

# Zhu Wang

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## Research Interests

My research interests are primarily in Deep Learning models and Graph Mining. Particularly, I am working on their interdisciplinary field therein to solve image classification, object detection and vision-and-language related tasks.

## Skills

- **Language/Script:** JAVA, Python, PHP, SQL, R, JavaScript, XML
- **Tools:** TensorFlow, PyTorch, OWL API, RDFlib, Neo4j, Maven, MangoDB, Spark

## Education

University of Illinois at Chicago Expected 12/2023  
**Doctor of Philosophy**, Computer Science, Advisor: Dr. Isabel Cruz(*deceased*)  
University of Pittsburgh 08/2013 - 05/2015  
**Master of Science**, Information Science  
Northeastern University, China 09/2008 - 06/2012  
**Bachelor of Management**, Information Management and System

## Research Experience

**Research Assistant**, AIOpt Lab, University of Illinois at Chicago 11/2021 - now  
**Multimodal analysis on vision-and-language deep models**

- Integrating prior knowledge and modalities interaction of visual and textual encoders
- Working on Knowledge Graph based data augmentation and visual relations

**Research Assistant**, ADVIS Lab, University of Illinois at Chicago 08/2016 - now  
**Knowledge Graph Embedding with Bootstrapping for Deep Matching**

- Working on large pre-training language models for ontology matching, as BERT, MiniLM
- Applied several knowledge graph embedding methods with Tensorflow

**Impact of COVID-19 on Education Based on Geotagged Twitter**

- Collected millions of COVID19 education related Geotagged Twitter dataset
- Learned dataset via spatio-temporal patterns, sentiment analysis and content analysis with topic modelling

**Visual Analytics for Ontology Matching**

- Built a Visual Analytics panel and re-design the interfaces of AgreementMaker
- Learned ontology alignments with user interaction and user study

**Exploring Yelp Data to Predict Foodborne Illness in Chicago Area**

- Worked on language models and predictions models for preventing foodborne illness using Yelp dataset as part of “Chicago SmartData Platform”
- Implemented kinds of prediction models and network anomaly detections

**Research Assistant**, Pittsburgh Computational Social Science Lab 05/2015 - 03/2016  
The Evolution of Scientific Productivity of Junior Scholars

- Developed research methods and techniques for scholarly knowledge discovery

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- Implemented link predictions of junior scholars with senior scholars using similarity algorithms and models

<b>Work Experience</b>	<p><b>Teaching Assistant</b>, University of Illinois at Chicago <span style="float: right;">2016 - now</span></p> <p>Courses: Program Design I &amp; II, Introduction to Data Science, Introduction to Machine Learning, Database Systems, Data and Web Semantics</p> <p><b>Research &amp; Data science Intern</b>, CCCIS, Chicago, IL <span style="float: right;">05/2022 – 08/2022</span></p> <ul style="list-style-type: none"> <li>• Constructed industrial vehicle knowledge graphs</li> <li>• Trained transformer-based damaged panel prediction models based on car images, and bootstrapped models with more robust performance with Graph neural network.</li> </ul> <p><b>Software Engineer</b>, R.J. Lee Group, INC, Monroeville, PA <span style="float: right;">05/2015 - 06/2016</span></p> <ul style="list-style-type: none"> <li>• Developed automated configuration tools embedded in web-based laboratory software</li> <li>• Full-stack development of an IOS application to track and analysis nutrition daily intake</li> </ul> <p><b>Data Analyst</b>, China Foundation Center, China <span style="float: right;">09/2012 - 06/2013</span></p> <ul style="list-style-type: none"> <li>• Analyzed different foundations development trends and published reports to customers</li> </ul>
<b>Other Projects</b>	<p><b>Prediction and monitoring of Safe-Driving Behaviors</b> <span style="float: right;">02-05/2019</span></p> <ul style="list-style-type: none"> <li>• Developed a system to detect eyes closeness and distracted behaviors</li> <li>• Implemented facial recognition and behaviors detection using CNN and DNN</li> </ul> <p><b>Collective Behavior During Emergencies and Other Exogenous Events</b> <span style="float: right;">05-12/2015</span></p> <ul style="list-style-type: none"> <li>• Worked on issues and challenges relating to emergency understanding using largescale data generated by hundreds of millions of users</li> <li>• Implemented time series analysis and sentiment analysis of Tweets related with emergencies</li> </ul> <p><b>Hadoop: Movie Tagging and Recommendations</b> <span style="float: right;">01-05/2015</span></p> <ul style="list-style-type: none"> <li>• Developed a web application to tagged amazon movies and recommend movies for users by their previous ratings and reviews</li> <li>• Implemented text mining and user-based recommend algorithms using MapReduce on Hadoop</li> </ul>
<b>Selected Publications</b>	<p>[1] <b>Wang, Zhu</b>, and Isabel F. Cruz. AgreementMakerDeep Results for OAEI 2021. In OM@ISWC 2021.</p> <p>[2] <b>Wang, Zhu</b>, and Isabel F. Cruz. 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. 2020.</p> <p>[3] <b>Wang, Zhu</b>, Booma Sowkarthiga Balasubramani, and Isabel F. Cruz. Predictive analytics using text classification for restaurant inspections. Proceedings of the 3rd ACM SIGSPATIAL Workshop on Smart Cities and Urban Analytics. 2017.</p>
<b>Awards</b>	<p>Graduate Student Council Travel Award, University of Illinois at Chicago <span style="float: right;">2018</span></p> <p>Graduate SIS Scholarship, University of Pittsburgh <span style="float: right;">2015</span></p>