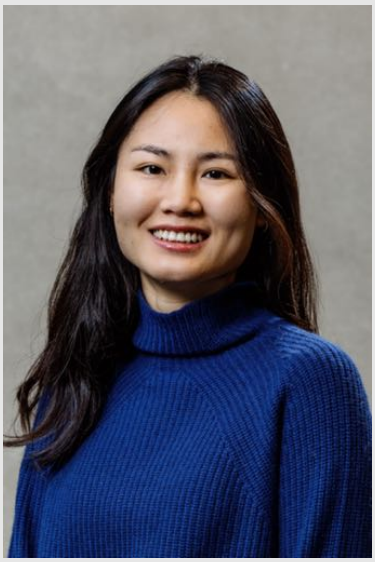

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Delft, The Netherlands

Lijun Lyu
Lijun Lyu
GarfieldLyu

Languages

Mandarin	Native
English	Fluent
German	B2
Cantonese	B2

Key Skills

- Machine Learning
- Deep Learning
- Interpretable ML
- Feature Selection
- Information Retrieval
- Reinforcement Learning
- Natural Language Processing

Technologies

Python	Java	Bash
PyTorch	Keras	Git
Pandas	Numpy	Scikit-learn
Tensorflow	LaTeX	
JavaScript	HTML	
SQL	NoSQL	
Docker	Kubernetes	
MapReduce/PySpark		

Lijun Lyu PhD candidate, TU Delft, NL

I am experienced in **machine learning** and **deep learning** techniques, applied in diverse domains such as information retrieval, natural language processing, images and tabular data. My research has been bringing **interpretability** into deep learning models, which gives me an **in-depth understanding** of those models. I am focused on research, and also passionate about solving real-world problems by developing advanced and reliable models in practice.

Education

PhD candidate in Interpretable Machine Learning — Apr 2021 – present

TU Delft, The Netherlands (Nov 2022 – present), and
Leibniz University Hannover, Germany (Apr 2021 – Oct 2022)

Contributed to interpretability in deep learning models ranging from **text ranking using BERT**, **neural learning-to-rank**, and general classification tasks for **tabular and image** datasets. Explored common frameworks like **Captum**, and also developed novel algorithms to interpret large neural models in **Pytorch**. Published at multiple top conferences in NLP, Information Retrieval and Machine Learning.

MSc. in Computer Science (**with excellence**) — Apr 2015 - Apr 2018

Leibniz University Hannover, Germany

Worked on **MapReduce** technique (PySpark) and **NoSQL** (MongoDB) to process large datasets. Implemented a learning-to-rank algorithm with **Scikit-learn** for reference enrichment of Wikipedia entities. Published at Wiki Workshop 2018.

BSc. in Computer Science — Jinan University, China, Sep 2010 - June 2014

Selected Work Experience

Research assistant

L3S Research Center, Germany, May 2018 - Mar 2021

Explored **deep learning algorithms in neural machine translation** area, to correct OCRed text corpus in ancient German language across centuries. Work selected and presented at EurNLP 2019 and received **travel grant** from Meta. The algorithm implemented in **Pytorch** and **Keras** is used by the Austrian National Library, and published at the top NLP journal TACL.

Selected Projects

SUWR-SequentialFS

Apr 2023–Present

Explored the current **interpretable ML** techniques for images and tabular datasets domain and challenged their fundamental groundings. Proposed a theoretically guaranteed and effective solution for **reliable and explainable neural models** using **reinforcement learning**. Published at the top machine learning conference ICML 2024.

FS-LTR `github.com/GarfieldLyu/NeuralFeatureSelectionLTR`

Jan 2022–Present

Explored **real-world learning-to-rank** problems proposed and studied by Microsoft and Yahoo. Built > 5 effective **explainable neural models** via **feature selection** for ranking purposes. Evaluated with **decision tree** models using LightGBM. Published at the top information retrieval conference ECIR2024.

Brittle-Bert `github.com/menauwy/brittlebert`

Aug 2021–2022

Supervised master student to investigate the well-applied **BERT-based rankers** in **information retrieval**, and successfully found out their vulnerabilities by adversarial attacks. Resulted in **Excellent Master Thesis Award** in Niedersachsen, Germany, 2022, and a publication at the top conference ICTIR 2022.