Hongming Tang

SHUIMU POSTDOCTORAL RESEARCH FELLOW

Tsinghua University,Department of Astronomy, Tsinghua University, Beijing 100084, China

Education ____

Mancheste
Sep 2017 - July
Mancheste
Sep 2014 - July
Weihai, C
Sep 2012 - July

Professional Experience

2022-Now Co-PI, Radio Galaxy Zoo: EMU, Webpage: www.zooniverse.org/projects/hongming-tang/radio-galaxy-zoo-emu 2022-Now Shuimu postdoctoral research fellow, Tsinghua University

Awards, Fellowships, & Grants _____

2023	URSI GASS 2023 Young Scientist Award, URSI GASS 2023 Shuimu Tsinghua Scholar - Overseas Talent Program, Tsinghua University	CNY 300,000
2022	Fellowship of China Post-doctoral Science Foundation, China Postdoctoral Science Foundation	CNY 80,000
	Shuimu Tsinghua Scholar Program, Tsinghua University	
	Postdoctoral International Exchange Fellowship, Office of China Postdoc Council	CNY 600,000

Publications _____

FIRST/CORRESPONDING AUTHOR

- Chu, J., Tang, H., Xu, D., Lu, S., and Long, R., "Galaxy stellar and total mass estimation using machine learning", Monthly Notices of the Royal Astronomical Society, vol. 528, no. 4, pp. 6354–6369, 2024.
- Tang, H. et al., "A model local interpretation routine for deep learning based radio galaxy classification", in 2023 XXXVth General Assembly and Scientific Symposium of the International Union of Radio Science (URSI GASS, 2023).
- Tang, H., Scaife, A. M. M., Wong, O. I., and Shabala, S. S., "Radio Galaxy Zoo: giant radio galaxy classification using multidomain deep learning", Monthly Notices of the Royal Astronomical Society, vol. 510, no. 3, pp. 4504–4524, 2022.
- Tang, H., "Radio Galaxy Zoo: new giant radio galaxies in the RGZ DR1 catalogue", Monthly Notices of the Royal Astronomical Society, vol. 499, no. 1, pp. 68-76, 2020.
- Tang, H., Scaife, A. M. M., and Leahy, J. P., "Transfer learning for radio galaxy classification", Monthly Notices of the Royal Astronomical Society, vol. 488, no. 3, pp. 3358–3375, 2019.

2ND AUTHOR

er, UK 2021

er, UK 2017

. hina 2016

- Andrianomena, S. and **Tang, H.**, "Radio Galaxy Zoo: Leveraging latent space representations from variational autoencoder", 2023, arXiv.2311.08331.
- Bowles, M., **Tang,H.**, et al., "Radio galaxy zoo EMU: towards a semantic radio galaxy morphology taxonomy", Monthly Notices of the Royal Astronomical Society, vol. 522, no. 2, pp. 2584–2600, 2023.
- Bowles, M., **Tang,H.** et al., "A New Task: Deriving Semantic Class Targets for the Physical Sciences", Fifth Workshop on Machine Learning and the Physical Sciences (NeurIPS 2022), Neural Information Processing Systems 2022.

Manuscript 2

CO-AUTHORED

- Golden-Marx, E. et al., "The High-redshift Clusters Occupied by Bent Radio AGN (COBRA) Survey: Investigating the Role of Environment on Bent Radio AGNs Using LOFAR", The Astrophysical Journal, vol. 956, no. 2, 2023.
- Hardcastle, M. J. et al., "The LOFAR Two-Metre Sky Survey. VI. Optical identifications for the second data release", Astronomy and Astrophysics, vol. 678, 2023.
- Boyce, M. M. et al., "Hydra I: An extensible multi-source-finder comparison and cataloguing tool", Publications of the Astronomical Society of Australia, vol. 40, 2023.
- Boyce, M. M. et al., "Hydra II: Characterisation of Aegean, Caesar, ProFound, PyBDSF, and Selavy source finders", Publications of the Astronomical Society of Australia, vol. 40, 2023.
- Segal, G. et al., "Identifying anomalous radio sources in the Evolutionary Map of the Universe Pilot Survey using a complexitybased approach", Monthly Notices of the Royal Astronomical Society, vol. 521, no. 1, pp. 1429–1447, 2023.
- Slijepcevic, I. V. et al., "Radio Galaxy Zoo: using semi-supervised learning to leverage large unlabelled data sets for radio galaxy classification under data set shift", Monthly Notices of the Royal Astronomical Society, vol. 514, no. 2, pp. 2599–2613, 2022.
- Bastien, D. J., Scaife, A. M. M., **Tang, H.**, Bowles, M., and Porter, F., "Structured variational inference for simulating populations of radio galaxies", Monthly Notices of the Royal Astronomical Society, vol. 503, no. 3, pp. 3351–3370, 2021.
- Bowles, M., Scaife, A. M. M., Porter, F., **Tang, H.**, and Bastien, D. J., "Attention-gating for improved radio galaxy classification", Monthly Notices of the Royal Astronomical Society, vol. 501, no. 3, pp. 4579–4595, 2021.
- Garon, A. F. et al., "Radio Galaxy Zoo: The Distortion of Radio Galaxies by Galaxy Clusters", The Astronomical Journal, vol. 157, no. 3, 2019.
- Wu, C. et al., "Radio Galaxy Zoo: CLARAN a deep learning classifier for radio morphologies", Monthly Notices of the Royal Astronomical Society, vol. 482, no. 1, pp. 1211–1230, 2019.

IN-PREP

Tang, H. et al., "May I trust you: eXplainable AI for Radio Galaxy Classification"

Tang, H. at al., "Southern Large DRAGN Survey"

Springer "Data Intensive Radio Astronomy" special volume, submitted for production. co-authored in Ch.1 (Introduction), 6 (Implementations of data processing), 8 (Continnuum source identification and measurements) and 10 (Using AI for radio (big) data; 3rd author).

Selected Presentations -INVITED TALKS

"Radio Galaxy Zoo: How machine learning incorporates with citizen science" International Workshop on Machine Learning in Astronomy, 2023, Karachi, Pakistan

CONTRIBUTED TALKS

"A model local interpretation routine for deep learning based radio galaxy classification", URSI GASS 2023, Sapporo, Japan.

"Radio Galaxy Zoos: How citizen science and Astro-AI facilitate with each other – a quasi-10-year", AI in Astronomy 2022, online.

"Radio Galaxy Zoo EMU Current status, methodology, and outlook", EMU International Virtual Meeting 2022.

- "Radio Galaxy Zoo: Giant Radio Galaxy Classification using Multi-Domain Deep Learning", UK National Astronomical Annual Meeting 2021, Bath, UK [workshop talk].
- "Transfer Learning for Radio Galaxy Classification", European Week of Astronomy and Space Science 2019, Special Session 34, Lyon, France.

"Classifying Radio Galaxy Morphology using Neural Networks", Young European Radio Astronomers Conference 2018, Dwingeloo, Netherlands.

Teaching Experience _____

- 2022 Fundamental Physics I, Recitation Lecturer
- 2019 Computational Physics, Teaching Assistant
- 2018 Physics experiment, Lab tutor

Mentoring_____

2022-2023	Chuni Liang (female), summer intern undergrad student, Sun-Yat-Sen University
2022-2023	Zijun Wang (male), summer intern undergrad student, Sun-Yat-Sen University
2021-2022	Yan Luo (female), summer intern undergrad student, Sun-Yat-Sen University; Joining
	Peking University as a Ph.D. student
2021-2022	Leyao Wei (female), summer intern undergrad student, Sun-Yat-Sen University; Joined
	Tsinghua University as a Ph.D. student
2021-2022	Jizhe Lai (male), summer intern undergrad student, Sun-Yat-Sen University; Joined
	Imperial College as a M.Sc. student
2021-2022	Shiyu Yue (female), summer intern undergrad student, Sun-Yat-Sen University

Outreach & Professional Development ______

Service and Outreach

2023	"Astro Citizen Science in China", Speaker, Tsinghua Science Museum
2023	IAU OAD 2023 recommended project: "Radio Galaxy Zoo 2 – EMU: Reduce Inequality
	through citizen science based education program", Project PI
2018	IAU OAD 2018 recommended project: "RGZ_CN: Scientific exploration course of Radio
	Galaxy Zoo", Project Pl

DEVELOPMENT

Workshop I co-organized, International Workshop on Machine Learning in Astronomy, 2023, Karachi, Pakistan

PEER REVIEW

Monthly Notices of the Royal Astronomical Society (**MNRAS**) Astronomy and Astrophysics (**A&A**) Publications of the Astronomical Society of Australia (**PASA**) RAS Techniques & Instruments (**RASTI**) Astronomy and Computing (**A&C**) URSI Radio Science Letters (**RSL**)

PROFESSIONAL MEMBERSHIPS

Royal Astronomical Society (**RAS**) European Astronomical Society (**EAS**) International Union of Radio Science (**URSI**) ASKAP EMU: Evolutionary Map of the Universe survey team ASKAP POSSUM: Polarisation Sky Survey of the Universe's Magnetism survey team ASKAP WALLABY: The Widefield ASKAP L-band Legacy All-sky Blind surveY team SKA Extragalactic Continuum Science Working Group Radio Galaxy Zoo citizen science collaboration Radio Galaxy Zoo: LOFAR citizen science collaboration Radio Galaxy Zoo: EMU citizen science collaboration (co-PI)