

Yuchen Niu

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EDUCATION

Msc in Advanced Computing , Imperial College, London	2021 — 2022
<i>Thesis: Data Augmentation in Infinitely Wide Neural Networks</i>	
BSc (Hons) Artificial Intelligence and Computer Science (Grade: First Class) , The University of Edinburgh	2017 — 2021
<i>Thesis: Performance Characterization of Serverless Computing</i>	

PROFESSION EXPERIENCE

Research Assistant	03 2021 — 09 2021
<i>Supervised by Prof. Yue Zhang, Text Intelligence Lab, Westlake University</i> Hangzhou, China	
<ul style="list-style-type: none">• Explored different generalization techniques on the SPRING AMR parser and attempted to improve the performance of the parser.• Explored cycle consistency of bilingual lexical induction.	
Research Internship	07 2020 — 09 2020
<i>Supervised by Prof. Yue Zhang, Text Intelligence Lab, Westlake University</i> Hangzhou, China	
<ul style="list-style-type: none">• Re-produced the performance of graph-based, transition-based, neural-based mainstream AMR parsing methods. Evaluate models on out-of-domain test set.• Participated in the annotation of DialogSum, a dialogue summarization dataset. Extracted discussions from Chinese online forums. Conducted linguistic analysis and an annotation manuscript.	
Software Engineer Internship	07 2019 — 08 2019
<i>Thundersoft</i> Beijing, China	
<ul style="list-style-type: none">• Studied Git, Linux architecture and Android during a two-week training programme.• Designed a Piano application on Android with teammates. Achieved communication between the application and device drivers. Studied foundations of Android.	

PROJECTS

Data Augmentation in Infinitely Wide Neural Networks	04 2022 — 09 2022
<i>Supervised by Dr. Mark van der Wilk, Master Degree Project, Imperial College London</i> London, UK	
<ul style="list-style-type: none">• Developed sparse Gaussian process regression for infinitely wide neural networks.• Improved generalisation by learning data invariance using summation over orbits.	
Calibrating Uncertainty Estimates for ML Models	01 2022 — 04 2022
<i>Supervised by Dr. Yingzhen Li, Independent Study Option Project, Imperial College London</i> London, UK	
<ul style="list-style-type: none">• Literature reviews about probabilistic forecasting, uncertainty estimation and calibration.• Re-implemented variations of Platt scaling and conformal predictions on classifiers and regressors, respectively.	
Prompt Tuning for Condensing Detection	01 2022 — 03 2022
<i>Natural Language Processing Coursework, Imperial College London</i> London, UK	
<ul style="list-style-type: none">• Explored the feasibility of prompt tuning on this subjective task. Results showed that there is no difference in fine-tuning and prompt-tuning on this task.• Re-implemented partial LM-BFF experiments for curiosity.	
Performance Characterization of Serverless Computing	09 2020 — 04 2021
<i>Supervised by Dr. Boris Grot, Undergraduate Degree Project, The University of Edinburgh</i> Edinburgh, UK	
<ul style="list-style-type: none">• Designed an automated tool to characterise multitenant performance on serverless experimental framework (vHive). Collect PMU counters following TopDown methodology.• Demonstrated on vHive tutorial at ASPLOS 2022 and inspired the following publication on ISCA 2022.	
Conditional Sequence to Sequence Paraphrasing	01 2021 — 04 2021
<i>Machine Learning Practical Coursework, The University of Edinburgh</i> Edinburgh, UK	
<ul style="list-style-type: none">• Studied the effectiveness of length ratio conditioning on paraphrase generation with tagging and fine-tuning approaches.	

PUBLICATIONS

Exploring Generalization Ability of Pretrained Language Models on Arithmetic and Logical Reasoning
Cunxiang Wang, Boyuan Zheng, [Yuchen Niu](#), Yue Zhang
CCF International Conference on Natural Language Processing and Chinese Computing (NLPCC) 2021

SKILLS

Programming Languages	Python, Go, JAVA, Kotlin, C, C++, Haskell
Tools	Git, PyTorch, JAX, Transformers, \LaTeX , Markdown