Xuesong Wang

Commonwealth Scientific and Industrial Research Organisation

July 2025

wangxuesong94@gmail.com
Google Scholar
Linkedin
Sydney, Australia

Summary

- Holds a PhD in Computer Science and maintains a strong publication record in top machine learning and data-mining conferences.
- Brings relevant industry experience from PayPal and serves as a post-doctoral researcher at CSIRO.
- Leverages modern ML frameworks and a wide range of programming languages.
- Provides strong leadership and delivers high impact in AI4Science and brain-imaging projects.

Education

2019–2023	**PhD** **University of New South Wales** Computer Science and Engineering supervisor: Lina Yao
2016–2019	Master of Engineering Tongji University
T1 2015	Undergraduate Exchange Program Royal Melbourne Institute of Technology *GPA: 4.0/4.0.*
2012–2016	Bachelor of Engineering Nanjing University of Aeronautics and Astronautics

Industry Experience

03/2023–	**Postdoctoral Fellow** **CSIRO Data61** supervisor: Edwin V. Bonilla **Bayesian inference and probabilistic modeling with deep learning** (see publications)
2018	**E-commerce Internship: PayPal** Machine Learning Intern Investigated seasonality analysis and anomaly detection algorithms on e-commerce data

Projects

Github: xuesongwang. Total stars: 41

2024-2025	AI4Science project for climate forecasting **Leader** **(Cross team leadership, Transformer)**. Led the project with a mixed team of data scientists and earth scientists. Improved vision transformer models on climate data. Deployed on real Australian weather forecast and reduced the inference latency by 50%. Published one paper in a top machine learning conference workshop.
2023-2024	Foundational machine learning project **Leader** **(Multitask learning and Bayesian inference)**. Led the project to study a Bayesian model called Neural Processes, which is used in multitask learning. Tested in a real-world COVID case prediction with uncertainty estimation. Published one paper at the top-tier machine learning conference and was selected as an oral presentation (1% of total submissions).
2020-2023	Brain Imaging Analysis for ADHD/Autism **Co-leader** **(Graph neural networks)**. Co-led a project with data scientists and radiologists to investigate differences between subjects with ADHD and autism. We used spectral graph convolutions for subject representation and dynamic graph classification. We discovered 2 new subtypes for each disorder and submitted two papers to the top medical imaging conference and journals.

Skills

Programming	Python, Matlab, Julia, R, C++, SQL
Machine Learning & AI	Scikit-learn, PyTorch, TensorFlow, JAX, NumPy, Pandas, OpenCV.
Deep Learning	Bayesian Inference, Graph Neural Networks, Transformers, Neural Processes.
Tools & Platforms	Git, LaTeX, Docker, AWS, Google Cloud, Linux.
Data Science	Time Series, Anomaly Detection, Multitask Learning, Probabilistic Models.

Awards

2021	Invited PhD lightning talk, ACM Multimedia Asia
2021	Google Research India Graduate Symposium Attendee.
2021	3-Minute-Thesis Finalist, UNSW, check out the video here.

Selected Publications

- **Topic: Multitask learning and Bayesian inference** "Rényi Neural Processes". Xuesong Wang, He Zhao, Edwin Bonilla. In *IEEE International Conference on Machine Learning*, ICML (CORE A*). 2025 (**Oral, top 1% submissions**). **Summary**: Studied a type of deep probabilistic algorithms named neural processes and trained them on a distribution of multiple tasks. Proposed a new loss function that interpolates the commonly used objectives in Bayesian inference including variational inference and maximum likelihood estimation. Improved the average log-likelihood by 30%.
- **Topic: Graph neural networks** "Contrastive Functional Connectivity Graph Learning for Population-based fMRI Classification". Xuesong Wang* , Lina Yao, Islem Rekik, and Yu Zhang. In *International Conference on Medical Image Computing and Computer Assisted Intervention*, MICCAI (CORE A) 2022.
- "Thompson Sampling in Function Spaces via Neural Operators". Rafael Oliveira, Xuesong Wang, Kian Ming A. Chai, Edwin V. Bonilla. In *Neural Information Processing Systems*, NeurIPS 2025 Workshop.
- "Global Convolutional Neural Processes". Xuesong Wang* , Lina Yao, et al. In *IEEE International Conference on Data Mining*, ICDM (CORE A*). 2021 (**Best paper candidate)**.
- Uncertainty Estimation with Neural Processes for Meta-Continual Learning. Xuesong Wang , Lina Yao*, et al. In *IEEE Transactions on Neural Networks and Learning Systems*, TNNLS (CORE A*, IF = 14.255) 2022.