XIAOYU VICTOR WANG

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EMPLOYMENT HISTORY

Heriot-Watt University *October 2025 - Present*
Postdoctoral Research Associate
School of Engineering and Physical Sciences, Institute of Sensors Signals and Systems
Supervisor: *Prof. Yoann Altmann*

Heriot-Watt University *October 2023 - October 2025*
Postdoctoral Research Associate
School of Mathematical and Computer Sciences & Maxwell Institute for Mathematical Sciences
Supervisor: *Prof. Audrey Repetti*

ACADEMIC HISTORY

University of Cambridge *October 2018 - March 2023*
PhD in Applied Mathematics
Centre for Analysis, Department of Applied Mathematics and Theoretical Physics
Supervisor: *Prof. Martin Benning, Prof. Carola-Bibiane Schönlieb*
Thesis title: *Neural Network Training and Inversion with a Bregman Framework*

New York University *October 2016 – July 2018*
MS in Data Science
Centre for Data Science, Courant Institute of Mathematical Sciences

University of California, Los Angeles *October 2012 – July 2016*
BS in Applied Mathematics (Honors), Minor in Statistics
Department of Mathematics, Department of Statistics

PUBLICATIONS

[1] X. Wang, A. Valavanis, A. Mahmood, A. Mang, M. Benning, A. Repetti, *A unified framework for lifted training and inversion approaches*, In: Handbook of Numerical Analysis, 2025.

[2] X. Wang, A. Repetti, *A Plug-and-Play Method with Inpainting Network for Bayesian Uncertainty Quantification in Imaging*, submitted to Journal of Mathematical Imaging and Vision, 2025.

[3] X. Wang, M. Benning, A. Repetti, *Bi-convex lifted Bregman strategies for learning proximal neural network*, in preparation, 2025.

[4] X. Wang, M. Benning, A. Repetti, *A lifted Bregman strategy for training unfolded proximal neural network Gaussian denoisers*, IEEE Machine Learning for Signal Processing, 2024.

[5] X. Wang, M. Benning, *A Lifted Bregman Formulation for the Inversion of Deep Neural Networks*, Frontiers Applied Mathematics and Statistics, Special Issue on Deep Neural Networks in Inverse Problems, 2023.

[6] X. Wang, M. Benning, *Lifted Bregman Training of Neural Networks*, Journal of Machine Learning Research, 2023.

[7] X. Wang, M. Benning, *Generalised Perceptron Learning*, in 12$^{\text{th}}$ OPT Workshop on Optimisation for Machine Learning, NeurIPS, 2020.

INVITED TALKS AND PRESENTATIONS

Alps-Adriatic Inverse Problems Workshop (AAIP 2025)	*September 2025*
European Conference on Computational Optimisation (EUCCO 2025)	*September 2025*
IEEE International Workshop on Machine Learning for Signal Processing	*September 2024*
IMA Conference on Inverse Problems from Theory to Application	*September 2024*
SIAM Annual Meeting (AN24)	*July 2024*
ICMS: Inverse Problems and Generating Models: Sparsity, Robustness v.s. Expressivity	*April 2024*
International Congress on Industrial and Applied Mathematics (ICIAM 2023)	*August 2023*
Maths4DL Conference on Deep Learning for Computational Physics	*July 2023*
SIAM Conference on Computational Science and Engineering (CSE23)	*February 2023*
Seeking Low-Dimensionality in Deep Neural Networks (SLowDNN)	*January 2023*
IMA Conference on The Mathematical Challenges of Big Data	*September 2022*
IMA Conference on Inverse Problems from Theory to Application	*May 2022*
SIAM Conference on Imaging Science (IS22)	*March 2022*
ZiF Conference on Mathematics of Machine Learning	*February 2021*
NeurIPS Workshop on Optimisation for Machine Learning (OPT 2020)	*December 2020*
LMS-Bath Symposium on the Mathematics of Machine Learning	*August 2020*
SIAM Conference on Imaging Science (IS20)	*July 2020*

TEACHING

Heriot-Watt University	Scalable and Proximal Methods for Deep Learning Bayesian Inference and Computational Methods
University of Cambridge	Mathematics of Machine Learning
University of California, Los Angeles	Design and Analysis of Experiments Fundamentals of Optimisation

LEADERSHIP

- Co-organiser of the joint mathematical Centres for Doctoral Training conference *2021*
- Treasurer of SIAM-IMA University of Cambridge student chapter *2021-2022*

SCHOLARSHIPS AND AWARDS

Best Poster Prize, Maths4DL Conference on Deep Learning for Computational Physics	*July 2023*
Senior Academic Excellence Scholarship, Fitzwilliam College	*December 2021*
PhD Scholarship, Cantab Capital Institute for the Mathematics of Information	*October 2018*
Rose Gilbert Honors Scholarship, University of California Los Angeles	*April 2015*
Dean's List, University of California Los Angeles	*September 2013 - March 2015*