

SHUO ZHOU

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RESEARCH INTEREST

Interpretable Machine Learning, Medical Image Analysis

EDUCATION

- PhD, Computer Science (Machine Learning), University of Sheffield, UK 03.2018–02.2022
- MSc (Completion with Distinction), Advanced Computer Science, University of Sheffield, UK 09.2016–09.2017
- MA, New Media and Society, University of Leicester, UK 10.2012–09.2013
- BSc, Information Technology and Education, Jiangnan University, China 09.2008–06.2012

PROFESSIONAL EXPERIENCE

- Academic Fellow in Machine Learning 07.2022 –Present
- Research Assistant, University of Sheffield 09.2021 –06.2022
 - Machine learning for improving prognostic and treatment response assessment on cardiac MRI data.
- Research Software Engineer (Part-time), University of Sheffield 04.2020–06.2021
 - Developing a machine learning software for cardiac MRI data analysis.
- Visiting Researcher, Beijing Normal University. Advisor: Prof. Gaolang Gong 12.2020 –01.2021
 - Interpretable machine learning for investigating human brain lateralisation.
- Administrative/technical Staff, Wuxi 4th People's Hospital 07.2014 –08.2016

PEER-REVIEWED PUBLICATIONS

Journal Papers

1. M. Kunda, **S. Zhou**, G. Gong, and H. Lu. (2022). "Improving Multi-Site Autism Classification via Site-Dependence Minimization and Second-Order Functional Connectivity", *IEEE Transactions on Medical Imaging* (IF: 11.037), Accepted.
2. S. Alabed, J. Uthoff, **S. Zhou**, P. Garg, K. Dwivedi, F. Alandejani, R. Gosling, L. Schobs, M. Brook, Y. Shahin, ..., H. Lu, and A. Swift. (2022). "Machine learning cardiac-MRI features predict mortality in newly diagnosed pulmonary arterial hypertension", *European Heart Journal - Digital Health*, 3(2), 265–275.
3. L. Song, **S. Zhou**, and H. Lu. (2022). "Direct ICA on Data Tensor via Random Matrix Modeling", *Signal Processing* (IF: 4.662), 108508.
4. M. D. Schirmer, A. Venkataraman, I. Rekik, M. Kim, S. H. Mostofsky, M. B. Nebel, K. Rosch, K. Seymour, D. Crocetti, H. Irzan, M. Hütel, S. Ourselin, N. Marlow, A. Melbourne, E. Levchenko, **S. Zhou**, M. Kunda, H. Lu, et al. (2021). "Neuropsychiatric disease classification using functional connectomics-results of the connectomics in neuroimaging transfer learning challenge", *Medical Image Analysis* (IF: 8.545), 70, 101972.
5. A. J. Swift, H. Lu, J. Uthoff, P. Garg, M. Coglianò, J. Taylor, P. Metherall, **S. Zhou**, C. S. Johns, S. Alabed, et al. (2021). "A machine learning cardiac magnetic resonance approach to extract disease features and automate pulmonary arterial hypertension diagnosis", *European Heart Journal-Cardiovascular Imaging* (IF: 4.841), 22(2), 236–245.

Conference Papers

1. H. Lu, X. Liu, **S. Zhou**, R. Turner, P. Bai, R. Koot, M. Chasmai, and L. Schobs. (2022). PyKale: Knowledge-Aware Machine Learning from Multiple Sources in Python, in *Proceedings of the 31st ACM International Conference on Information and Knowledge Management (CIKM)*.
2. L. Schobs, **S. Zhou**, M. Coglianò, A. Swift, and H. Lu. (2021). "Confidence-quantifying landmark localisation for cardiac MRI", in *Proc. of the IEEE International Symposium on Biomedical Imaging*, 985–988. IEEE.
3. **S. Zhou**, W. Li, C. Cox, and H. Lu. (2020). "Side information dependence as a regularizer for analyzing human brain conditions across cognitive experiments", in *Proc. of the AAAI Conf. on Artificial Intelligence*, 34, 6957–6964.
4. **S. Zhou**, C. R. Cox, and H. Lu. (2019). "Improving whole-brain neural decoding of fMRI with domain adaptation", in *International Workshop on Machine Learning in Medical Imaging*, 265–273. Springer.
5. W. Li, J. Lou, **S. Zhou**, and H. Lu. (2019). "Sturm: Sparse tubal-regularized multilinear regression for fMRI", in *International Workshop on Machine Learning in Medical Imaging*, 256–264. Springer.
6. L. Schobs, **S. Zhou**, M. Coglianò, A. Swift, and H. Lu. (2019). "A Biased Sampling Network to Localise Landmarks for Automated Disease Diagnosis" in *Medical Imaging Meets NeurIPS (a workshop in NeurIPS 19)*.

TEACHING

- COM6012 Scalable Machine Learning Spring 2023

AWARDS

- Post-Doctoral Enrichment Awards (PDEA), the Alan Turing Institute 2022
- Academic Year 2016/17 Performance with Distinction Award, the University of Sheffield 2017

COLLABORATORS

- Dr. Haiping Lu. Senior Lecturer in Machine Learning at Department of Computer Science, University of Sheffield. Since 2016.
- Dr. Christopher R. Cox. Department of Psychology, Louisiana State University. Since 2017.
- Dr. Andrew Swift. Department of Infection, Immunity and Cardiovascular Disease, University of Sheffield. Since 2017.
- Prof. Gaolang Gong. State Key Laboratory of Cognitive Neuroscience and Learning, Beijing Normal University. Since 2018.
- Dr. Samer Alabed. Department of Infection, Immunity and Cardiovascular Disease, University of Sheffield. Since 2019.
- Dr. Robert Turner. Research software engineer at Department of Computer Science, University of Sheffield. Since 2020.

ACADEMIC SERVICES

- Reviewer of IEEE Transactions on Cognitive and Developmental Systems (TCDS)
- Program committee member of IJCAI-22 (the 31st International Joint Conference on Artificial Intelligence)

OPEN DATA AND SOFTWARE

- Co-creator, core contributor, and maintainer of [PyKale](#), a library in the PyTorch ecosystem.
- Processed and released cardiac MRI dataset [ShefPAH-179](#), which were initially acquired by the Department of Infection, Immunity and Cardiovascular Disease, University of Sheffield.

SELECTED TALKS

- “Domain adaptation with application in brain decoding for task fMRI”, at the State Key Laboratory of Cognitive Neuroscience and Learning, Beijing Normal University, Beijing, Dec 23, 2020.
- “Side information dependence as a regularizer for analyzing human brain conditions across cognitive experiments”, at AAAI Technical Track: Machine Learning, New York, Feb 11, 2020.
- “Improving whole-brain neural decoding of fMRI with domain adaptation”, at 10th International Workshop on Machine Learning in Medical Imaging (MLMI2019), Shenzhen, Oct 13, 2019.

COMPETITION EXPERIENCE

- EPIC-Kitchens 2021 Challenges for action recognition CVPR 2021
- Connectomics in neuroimaging transfer learning challenge for ASD and ADHD detection MICCAI 2019
- ASD detection challenge (IMPAC), finishing with AUC only 0.038 less than the best. 2018