

# Qiyang Chen

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## EDUCATION

<b>University of Illinois at Urbana-Champaign</b>	Champaign, IL
<i>Doctor of Philosophy in Construction Management</i>	Aug. 2019-present
<b>University of Illinois at Urbana-Champaign</b>	Champaign, IL
<i>Master of Science in Computer Science</i>	Dec.2021-Dec.2022
<b>Carnegie Mellon University</b>	Pittsburgh, PA
<i>Master of Science in Advanced Infrastructure System</i>	Jan. 2018-May. 2019
<b>Tongji University</b>	Shanghai, China
<i>Bachelor of Engineering</i>	Sep. 2013-Jun. 2017

## RELEVANT COURSEWORK

Machine Learning, Deep Learning, Natural Language Processing, Reinforcement Learning, Data Management, Data Mining, Information Retrieval, Text Information Systems, Numerical Method, Statistics and Probability

## LEADERSHIP

Captain of the swimming team in Tongji University	Sep. 2013-Jun. 2017
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## SKILLS

Languages: Python, R, Matlab, SQL, JavaScript, C++, Java  
Libraries: PyTorch, TensorFlow, NLTK, OpenCV, PIL, OpenGL, CUDA, Scikit-Learn, NumPy, Pandas  
Tools: Ubuntu, Linux, AWS

## PROJECTS

<b>Natural language process (NLP)</b>	
<b>Enzyme assigning based on Graph Neural Network for MUTAG dataset</b>	2022
<ul style="list-style-type: none"><li>Developed graph embedding for further training</li><li>Developed a Graph Neural Network to assign each enzyme to one of the 6 top-level classes with 81.23% accuracy</li></ul>	
<b>Movie review sentiment analysis</b>	2022
<ul style="list-style-type: none"><li>Building word vocabulary and using Lasso regression to prune it to less than 1k words</li><li>Developed a logistic regression to predict sentiments and achieved 97.36% AUC score on testing dataset</li></ul>	
<b>Movies recommendation systems app</b>	2022
<ul style="list-style-type: none"><li>Developed the user-based filter system to recommend movies based on user's ratings on movies</li><li>Developed the UI pages for this app</li><li>Designed front-end website and implemented by using shinyapp</li></ul>	
<b>Relational visual-text attention network for Memex question answering</b>	2019
<ul style="list-style-type: none"><li>Led a team of four to propose a Visual Question Answering (VQA) model to answer textual questions related on time-series images</li><li>Contributed to visual-text attention and relational network in the VQA model, which achieved 71% accuracy in choosing from 20 choices and beat the state-of-the-art method with 11% accuracy</li></ul>	
<b>Computer vision (CV)</b>	
<b>Pneumonia Disease Prediction based on CNN model</b>	2022
<ul style="list-style-type: none"><li>Using data augmentation techniques to process the raw images</li><li>Developed custom CNN based model to classify the Pneumonia disease with 85.98% accuracy</li></ul>	
<b>Image generation with generative adversarial networks (GANs)</b>	2018
<ul style="list-style-type: none"><li>Implemented local binary features (LBF) algorithm for face alignment and used data augmentation techniques including shift, flip rotation and etc. on each image in created makeup dataset</li><li>Generated high-resolution natural images by Wasserstein GAN</li></ul>	
<b>Machine learning (ML)</b>	
<b>Prediction of the housing prices in Ames</b>	2022
<ul style="list-style-type: none"><li>Preprocessed raw data including simulating missing values, feature engineering and encoding the raw data</li><li>Implemented prediction models XGBoost model to predict TB prices with 0.102 RMSE on the testing data</li></ul>	
<b>Signal processing</b>	
<b>Forecasting temperature and humidity based on sensor network</b>	2020
<ul style="list-style-type: none"><li>Using KNN and Linear interpolation methods to simulate missing data</li><li>Proposed an ensembled LSTM models and beat the baseline model SARIMAX 4.1 and 13.57 on temperature and humidity respectively</li></ul>	
<b>Monitoring subterranean utility pole damage state using structural vibrations</b>	2019
<ul style="list-style-type: none"><li>Set up the physical scaled utility pole model and collected raw data from vibrator sensors, and fused frequency feature from fast Fourier transform and continuous wavelet transform in feature level</li><li>Proposed a support machine learning algorithm (SVM) to classify the damage state with 92% accuracy</li></ul>	

## RESEARCH

**Deep learning with knowledge graph analytics for bridge deterioration prediction and bridge maintenance decision-making support**

- Extract bridge-related information from bridge-related textual reports using natural processing techniques including name entity recognition (NER) and relation extraction (RE),
- Published paper in I3CE conference and was chosen as top 10% papers