

Tianjian Li

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EDUCATION

- Johns Hopkins University** Baltimore, MD
M.S.E. in Computer Science — GPA: 3.95/4.0 August 2022 - May 2024
- New York University** New York, NY
B.A. in Computer Science/Mathematics August 2017 - September 2021
Courses: Operating Systems, Data Structures, Basic Algorithms, Machine Learning, Theory of Computation, Numerical Analysis

RESEARCH EXPERIENCE

- Johns Hopkins University - Center for Speech and Language Processing (CLSP)** Baltimore, MD
Advisor: Kenton Murray and Philipp Koehn Sept 2022 - Present
 - Cross-lingual Transfer:** Worked on understanding zero-shot cross-lingual transfer in natural language generation.
 - Machine Translation:** Investigated gradient optimization techniques in Multilingual Neural Machine Translation.
- Tsinghua University - Knowledge Engineering Group (KEG)** Beijing, China
Advisor: Jie Tang Mar 2022 - Aug 2022
 - Multilingual Language Model Pre-training:** Trained and open-sourced a multilingual language model with 1B parameters based on a novel autoregressive blank infilling objective. Our model supports both fine-tuning for Natural Language Understanding tasks and conditional/unconditional generation tasks.
 - Neural Cross-Lingual Summarizer:** Fine-tuned our multilingual model to perform cross-lingual summarization in any language.

PUBLICATIONS

- Tianjian Li** and Kenton Murray: *Why Does Zero-Shot Cross-Lingual Generation Fail? An Explanation and a Solution.* In Findings of ACL 2023. [Link](#)
- Shuyue Stella Li, Cihan Xiao, **Tianjian Li**, Bismarck Odoo: *Simple yet Effective Code-Switching Language Identification with Multitask Pre-Training and Transfer Learning.* ArXiv Preprint. [Link](#)

INDUSTRIAL EXPERIENCE

- Baidu Inc.** Beijing, China
Machine Learning Engineer - Intern Aug 2021 - Feb 2022
 - Built a classification model on the influence of small paths on customers' driving experience with XGBoost.
 - Optimized route ranking model by experimenting with two strategies: 1D-CNN and multi-head self-attention in modeling sequential trajectory data.
 - Designed a Spatial-Temporal Graph Neural Network model further to improve the performance of the route ranking model to anticipate and dodge traffic jams.

PROJECTS

- Baidu AI Studio Regular Challenge 8/1035 (Machine Learning, Graph Neural Networks):** Implemented Graph Convolution Networks with residual connection and label smoothing for academic paper classification contest. Rank 8 out of 1035 teams. [Project Link](#)
- Re-implementation of STFGNN model for traffic jam forecasting (Machine Learning, Spatio-Temporal Graph Neural Networks):** Re-implemented STFGNN model in PaddlePaddle, modified model architecture to achieve an accuracy of over 80% in forecasting the time and severity of traffic jam in the next 48 hours. [Project Link](#)

HONORS, AWARDS AND SERVICES

- Reviewer: ACL 2023, EMNLP 2023
- New York University College of Arts and Sciences (CAS) Scholarship 2020
- First Prize in National Olympiad in Informatics Provincial (NOIP)

SKILLS SUMMARY

- Languages:** Python, JAVA, C, C++, SQL, JavaScript, Shell Scripting, Unix Commands(grep, sed)
- Frameworks:** PyTorch (Distributed Training), TensorFlow, Keras, PaddlePaddle, Huggingface, fairseq
- Tools:** Docker, GIT, MySQL, Hadoop streaming, Spark, Vim, L^AT_EX