Yuanbang Liang

I'm a PhD student, studying at Cardiff University. My research is about Deep Learning and Generative AI.

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Education

2021 – now **Ph.D. Computer Science, Cardiff University (Expected to graduate before 2025)**
Thesis title: *Uncovering the "Instincts" of Deep Generative Models for Fair and Unbiased Visual Content Creation.* Supervised by Yipeng Qin, Yu-Kun Lai and Jing Wu.
Fully funded by Engineering and Physical Sciences Research Council (EPSRC) DTP studentships.

2020 – 2021 **M.Sc. Engineering Mathematics, University of Bristol** GPA: 3.5/4.0
Main Course: Partial Differential Equations, Computational Genomics and Bioinformatics Algorithms, Intelligent Information Systems, Robotics Systems, Applied Statistics
My team work in Robotics Systems is chosen as an example work for the future students. (Programe Director: Paul O'Dowd)
In UoB, I did the research with Prof Anthony Mulholland about tomographic technology for man-made structures with deep learning and Voronoi graph to visualize the inner structure and find the potential risk.

2018 – 2020 **B.Sc. Computer Science, University of Liverpool** GPA: 3.8/4.0
Main Course: Intelligent Information Systems, Algorithm and Optimisation, Data Science
NB: Continue from Xi'an Jiao-tong Liverpool University (XJTLU)
In UoL, I did the research with Prof Vitaliy Kurlin about hurricane track prediction using deep learning and geology. That is my first time to apply AI for science.

2016 – 2018 **B.Sc. Information and Computing Science, Xi'an Jiao-tong Liverpool University**
Main Course: Information Systems, Algorithm and Optimisation, Data Structure, Discrete Mathematics, Probabilistic, Calculus
In XJTLU, I start my life of research; I attended Prof Fei Ma's lab and publish a paper.

Research Publications

Conference Proceedings

1. **Y. Liang**, H. Garg, P. L. Rosin, and Y. Qin, "Deep generative model based rate-distortion for image downscaling assessment (**Oral**, top 0.8%)," in *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, Jun. 2024, pp. 19 363–19 372.

2. **Y. Liang**, J. Wu, Y.-K. Lai, and Y. Qin, "Efficient precision and recall metrics for assessing generative models using hubness-aware sampling (**Spotlight**)," in *Proceedings of the Forty-first International Conference on Machine Learning (**ICML**)*, ser. Proceedings of Machine Learning Research, vol. 235, PMLR, 21–27 Jul 2024, pp. 29 682–29 699.

3. Y. Liao*, **Y. Liang***, Y. Qin, H. Liu, and I. Spasic, "CID at RRG24: Attempting in a conditionally initiated decoding of radiology report generation with clinical entities (* denotes equal contribution)," in *Proceedings of the 23rd Workshop on Biomedical Natural Language Processing*, Bangkok, Thailand: Association for Computational Linguistics (**ACL**), Aug. 2024, pp. 591–596.

4. S. Song, **Y. Liang**, J. Wu, Y.-K. Lai, and Y. Qin, "Feature proliferation – the "cancer" in stylegan and its treatments," in *Proceedings of the IEEE/CVF International Conference on Computer Vision (**ICCV**)*, Oct. 2023, pp. 2360–2370.

5 **Y. Liang**, J. Wu, Y.-K. Lai, and Y. Qin, "Exploring and exploiting hubness priors for high-quality GAN latent sampling (**Spotlight**)," in *Proceedings of the 39th International Conference on Machine Learning (**ICML**)*, ser. Proceedings of Machine Learning Research, vol. 162, PMLR, 17–23 Jul 2022, pp. 13 271–13 284. URL: https://icml.cc/virtual/2022/spotlight/16224.

6 **Y. Liang**, Y. Jia, J. Li, *et al.*, "Online shop daily sale prediction using adaptive network-based fuzzy inference system," in *2019 12th International Congress on Image and Signal Processing, BioMedical Engineering and Informatics (CISP-BMEI)*, 2019, pp. 1–6. DOI: 10.1109/CISP-BMEI48845.2019.8966058.

Skills

Language	Strong reading, writing and speaking in English, Mandarin Chinese (native).
Coding	C, Java, PHP, Python, R, SQL, XML/XSL, LaTeX.
Framework	TensorFlow, Pytorch, Keras, Spring boot.
Web Dev	HTML, CSS, JavaScript.

Miscellaneous Experience

Awards and Achievements

2021 **EPSRC DTP studentships (around 65,000£)**, EPSRC DTP & Cardiff University

2018 **Honourable Mention(Team Number: 83347)**, Mathematical Contest in Modelling,

2017 **Outstanding Academic Research for the Great Performance**, XJTLU.

Certification

2020 **Certified Differential Equations for Engineers**. Awarded by Coursera.

2019 **Certified Reliable and Reproducible Computing**. Awarded by Xi'an Jiao-tong Liverpool University.

Service

- **Conference Reviewer:** ICML (2024) ICLR (2025).
- **Journal Reviewer:** TNNLS (2024) Neurocomputing (2024).

Work Experience

2.2023 – now **Teaching Assist. for Applied Machine Learning and Computational Mathematics** Cardiff University.

06.2019-08.2019 **Intern of Algorithm Research and Development for OTP** Beijing Venustech Inc.
Develop one-time password Algorithm based on reliable validation and efficience.

01.2018-02.2018 **Intern of Software Development** Yonyou Software Co., Ltd.
Perform front-end and back-end software interaction tasks.

References

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