

Tangzheng Lian

✉ lian.tangzheng@kcl.ac.uk |  Google Scholar |  GitHub |  LinkedIn |  Personal Website

Education

King's College London

PhD Candidate in Computer Science

London, UK

Jun 2023 - Present

- Advisor: Dr. Oya Celiktutan
- Funding: The Natural, Mathematics & Engineering Sciences (NMES) Faculty Studentship

University of Birmingham

MSc in Computer Science (*Distinction*)

Birmingham, UK

Sept 2021 - Dec 2022

Beijing University of Posts and Telecommunications

BEng in Telecommunication Engineering

Beijing, China

Sept 2017 - Jun 2021

Research Interests

Trustworthy/Responsible AI, Algorithmic Fairness, OOD Generalization, Vision-Language Models, Affective Computing

Publications

Tangzheng Lian, Guanyu Hu, Yijing Ren, Dimitrios Kollias, Oya Celiktutan. *A Closed-Form Solution for Debiasing Vision-Language Models with Utility Guarantees Across Modalities and Tasks*. In Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2026.

Tangzheng Lian, Guanyu Hu, Dimitrios Kollias, Xinyu Yang, Oya Celiktutan. *Fair Domain Generalization: An Information-Theoretic View*. In Proceedings of the AAAI Conference on Artificial Intelligence (**Oral Presentation**), 2026.

Tangzheng Lian, Oya Celiktutan. *A Feature-level Framework for Evaluating Demographic Biases in Facial Expression Recognition Models*. IEEE Transactions on Affective Computing, 2026.

Tangzheng Lian, Oya Celiktutan. *Towards Pareto Efficiency in Fair Facial Expression and Action Unit Recognition*. In Proceedings of the IEEE International Conference on Automatic Face and Gesture Recognition (FG), 2026.

Tangzheng Lian, David Adama, Pedro Machado, Doratha Vinkemeier. *Supervised Contrastive Learning with Identity-Label Embeddings for Facial Action Unit Recognition*. In Proceedings of the British Machine Vision Conference (BMVC), 2023.

Wenqi, Xu, **Tangzheng Lian**, Wei Liu, Kaili Zhao. *Attention-guided Soft Ranking Loss for Resource-constrained Head Pose Estimation*. In Proceedings of the IEEE International Conference on Network Intelligence and Digital Content, 2021.

Research Experience

King's College London

PhD Candidate in the Department of Engineering

London, UK

Jun 2023 - Present

Project: Towards Algorithmic Fairness in Machine Learning Models

- Addressed the problem of fair domain generalization by deriving information-theoretic bounds for both expected risk and fairness violations under domain shift, and developing a Pareto optimization method that outperforms state-of-the-art methods with improved utility–fairness trade-offs on vision and language datasets.
- Developed a training- and data-free debiasing method for vision–language models (VLMs) with a closed-form solution and utility guarantees in the cross-modal embedding space, outperforming prior debiasing methods in group and intersectional fairness across downstream tasks including zero-shot image classification, text-to-image retrieval, and generation.
- Evaluated algorithmic biases in facial expression recognition (FER) models by introducing a feature-level fairness evaluation framework with statistical testing using external data, and developed a multi-objective optimization approach to characterize the utility–fairness trade-off across FER, facial action unit recognition, and facial attribute classification.

Nottingham Trent University

Research Assistant at the Computing and Informatics Research Center

Nottingham, UK

Apr 2022 - Aug 2023

Project: Automatic Facial Behaviour Analysis

- Addressed key challenges in Facial Action Unit (AU) detection, including poor generalization to unseen subjects and effective modelling of correlations between different AUs by proposing a novel AU detection framework, which achieved state-of-the-art performance on the BP4D and DISFA benchmarks.
- Annotated video sequences of behaviours and activities of autistic primary school students in Nottingham, enabling automatic behavioural analysis for autism research in real-world educational environments as part of the AI-TOP project.
- Set up remote GPU servers from scratch and deployed AU detection models on video data of autistic children, and collaborated with interdisciplinary research teams while delivering talks and presentations to researchers and students.

Awards, Studentships, & Grants

The NMES Studentship (2023), King's College London

£25,600 p.a. & tuition waiver

The CIRC Strategic Research Funding (2022), Nottingham Trent University

£32,700

Third Prize Scholarship (2021), Beijing University of Posts and Telecommunications

£300

The Winner Poster (3rd Year Research Competition 2023), King's College London

The Outstanding Undergraduate Thesis (2021), Beijing Municipal Education Commission

Presentations and Talks

Oral presentation at the AAAI Conference (Main Technical Track), Singapore, January 2026. Available online: Website

Invited talk at the BMVA Symposium on AI Security, London, July 2025. Available online: Website, YouTube.

Teaching Experience

Sensing and Perception (Spring 2024), Teaching Assistant

King's College London

Engineering Mathematics (Fall 2023), Teaching Assistant

King's College London

Applied Maths and Graphics (Spring 2023), Teaching Assistant

Nottingham Trent University

Professional Services

Members: BMVA, IAPR, AAAI.

Conference Reviewer: CVPR, AAAI, WACV, BMVC.

Journal Reviewer: IEEE Transactions on Affective Computing, IEEE Transactions on Big Data.

Skills

- **Programming Languages:** Python, Shell
- **ML Frameworks:** PyTorch, Hugging Face, NumPy, Pandas
- **Tools:** Git, Linux, VS Code, Slurm, Anaconda, LaTeX