MABEL Q. YAO

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EXPECTED POSITION & CAREER

Data Scientist/ Machine Learning Engineer/ Faculty Track

EDUCATION & TRAINING

North Dakota State University, Fargo, US *2024-2026*
Doctor of Philosophy in Applied Statistics GPA: 4.0/4.0
Concentration: Machine Learning, Data Science, Representation Learning, Graphs

North Dakota State University, Fargo, US *2022-2026*
Doctor of Philosophy in Computer Science GPA: 4.0/4.0
Concentration: Machine Learning, Data Science, Representation Learning, Graphs

North Dakota State University, Fargo, US *2019-2022*
Master of Science in Computer Science GPA: 4.0/4.0
Concentration: Machine Learning, Data Science, Representation Learning, Graphs

Tohoku University, Sendai, JP *2013-2016*
Master of Science in Architectural and Building Science GPA: 3.68/4.0
Concentration: Seismic Evaluation & Damage Assessment, Structural Analysis

University of California, DAVIS, US *2/2015-3/2015*
Cooperative Laboratory Study Program (training)
Academic English Program for Science and Technology
Concentration: Structural Engineering

Dalian Jiaotong University, Dalian, CN *2009-2013*
Bachelor of Engineering in Civil Engineering & Software Engineering (double majors) GPA: 87/100
Concentration: Building Structural Design, Software Development

INTEREST & SKILL

Machine Learning, Statistics, Data Science, Embedding/Representation Learning, Graphs
Applied Domains:
Molecule Representations/Molecular Property Prediction, Cheminformatics, Bioinformatics, Drug Discovery, Medicinal Chemistry/ Biochemistry/ Quantum Chemistry;
FinTech/Quant/Econometrics; Climate Tech/Climate Change;
Time Series; Outlier Analysis; Risk Analysis, Survival Analysis;
Programming Languages
Often Used: Python, R, SAS, Latex, etc.
Scientific Computing: Julia, Matlab, Octave, etc.
Computer Science: Java, SQL, HTML/CSS/JavaSript, Git, Anaconda, etc.

CERTIFICATE

Verified Courses
IBM Data Science Specialization, Coursera *May, 2023*
https://www.coursera.org/account/accomplishments/professional-cert/NJ2PYKM3KYDU
Machine Learning, Coursera *May, 2023*
https://www.coursera.org/account/accomplishments/certificate/HSNF9PYJVDUW
Deep Learning Specialization, Coursera *March, 2021*
https://www.coursera.org/account/accomplishments/specialization/certificate/FFBNKVM82AXS

Unverified Courses

HarvardX MCB63X: Principles of Biochemistry, edX *Spring, 2024*
https://www.edx.org/learn/biochemistry/harvard-university-principles-of-biochemistry

UTokyoX: Basic Analytical Chemistry, edX *Spring, 2024*
https://www.edx.org/learn/chemistry/the-university-of-tokyo-basic-analytical-chemistry

DavidsonX: Drug Discovery & Medicinal Chemistry, edX *Spring, 2023*
https://www.edx.org/learn/drugs/davidson-college-drug-discovery-medicinal-chemistry

WORK EXPERIENCE

Teaching Assistant, North Dakota State University *Fargo, US*
Department of Statistics *2024-2026*
stat725 Applied Statistics
stat726 Applied Regression and Analysis of Variance
Department of Computer Science *2019-2023*
csci160 Computer Science I
csci161 Computer Science II

Laboratory Assistant, North Dakota State University *Fargo, US*
Department of Plant Science *2019-2023*
(2019fall, 2020spring, 2020summer, 2022summer, 2023summer)
Experimental Design (seeding, planting, harvesting, data collection and entry)
Data Analysis

Structural Engineer *Shenzhen, CN*
Shenzhen Yuanlizhu Engineering Consultants Co.,Ltd *2017-2019*
using computer aided engineering tools to design and analyze building structure,
communicate with clients including investors, constructors, designers to optimize the structural design.

Project Assistant *Shanghai, CN*
Shanghai Saiyo Construction Technology Co.,Ltd *2016-2017*
Participated in a Japanese project of Shopping Mall Construction in Ningbo, and applied Building Information Modeling (BIM) to construct a virtual model of the building for design and clash detection;
also took the role of translator between Japanese and Chinese during the meetings.

Intern *Sendai, JP*
Yamashita Sekkei INC. Tohoku Branch *9/2015-10/2015*
Analyze structures with SNAP, created building model, considered seismic isolators and seismic-control devices, analyzed seismic-response controlled structure and seismic-isolation structure to get seismic performance, created animation;
Drew construction drawings with AutoCAD.

ONGOING RESEARCH

Molecule Representations for Drug Discovery
Chemometrics,
Descriptor based Statistical Modeling,
Sequential Modeling,
Graph Modeling,

Molecular Property Prediction
Graph-Level Representation Learning for Chemical Screening.
Catalyst Discovery/ Material Discoveries.

Adverse Drug Reaction Detection
Knowledge Graph Embedding, Drug-Drug Interaction Network.
Adverse Drug Reaction in Clinical Trials in Drug Discovery.

Graph Neural Networks
How algorithms learn?
Frameworks of graph neural networks

Outlier Analysis

Time Series Data, Multivariate Data.
Anomaly Detection in Financial Fraud.
Recommendation Systems
Recommendation in e-commerce,
Statistical methods, machine learning, deep learning, graph neural networks

RELATED COURSE PROJECT & RESEARCH PROJECT

Molecule Representations, Multivariate Analysis, Outlier Analysis *2023*
Multivariate Analysis for Discrimination of Carcinogenesis Stages, SAS *Fall*
Detection and Evaluation of Outliers by Linear Models, R
Molecule Representation Learning for Virtual Screening in Drug Discovery, python *Spring*
Descriptor based multiple linear regression model for molecule property prediction, python
Graph Representation Learning, Molecule Representation Learning *2022*
Knowledge graph embedding for drug discovery *Fall*
Comparison of Non-Learned and Learned Molecule Representations for Catalyst Discovery *Spring*
Statistical Methods for Recommender System, python
Graph Representation Learning, Molecule Representation Learning *2021*
Molecular Representation Learning for Catalyst Discovery, python *Fall*
Graph Representation Learning: a survey on graph convolutional neural network, python *Spring*
Computer Vision, Natural Language Processing *2020*
Natural Language Processing: text classification, python *Fall*
Natural language Processing: chatbot as virtual assistant, python
Distributed database built on client-server architecture, java *Spring*
Multi-label classification based on image similarity, python
Network Mining, Deep Learning, Recommendation *2019*
Implementation of recommender system based on different models, python *Fall*
Implementation of expert system for real estate recommnendation by drools, java
Large scale study of programming languages and code quality in github, python *Spring*
Network Mining and analysis using deepwalk, line, and node2vec, python
Evaluaitoion of real estate market using deep learning, python

PUBLICATION

Google Scholar: https://scholar.google.com/citations?user=S7k_gdkAAAAJ&hl=en