# Lei Li 李磊

*Post-doctoral Research Fellow*

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## Research Interests

Explainable Recommendation, Recommender Systems, Large Language Models, Natural Language Processing

## Education

**Ph.D. of Computer Science** — *Hong Kong Baptist University (HKBU)*

*Advisor: Prof. Li Chen, Mentors: Dr. Yongfeng Zhang & Dr. Ruihai Dong* — *August 2017 – July 2022*

*Thesis: Natural Language Explanation for Recommendations and Beyond*

Studied recurrent neural networks (RNN), Transformer, large language models (LLM) for natural language explanation generation for recommender systems, and published 3 papers at CIKM'20, ACL'21 and TOIS

Major research outcome integrated into a small eco-system NLG4RS for recommender systems-based natural language generation, which includes benchmark datasets, evaluation metrics and representative models

**B.Eng. of Computer Science & B.Sc. of Mathematics** — *Shenzhen University (SZU)*

*Advisor: Prof. Weike Pan* — *September 2013 – June 2017*

Research on recommendation algorithms, especially collaborative filtering and matrix factorization

## Experiences

**Hong Kong Baptist University** — *August 2022 – Present*

*Post-doctoral Research Fellow* *Advisor: Prof. Li Chen, Mentor: Dr. Yongfeng Zhang* — *Hong Kong, China*

- Supported by Hong Kong Research Grants Council (RGC)
- Research on large language models (LLM)-based recommendation
- Published a survey at COLING'24, where how LLM would shape recommender systems from multi-stage filtering to single-stage filtering is discussed

**Rutgers University** — *February 2023 – June 2023*

*Visiting Researcher* *Advisor: Dr. Yongfeng Zhang* — *New Brunswick, USA*

- Published 1 paper about efficient LLM-based recommendation at CIKM'23

**Inspir.ai** — *June 2019 – August 2019*

*Intern* *Mentor: Dr. Peng Peng* — *Beijing, China*

- Research on explaining the decision-making process of reinforcement learning (RL) agents
- Visualization of the replay data of the computer game StarCraft II

**Hong Kong Baptist University** — *March 2017 – June 2017*

*Research Exchange Student* *Advisor: Prof. Li Chen* — *Hong Kong, China*

- Research on personality for recommender systems

**Suishou Technology** — *August 2016 – November 2016*

*Intern* *Advisor: Prof. Weike Pan* — *Shenzhen, China*

- Utilized machine learning tools (such as Liblinear and XGBoost) to mine potential customers for personalized advertising
- Increased the company's sales of financial products by 4 times during an online test

## *Selected Publications*

- Large Language Models for Generative Recommendation: A Survey and Visionary Discussions
  **Lei Li**, Yongfeng Zhang, Dugang Liu, Li Chen
  **COLING'24**: Proceedings of the 2024 Joint International Conference on Computational Linguistics, Language Resources and Evaluation, pages 10146-10159, Turin, Italy, May 20–25, 2024

- Prompt Distillation for Efficient LLM-based Recommendation
  **Lei Li**, Yongfeng Zhang, Li Chen
  **CIKM'23**: Proceedings of the 32nd ACM International Conference on Information and Knowledge Management, pages 1348-1357, Birmingham, United Kingdom, October 21–25, 2023

- Personalized Prompt Learning for Explainable Recommendation
  **Lei Li**, Yongfeng Zhang, Li Chen
  **TOIS**: ACM Transactions on Information Systems, volume 41 (4), article 103, pages 1-26, March 2023

- On the Relationship between Explanation and Recommendation: Learning to Rank Explanations for Improved Performance
  **Lei Li**, Yongfeng Zhang, Li Chen
  **TIST**: ACM Transactions on Intelligent Systems and Technology, volume 14 (2), article 21, pages 1-24, February 2023

- Improving Personalized Explanation Generation through Visualization
  Shijie Geng, Zuohui Fu, Yingqiang Ge, **Lei Li**, Gerard de Melo, Yongfeng Zhang
  **ACL'22**: Proceedings of the 60th Annual Meeting of the Association for Computational Linguistics, pages 244-255, Dublin, Ireland, May 22–27, 2022

- Personalized Transformer for Explainable Recommendation
  **Lei Li**, Yongfeng Zhang, Li Chen
  **ACL'21 (oral)**: Proceedings of the 59th Annual Meeting of the Association for Computational Linguistics and the 11th International Joint Conference on Natural Language Processing, pages 4947-4957, Online, Thailand, August 1–6, 2021

- EXTRA: Explanation Ranking Datasets for Explainable Recommendation
  **Lei Li**, Yongfeng Zhang, Li Chen
  **SIGIR'21**: Proceedings of the 44th International ACM SIGIR Conference on Research and Development in Information Retrieval, pages 2463-2469, Virtual Event, Canada, July 11–15, 2021

- Generate Neural Template Explanations for Recommendation
  **Lei Li**, Yongfeng Zhang, Li Chen
  **CIKM'20**: Proceedings of the 29th ACM International Conference on Information & Knowledge Management, pages 755-764, Virtual Event, Ireland, October 19–23, 2020

- Towards Controllable Explanation Generation for Recommender Systems via Neural Template
  **Lei Li**, Li Chen, Yongfeng Zhang
  **WWW'20 Demo**: Companion Proceedings of the Web Conference 2020, pages 198-202, Taipei, Taiwan, April 20–24, 2020

## *Research Proposals*

- Causal Inference for Natural Language Processing in Recommender Systems
  Awarded RGC Postdoctoral Fellowship Scheme (PDFS) in 2022

- Research on Generating Explainable Serendipity-Oriented Recommendations based on Knowledge Graph
  Partly involved  Principal Investigator: Prof. Li Chen
  Funded by General Research Fund (GRF) in 2020

- Engaging the Audience with AI-powered News Chatbot
  Partly involved  Principal Investigator: Prof. Li Chen
  Funded by HKBU IRCMS Project in 2019

## *Talks & Tutorial*

**Large Language Models for Generative Recommendation** *April 2024*
*ConsumerBG AI Workshop Hong Kong* *Huawei Hong Kong Research Center*

**Large Language Models for Generative Recommendation** *April 2024*
*COMP4135 & COMP7240 Recommender Systems* *Hong Kong Baptist University*

**Large Language Models for Generative Recommendation** *April 2024*
*Huawei Computing Youth Forum* *Hangzhou*

**Large Language Models for Recommendation** *September 2023*
*Tutorial at RecSys'23* *Singapore*
Attracted hundreds of audience

**Generating Recommendation Explanations with Transformer and Pre-trained Model** *April 2023*
*COMP4135 & COMP7240 Recommender Systems* *Hong Kong Baptist University (Online)*

**Generating Recommendation Explanations with Transformer and Pre-trained Model** *March 2023*
*Data Science Lab* *Korea Advanced Institute of Science & Technology (Online)*

**Improving Personalized Explanation Generation through Visualization** *December 2022*
*Department of Computer Science* *University of Luxembourg (Online)*

**How to Come up with Ideas and Do Research: Experience Sharing** *October 2021*
*COMP7160 Research Methods in Computer Science* *Hong Kong Baptist University*

## *Academic Services*

- **Guest Editor**: ACM Transactions on Recommender Systems (TORS) special issue on "Large Language Models for Recommender Systems", 2023
- **Workshop Organizer**: "EARL: Workshop on Evaluating and Applying Recommendation Systems with Large Language Models". RecSys'24
- **Session Chair**: CIKM'23 (Recommendation 9), WWW'23 (Multi-behavior Recommendation & Self-supervised Learning)
- **Program Committee Member**: RecSys'24, WWW'23, RecSys'22
- **Invited Reviewer**:
  - IEEE Transactions on Knowledge and Data Engineering (TKDE), 2023, 2024
  - ACM Transactions on Information Systems (TOIS), 2020, 2022, 2024
  - ACM Transactions on Recommender Systems (TORS), 2023
  - IEEE Transactions on Big Data (TBD), 2022
  - International Journal of Human-Computer Studies (IJHCS), 2024
  - ACM Transactions on Interactive Intelligent Systems (TiiS), 2021
  - Neurocomputing (NEUCOM), 2018, 2024
  - Knowledge-based Systems (KNOSYS), 2018
  - Journal of Intelligent Information Systems (JIIS), 2021
- **External Reviewer**: CIKM'24, SIGIR'21, WWW'21, WWW'19

- **Student Volunteer**: EMNLP'19

## *Awards & Honors*

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|---|---|---|
| **RGC Postdoctoral Fellowship Scheme** | Hong Kong RGC | *August 2022 – Present* |
| **RPg Performance Award** | HKBU | *September 2021* |
| **Research Postgraduate Studentship** | HKBU | *August 2017 – August 2021* |
| **Student Travel Grant (Virtual)** | SIGIR'21 | *July 2021* |
| **Research Excellence Award** | PG Day, HKBU | *June 2021* |
| **Student Travel Grant (Virtual)** | CIKM'20 | *October 2020* |
| **Best Presentation Award** | PG Day, HKBU | *June 2020* |
| **Excellent Teaching Assistant Performance Award** | HKBU | *June 2018, 2019, 2020* |
| **Teaching Assistant Performance Award** | HKBU | *February 2020* |
| **Outstanding Graduate** | SZU | *June 2017* |

## *Technical Skills*

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|---|---|
| **Programming Language** | Python, Java, Matlab, C++ (ordered by proficiency) |
| **Platform and Tool** | PyTorch, TensorFlow, Scikit-learn, MongoDB, Django, XGBoost, Liblinear |

## *Languages*

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|---|---|
| **Mandarin** | Native |
| **English** | Working proficiency |
| **Cantonese** | Elementary |

Last update: August 17, 2024