Yuchen Niu

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EDUCATION

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

PROFESSION EXPERIENCE

Research Assistant — 10 2022 — Present
Supervised by Dr. Yingzhen Li, Imperial College London — *London, UK*
- Ongoing project on cold posterior effect.

Research Assistant — 07 2020 — 09 2021
Supervised by Prof. Yue Zhang, Text Intelligence Lab, Westlake University — *Hangzhou, China*
- Explored different generalization techniques on the SPRING AMR parser and attempted to improve the performance of the parser. Acknowledged in the paper "Cross-domain Generalization for AMR Parsing" at EMNLP 2022.
- 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
Thundersoft — *Beijing, China*
- 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.
- Participated in the UI test for the infotainment system of Trumpchi GS4 II.

PROJECTS

Data Augmentation in Infinitely Wide Neural Networks — 04 2022 — 09 2022
Supervised by Dr. Mark van der Wilk, Master Degree Project, Imperial College London — *London, UK*
- Developed sparse Gaussian process regression for infinitely wide neural networks.
- Improved generalisation by learning data invariances using summation over orbits.

Calibrating Uncertainty Estimates for ML Models — 01 2022 — 04 2022
Supervised by Dr. Yingzhen Li, Independent Study Option Project, Imperial College London — *London, UK*
- Literature review about probabilistic forecasting, uncertainty estimation and calibration.
- Re-implemented variations of Platt scaling and conformal predictions on classifiers and regressors, respectively.

Raft Implementation in Elixir — 01 2022 — 03 2022
Distributed Algorithms Coursework, Imperial College London — *London, UK*
- Implemented leader election, log consistency and leader change to achieve consensus between machines.

Performance Characterization of Serverless Computing — 09 2020 — 04 2021
Supervised by Dr. Boris Grot and Dr. Dmitrii Ustiugov, Undergraduate Degree Project, The University of Edinburgh — *Edinburgh, UK*
- 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 a following publication on ISCA 2022.

Conditional Sequence to Sequence Paraphrasing — 01 2021 — 04 2021
Machine Learning Practical Coursework, The University of Edinburgh — *Edinburgh, UK*
- Studied the effectiveness of length ratio conditioning on paraphrase generation with tagging and fine-tuning approaches.

Detroit – Care House Assistive Robot — 01 2020 — 04 2020
System Design Project, The University of Edinburgh — *Edinburgh, UK*
- Led the design and develop an Android application for interacting with the robot, and between clients using Firebase.

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