

ZHU WANG

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♥ RESEARCH INTERESTS

My research interests are primarily in learning representations via deep learning models and graph neural network. Particularly, I am working on their interdisciplinary field therein to solve image classification, object detection and multimodal related tasks.

🎓 EDUCATION

University of Illinois at Chicago Expected 12/2024
Ph.D., Computer Science, AIOpt Lab Advisor: Sathya N. Ravi, Isabel Cruz (deceased)

University of Pittsburgh 2013 - 2015
MS, Information Science Advisor: Paul Munro

Northeastern University, China 2008 - 2012
BMgt., Information Management and System Advisor: Zhuchao Yu

🏢 PROFESSIONAL EXPERIENCE

Research Assistant, AIOpt Lab, University of Illinois at Chicago 2022 - present
Multimodal representation learning and applications

- Integrating prior knowledge and modalities interaction of large Vision-Language models
- Open-vocabulary object detection and segmentation
- Prompt-based image edit and generations
- Applications on patent data analysis

Research & Data science Intern, CCCIS, Chicago, IL 05/2022 - 08/2022
Vehicle damage prediction via images and knowledge graphs

- Constructed multimodal industrial vehicle knowledge graphs
- Trained transformer-based damaged panel prediction models based on car images, and bootstrapped models with more robust performance with GNN

Teaching Assistant, University of Illinois at Chicago 2016 - 2022
Courses: Program Design I & II, Introduction to Data Science, Introduction to Machine Learning, Database Systems, Data and Web Semantics

Research Assistant, ADVIS Lab, University of Illinois at Chicago 2016 - 2021
Applying machine learning methods on ontology matching

- Knowledge graph embedding with bootstrapping for ontology matching
- Self-supervised learning and in context learning for ontology matching via LLM

Data management and analytics for healthcare

- Impact of COVID-19 on Education Based on Geotagged Twitter
- Exploring Yelp Data to Predict Foodborne Illness in Chicago Area

Research Assistant, PICSO Lab, University of Pittsburgh 2014 - 2016
Scholarly knowledge discovery and link predictions for junior scholars

☰ PUBLICATIONS

Implicit Differentiable Outlier Detection Enable Robust Deep Multimodal Analysis
Thirty-seventh Conference on Neural Information Processing Systems (NeurIPS) 2023

Zhu Wang, Sourav Medya, Sathya N. Ravi

TL;DR: An end-to-end VL model incorporating explicit knowledge graphs and OOD-detection.

Contextualized Structural Self-supervised Learning for Ontology Matching

The 18th International Workshop on Ontology Matching (OM@ISWC) 2023

Zhu Wang

TL;DR: Learn the contextual and structural information of concepts by integrating implicit knowledge

AMD Results for OAEI 2022

The 17th International Workshop on Ontology Matching (OM@ISWC) 2022

Zhu Wang

TL;DR: Tech report: Apply large language model on ontology matching

AgreementMakerDeep Results for OAEI 2021

The 16th International Workshop on Ontology Matching (OM@ISWC) 2021

Zhu Wang, Isabel Cruz

TL;DR: Tech report: Apply knowledge graph embedding on ontology matching

Analysis of the impact of covid-19 on education based on geotagged twitter

Proceedings of the 1st ACM SIGSPATIAL International Workshop on Modeling and Understanding the Spread of COVID-19

Zhu Wang, Isabel Cruz

Predictive analytics using text classification for restaurant inspections

Proceedings of the 3rd ACM SIGSPATIAL Workshop on Smart Cities and Urban Analytics

Zhu Wang, Booma Sowkarthiga Balasubramani, Isabel Cruz

✍ PUBLICATIONS IN REVIEW

Accelerated Neural Network Training with Rooted Logistic Objectives

Zhu Wang, Praveen Raj Veluswami, Harsh Mishra, Sathya N Ravi

Prompt-based generative image models with keypoints

Zhu Wang, Praveen Raj Veluswami, Sathya N Ravi

Improving open-vocabulary SAM Segmentation using Diffused Cuts

Zhu Wang, Harsh Mishra, Sathya N Ravi

👤 ACADEMIC SERVICES

Reviewer for AISTAT 2023, 2024, NeurIPS 2023, and ICLR 2024

🏆 AWARDS

Graduate Student Council Travel Award, University of Illinois at Chicago	2018
Graduate SIS Scholarship, University of Pittsburgh	2015
National Undergraduate Scholarship (multiple times), Northeastern University, China	2008-2012

⚙ SKILLS

Language/Script: JAVA, Python, PHP, SQL, R, JavaScript, XML

Tools: TensorFlow, PyTorch, OWL API, RDFlib, Neo4j, Maven, MangoDB, Spark, L^AT_EX