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 the (in)effectiveness of 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**, Haoran Xu, Philipp Koehn and Kenton Murray: *Efficiently Harnessing Parameter Importance for Better Training.* Under Review. Link
- **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 Odoom: *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. Reimplemented STGCN (IJCAI '18) and STFGNN (AAAI '21) in PaddlePaddle (Baidu's DL Framework).

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

- **Programming 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, LaTeX
- **Spoken Languages:**: Chinese (Native), English, French