

# Yingchen (Eric) Ma

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2nd year Master's student studying Computer Science at Georgia Institute of Technology, with a specialization in Machine Learning. Passionate about machine learning, data science, and exploring the intersection of the computer sciences and social sciences. Motivated by a desire to help better understand and model complex societal phenomena, in the hope of bringing about tangible benefits to people and creating healthier societal outcomes.

## Research Interests

Natural Language Processing	Social Media Analysis
Machine Learning	Fake News / Misinformation
Data Science	Computational Social Science
Algorithm-guided Decision Making	Mental Health Understanding
Heterogeneous / Knowledge Graphs	Urban Informatics

## Education

- M.S. in Computer Science, **Georgia Institute of Technology** (Aug 2021 - present)  
*Specialization: Machine Learning. GPA: 3.69/4.00.*
- B.S. in Computer Science, **University of Michigan** (Sep 2017 - May 2021)  
*GPA: 3.54/4.00.*

## Publications

- *Investigating the Effectiveness of Social Correction in Reducing Online Misinformation*  
**Yingchen (Eric) Ma**, Nathan Subrahmanian, Bing He, Srijan Kumar.  
(In preparation for) 61st Annual Meeting of the Association for Computational Linguistics (ACL 2023).
- *Proposing Community-Centered Road Repairs in Urban Settings*  
**Yingchen (Eric) Ma**, Arya Farahi.  
(In preparation for) Computers, Environment, and Urban Systems.
- *Characterizing and Predicting Social Correction on Twitter*  
**Yingchen (Eric) Ma**, Bing He, Nathan Subrahmanian, Srijan Kumar.  
(Submitted to) 15th ACM Web Science Conference (WebSci'23).
- *Functional Optimal Transport: Mapping Estimation and Domain Adaptation for Functional Data* [[arXiv](#)]  
Jiacheng Zhu, Aritra Guha, Mengdi Xu, **Yingchen (Eric) Ma**, Rayleigh Lei, Vincenzo Loffredo, XuanLong Nguyen, Ding Zhao.  
(Submitted to) 2021 International Conference on Machine Learning (ICML 2021).

## Ongoing Projects

- **Analyzing and Predicting Twitter Counter-Misinformation:** Leading a project to investigate features of misinformation-spreading tweets and users that correlate with increased likelihood to receive replies that counter / debunk said misinformation.
  - Advised by [Prof. Srijan Kumar](#), Assistant Professor, CSE @ Georgia Tech; also collaborating with students from [CLAWS Lab](#) @ Georgia Tech
- **Urban Road Repair Proposal:** Leading a project to develop an end-to-end decision pipeline to propose roads in an urban setting, with the objective of maximizing economic, demographic, and accessibility related benefit to the community.
  - Advised by [Prof. Arya Farahi](#), Assistant Professor, SDS @ UT Austin; also collaborating with University of Michigan students, UT Austin students, and Detroit city policymakers
  - Prototype delivered to Detroit in mid-2021 ([repository](#))

## Previous (completed) Projects

- **Neural Processes Project:** Implemented Pytorch variants of neural processes (NPs), a type of deep latent probabilistic model ([repository](#)). Applied NPs to evaluate the performance of a domain adaptation algorithm proposed in a submission to ICML 2021 ([link to paper](#)).
  - Advised by [Prof. Ding Zhao](#), Assistant Professor, MechE @ Carnegie Mellon; also collaborated with students from [Safe AI Lab](#) @ Carnegie Mellon
- **Autonomous Vehicle Data Platform:** Developed a data platform in Python for storage, preprocessing, and analysis of traffic data, for research and testing of autonomous vehicles.
  - Advised by [Prof. Ding Zhao](#), Assistant Professor, MechE @ Carnegie Mellon
- **Multilingual Analysis of Autism Discussion on Twitter:** Investigated the discourse surrounding autism on Twitter across various languages, through analysis and comparison of sentiment, topical focus, and engagement statistics.
  - Course final project for CS 7650 (Natural Language) @ Georgia Tech
- **Analysis of Anxiety Discussion on Twitter:** Investigated the relationship between features of tweets that aim to seek mental health support for anxiety, and the likelihood to receive tweet engagement and supportive replies ([repository](#)).
  - Course final project for CS 6474 (Social Computing) @ Georgia Tech
- **United States Congressional Knowledge Graphs:** Analyzed and visualized the dynamics of the 116th United States Congress (2019-2021) via construction of a knowledge graph, consisting of entities such as politicians, bills, lobbyists, and congressional committees.
  - Course final project for CSE 6242 (Data & Visual Analytics) @ Georgia Tech

## Work Experience

Graduate Research Assistant, **Georgia Institute of Technology**, Atlanta, GA (Aug 2022 - present)

- Working on “Twitter Counter-Misinformation” project - see above under “Ongoing Projects”

Software Engineer Intern, **Honeywell**, Atlanta, GA

(May - Aug 2022)

- Implemented automation enhancement tools in Python to improve efficiency of company performance testing.
  - o Wrote spike testing templates in Jinja2 for generating Locust performance tests.
  - o Developed REST API endpoints for testing new automation enhancement tools.

Programming Intern, **Wal Fuel Systems**, Livonia, MI

(Dec 2021 - Apr 2022)

- Implemented a genetic algorithm to propose more distance, time, and fuel efficient company truck delivery schedules ([repository](#)).
- Delivered end-to-end pipeline for company employees to run, that utilizes the algorithm to generate daily truck routing decisions based on updatable location and demand data.

## **Skills**

- **Technical (computational):** Machine learning, supervised learning, unsupervised learning, deep learning, graph learning, natural language processing, applied data analysis, data structures, algorithms.
- **Technical (mathematical):** Optimization, linear algebra, probability, statistics, calculus.
- **Programming languages:** Python (proficient), C++ (proficient), SQL, C, Java.
- **Libraries/frameworks/tools:** ML libraries (Pytorch, Tensorflow, scikit-learn), Numpy, Pandas, Jupyter Notebook, Google Colab, Hadoop, Spark, Git, Linux, Locust, Jinja2, RESTful APIs, ROS.

## **Miscellaneous**

- Served as a music teacher in Seven Mile, a University of Michigan student organization that provides weekly music lessons to kids in various communities in the city of Detroit. (2017-2021)
- Played clarinet in various bands, orchestras, and chamber ensembles in high school, university, community organization, festival, and summer camp settings. (2013-2019)