HUIDONG LIANG

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EDUCATION

PhD Engineering Science   **University of Oxford**   **Oct. 2023 - Sep. 2027**
- Thesis: *Machine learning and signal processing on graphs with their applications in finance.*
- Supervisor: Professor *Xiaowen Dong*   Funding: ESRC Grand Union DTP [AQM Award]
- Affiliation: Oxford-Man Institute of Quantitative Finance; Machine Learning Research Group

MSc Statistical Science   **University of Oxford**   **Oct. 2022 - Sep. 2023**
- Courses: *Statistical Machine Learning*, *Bayesian Methods*, *Network Analysis*, *Statistical Inference.*
- Supervisor: Professor *Xiaowen Dong*   Thesis: *Bayesian optimisation on graphs.*

BoC Business School [Hons]   **University of Sydney**   **Jul. 2018 - Feb. 2022**
- Majors: Finance & Business Analytics   Award: USYD Honours Scholarship
- Supervisor: Professor *Junbin Gao*   Thesis: *Graph representation learning.*

SELECTED PAPERS

Bayesian Optimization of Functions over Node Subsets in Graphs   *NeurIPS 2024*
- *Huidong Liang, Xingchen Wan, Xiaowen Dong*   *Paper: arXiv:2405.15119*

Graph Contrastive Learning with Implicit Augmentations   *Neural Networks*
- *Huidong Liang, Xingjian Du, Bilei Zhu, Zejun Ma, Junbin Gao*   *Paper: arXiv:2211.03710*

Wasserstein Adversarially Regularised Graph Auto-Encoder   *Neurocomputing*
- *Huidong Liang, Junbin Gao*   *Paper: arXiv:2111.04981*

How Neural Processes Improve Graph Link Prediction   *IEEE ICASSP 2022*
- *Huidong Liang, Junbin Gao*   *Paper: arXiv:2109.14894*

RESEARCH EXPERIENCE

Machine Learning Research Group   **June. 2023 - Sep. 2027**
Research Student   *Dept. EngSci, University of Oxford*
- Currently leading or participating in three sub-directions of graph-related research: Bayesian optimization on graphs; casual graph optimization in language models, and learning on financial networks.
- Attended the weekly group seminars and presented our recent paper accepted by NeurIPS-2024.

ByteDance AI Lab   **Mar. 2022 - Aug. 2022**
Research Intern (Intelligent Speech and Audio Team)   *Shanghai*
- Participated in Music Structural Analysis project, assisted developing machine learning algorithms from TikTok database that can automatically detect verse/chorus segments of a song. Wrote up the academic paper as co-first author, which is now accepted by *ISMIR 2022* and registered for a patent.
- Investigated a contrastive learning method with latent augmentations. Proposed the model design, conducted the experiments and wrote up the paper as first author, which is currently under review.

Business Analytics Research Group   **Dec. 2020 - Feb. 2022**
Undergraduate Research Member   *Business School, University of Sydney*
- Finished two projects as first author in statistical machine learning for honours degree's dissertation.
- Participated in the weekly seminar with professors and DPhil/MPhil students, where frontiers in machine learning research were presented and discussed in the group. Delivered three one-hour academic presentations about the related works in my research.

SKILLS AND INTERESTS

Programming
- Python: PyTorch, HuggingFace Transformers, BoTorch, PyTorch-Geometric, and scikit-learn.
- Others: Linux Shell, MATLAB, Java script, HTML & CSS, R, SQL, and LaTeX.

Research Interests
- I am currently interested in optimizing the reasoning graph of language models at inference time.