

ZHILIANG XIANG

Research Associate at IROHMS | MSc Advanced Computer Science Student at Cardiff University

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🐙 github.com/mexicer

📍 Cardiff, Wales

EDUCATION

• M.Sc. in Advanced Computer Science

Cardiff University

📅 Since Oct 2020

📍 Cardiff, Wales

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|----------------------------|-------------|
| • Knowledge Representation | Distinction |
| • Principles of ML | Distinction |
| • Applications of ML (NLP) | Distinction |
| • Programming Paradigms | Distinction |

• B.Sc. in Information and Computation Science

Guangxi University of Science and Technology

📅 Sept 2011 – Sept 2015

📍 Guangxi, China

- Mathematics: Analysis, Algebra, Discrete Math, Probability, Statistics
- Programming: C++/Java Programming, Data Structure, Database Theory
- Computation: Optimisation, Data Mining, Computational Intelligence

PROJECTS

Declarative Framework for Entity Resolution

Research Project at IROHMS

📅 Ongoing

- Proposing an Answer Set Programming approach for implementing a declarative framework for entity resolution task in databases
- Relevant Concepts: Entity Resolution, Answer Set Programming, Meta Programming, Preference Representation and Reasoning

Complex Query Answering with Knowledge Graph Embedding

Joint Research Project

📅 Ongoing

- Investigating query embeddings allowing to answer complex graph-like logical queries
- Relevant Concepts: Knowledge Graph, Complex Query Answering, Query Embeddings, Representation Learning

OECD: AI and the Future of Skills

Joint Research Project

📅 Ongoing

- Investigating existing competitions and benchmarks for capability evaluation of artificial intelligence systems
- Relevant Concepts: Benchmarking, Evaluation, Artificial Intelligence Capability Measuring

Neuro-symbolic approaches for Abstract and Relational Visual Reasoning Tasks

Master Dissertation

ABOUT ME

Having studied in a major with strong mathematical background equipped me with **maturity in mathematics**, 5 years of industrial experience enhanced my **hands-on ability in programming**, being emphasised in AI modules during MSc study provided me with solid foundation in both **theoretical** and **practical** aspects of **AI**. I believe that establishing provable correspondences between **neural models** (learning) and **logical representations** (reasoning) could be an effective approach to address **human-level intelligence**, therefore I am keen to explore both **knowledge representation** and **machine learning**, and their **integration**, in particular, **Neuro-symbolic AI**, **Logic Programming** and **Representation Learning**.

SKILLS

Python

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Main language currently in use

Answer Set Programming

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Currently using in ER project, dissertation

Java

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Main language during 5 years of back-end engineering experience

Other Languages: proficient) C#, SQL, JS, (familiar) Haskell, Perl, (knowledge of) C++

Pytorch

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Currently using

KerasTensorFlow

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Used in projects done as coursework

Scikit-learn

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Used in projects done as coursework

Other: Git, Unix systems, Shell, Docker, Jenkins, \LaTeX , relational databases, No-SQL, HPC server, Raspberry Pi

EXTRACURRICULAR ACTIVITIES

- Cardiff NLP Reading Group
- LoGaG Reading Group (Graph ML)
- Reasoning Web 2021 Summer School

- Proposing a prototype leverages the integration of Deep Neural Networks and Probabilistic Logic Programming to solve Raven Progressive Matrix
 - Relevant Concepts: Neural Probabilistic Logic Programming, Disentangled Representation Learning and Multi-task Learning
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Irony Detection in Tweets

Coursework

- Investigating the capabilities of statistical learning and deep learning approaches in automatically detecting ironic Tweets
 - Relevant Concepts: Natural Language Processing, Pre-trained Language Model, Word Embeddings, Bidirectional LSTM, Support Vector Machine
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RESEARCH/WORK EXPERIENCE

Research Associate (Placement)

Centre for Artificial Intelligence, Robotics and Human-Machine Systems (IROHMS) | Cardiff University

📅 Nov 2021 - Now 📍 United Kingdom

- Conducting a research project regarding declarative framework for Entity Resolution task via Answer Set Programming under mentoring
 - (Prospectively) Conducting a research project regarding improving user preferences in healthcare systems using Answer Set Programming under mentoring
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Web GIS Development Engineer

Information Center of Nanning Bureau of Natural Resources

📅 Nov 2018 - Aug 2020 📍 China

- Lead a development project of a five-person team, assemble development plans and organise team tasks based upon web geographic information system (GIS) applications
 - Design, implement, and maintain frameworks and functions for web GIS applications and web API
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IT Product Manager

Shanghai Tongzhu Information Technology Co.,Ltd

📅 Mar 2017 - Nov 2018 📍 China

- Create assets to guide developments work (product requirement documents, user story mappings, stories for implementation etc.)
 - Perform generally technical support, such as system integration with cooperative partners or other service providers and user training
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Web Application Developer

ePayLinks Technology Co.,Ltd

📅 July 2015 - Feb 2017 📍 China

- Back-end Web API engineering