# Jiaxin ZHANG

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SUMMARY: I am currently a PhD candidate at the University of Strathclyde with a focus on Artificial Intelligence. **I am seeking employment opportunities in the AI field, preferably with an organization that can sponsor a skilled worker visa**. My specific focus is on enhancing AI's numerical reasoning abilities, aiming to achieve a level of proficiency comparable to human skills in this area. My expertise lies in pure-text and multi-modal learning approaches. I hold a Master's degree in Advanced Computer Science from the University of Sheffield, where my dissertation explored the generation of texts of various styles from structured data. Following my Master's, I gained 1.5 years of experience as an NLP researcher at TCL Corporate Research.

## EDUCATION

**PhD in Natural Language Processing — *University of Strathclyde, UK***    OCT 2020 - MAY 2024 (ESTIMATED)
- Thesis: Automated Mathematical Reasoning in Artificial Intelligence over Textual and Multi-Modal Data
- Advisor: Prof. Yashar Moshfeghi
- Scholarship: fully funded by *Strathclyde Centre for Doctoral Training (SCDT) Research Studentship*
- Research Interests: automated solving math word problems, automated solving geometry math problems, LLMs for math reasoning tasks

**MSc in Advanced Computer Science — *University of Sheffield, UK***    SEP 2017 - OCT 2018
- MSc Thesis: Natural Langauge Generation with Different Styles     Grade: Merit (Thesis with Distinction)
- Advisor: Prof. Andreas Vlachos

**BSc in Network Engineering, CS — *Chang'an University (Project 211), China***    SEP 2011 - JUL 2015
- Grade: 3.0/4.0

## PUBLICATIONS

Please also check my Google Scholar page.
1. **Jiaxin Zhang**, Yashar Moshfeghi. *ELASTIC: Numerical Reasoning with Adaptive Symbolic Compiler.* Accepted for Advances in Neural Information Processing Systems 35 (NeurIPS 2022).
2. **Jiaxin Zhang**. *A Combination of Lexicon-Based and Classified-Based methods for Sentiment Classification based on Bert.* Accepted in Journal of Physics: Conference Series (2021).

## WORK EXPERIENCE

**TCL Technology, China — *NLP Researcher***    APR 2019 - SEP 2020
  My main work focused the development of a ChatBot designed for engaging in casual conversations with users.
- I built the ChatBot using the Seq2Seq architecture. To enhance its response speed, I implemented a retrieval system ahead of the Seq2Seq model, integrating both rule-based and neural network algorithms. The rule-based component utilized pattern matching and algorithms like trie-tree and bk-tree for aligning responses to user inputs. For the neural network aspect, I employed a pre-trained BERT model to transform sentences into embeddings, using cosine similarity to retrieve responses most closely matching the user input.
- I was responsible for drafting guidelines for interns to annotate data sets effectively, ensuring the efficient training of the ChatBot.

**Ping An of China, China — *NLP Engineer Intern***    MAR 2019 - MAY 2019
- In collaboration with a team responsible for establishing guidelines, I played a key role in automating the approval process of insurance provisions. My primary contribution involved designing a comprehensive set of rules to meticulously verify the accuracy of each element within the insurance provisions. This task required extensive text processing to extract vital information, like numerical data, enabling detailed and routine checks.

**Beyes Data Intelligence Technology Service, China — *NLP Engineer***    OCT 2018 - DEC 2018
- My role involved categorizing the objectives of various stores within a designated business district. This classification was based on an analysis of their structured information, which included aspects like business scope, founding members, location, sales figures, and other relevant details.

## TEACHING EXPERIENCE

**CS 985: Machine Learning for Data Analytics — *Teaching Assistant***    FEB 2022 - FEB 2024
- University of Strathclyde

## PROFESSIONAL SERVICE

- **Reviewer**: 3nd MATH-AI Workshop at NeurIPS'23

## Skills

- **Programming Language**: Python, SQL, HTML, CSS
- **Deep Learning Framework**: Pytorch, Transformers, scikit-learn, pytorch-lightning
- **Analysis and Visualization**: numpy, pandas, matplotlib, TikZ
- **Tools**: git, bash, vim
- **Langauages** Chinese (native), English (proficient)