mathematics (A-, A, A-)

### Technische Universität Berlin

Berlin, Germany

#### WINTER PROGRAM

Jan. 2018 - Feb. 2018

- Course Works: Programming in Java (A)

## Research Experience

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### Situated Language and Embodied Dialogue (SLED) Group - University of Michigan

Ann Arbor, U.S.

#### ADVISOR: DR. JOYCE CHAI

Aug. 2020 - Present

- Project: Exception Handling in Autonomous Vehicles via Human Language Collaboration
  - Exception learning mechanisms in traditional autonomous driving algorithms are slow or missing. The objective is to develop a smart interface that takes human language instructions and learns to handle the exceptions more efficiently.

### Liu Lab - University of Michigan

Ann Arbor, U.S.

#### ADVISOR: DR. JIE LIU

Jan. 2020 - Present

- Project: Spatial Cell Pattern Interpretation in T2D Islets via GNN Prediction Explanation
  - State-of-the-art GNN explainers did well on node-wise explanation, but the label-wise community pattern interpretation is yet to be researched. We redesigned a GNN explainer to perform label-wise explanation, validated the model on T2D islet samples and extracted predictive spatial patterns.
- Project: TAD level architectural stripes extraction
  - We Designed an efficient algorithm to extract TAD level architectural features from HiC.

### Foreseer Group - University of Michigan

Ann Arbor, U.S.

#### ADVISOR: DR. QIAOZHU MEI

Sep. 2019 - Present

- Project: Active Learning on Graph Neural Network via Graph Partitioning
  - The community's efforts on active learning strategies on GNNs focus on feature density and general graph centrality, yet graph information is not fully exploited. We proposed an practical query strategy by graph partitioning in the perspective of influence maximization problem.
- Project: Spatial Temporal GCN on Traffic Data with Correlational Information
  - We performed simulation studies on GNN models, and concluded the incapability of GNNs to capture correlational graph information. Better performance is validated by experiment on STGCN models with linear copula loss.

### Acemap - Shanghai Jiao Tong University

Shanghai, China

#### ADVISOR: DR. XINBING WANG

Feb. 2019 - Dec. 2019

- Projects: Unsupervised Keyphrase Extraction in Scholar Publications
  - We reviewed existing unsupervised keyphrase extraction methods including TextRank, PositionRank and EmbedRank, and performed experiments on Kp20k and Acemap datasets.

## Teaching Experience \_\_\_\_\_

- SU. 2020 **Artificial Intelligence (VE492)**, Teaching Assistant, Shanghai Jiao Tong University
- SU. 2020 **Programming & Data Structure (VE280)**, Teaching Assistant, Shanghai Jiao Tong University
- SU. 2019 **Physics Lab I (VP141)**, Teaching Assistant, Shanghai Jiao Tong University
- SP. 2019 **Academic Writing II (VY200)**, Teaching Assistant, Shanghai Jiao Tong University
- FA. 2018 **Academic Writing I (VY100)**, Teaching Assistant, Shanghai Jiao Tong University

## Selected Awards and Honors \_\_\_\_\_

- 2020 **Dean's List**, University of Michigan
- 2019 **Undergraduate Academic Excellence Scholarship**, Shanghai Jiao Tong University  
**Junyuan Tang Scholarship Nomination**, Shanghai Jiao Tong University
- 2018 **National Scholarship**, Ministry of Education of China  
**Undergraduate Social Practice Scholarship**, Shanghai Jiao Tong University  
**Second Prize of Freshmen Robotics Competition**, Shanghai Smart Manufacturing In.
- 2017 **John Wu & Jane Sun Excellence Scholarship**, Shanghai Jiao Tong University  
**Undergraduate Volunteer Scholarship**, Shanghai Jiao Tong University

## Service and Activities \_\_\_\_\_

### OUTREACH

- 2020 **Michigan Student Artificial Intelligence Lab**, Active Member
- 2019 **UM::Autonomy**, Active Member
- 2019 **Student Science and Technology Innovation Association**, Minister
- 2017 **Joint Institute Debate Team**, Active Member

### SERVICE

- 2019 **Young Volunteers Association**, Assistant Student Adviser
- 2018 **Joint Institute Student Union**, Active Member of Liaison Department

### VOLUNTEERING

- 2018 **Bangladesh Poverty Reduction Challenge**, Active Member
- 2018 **Yunnan San He Junior High School Volunteer Teaching Team**, Volunteer Math Teacher

## Skills \_\_\_\_\_

- Language **Python, C/C++, Java, JavaScript, Matlab, R, Verilog, TeX**
- Framework **PyTorch, TensorFlow, NLTK, OpenCV, AirSim, Networkx, jQuery, Hadoop**