# MICAH BOWLES

## PHD RESEARCHER

## ACADEMIC PROFILE

Phenomenological & empirical computer vision and deep learning researcher interested in robustness, interpretability, and novel architectures (research published in NeurIPS, MNRAS, A&A). Participating in international collaborations, including efforts to build a terra byte scale radio astronomy data processing pipeline.

## PERSONAL PROFILE

Passionate problem solver, gamer, and father. Most recently enjoying engaging in philosophy.

## CONTACT


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GitHub
https://github.com/mb010
ORCID
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LinkedIn
https://www.linkedin.com/in/micah-bowles-5863b0173/


## SKILLS

Deep Learning
Image Classification
Explainable AI (XAI)
Data Visualisation
High Performance Computing
Agile Development
Leadership
Communication

## LANGUAGES

English (Fluent)
German (Fluent)

## EDUCATION

**PhD Astronomy and Astrophysics, The University of Manchester**
2020 - 2024
Computer vision, deep learning and imaging research for radio astronomy funded by the STFC and Alan Turing Institute (Python, PyTorch, bash, SLURM). See: list of publications.

- Lead research project managing two graduate summer students.
- Active collaborator in two data centric international research collaborations (Python, git, SLURM, bash).
- Founding member and chair of a machine learning partnership with the SKAO (industrial partnership).
- Founding member of a machine learning interest group in collaboration with Tsinghua University.
- Formulated clear ethics statement for both groups.
- Supervised by Prof. Anna Scaife.

**MScR Astronomy and Astrophysics (Distinction), The University of Manchester**
2019-2020
Researched explainable deep learning using self-attention (Python, PyTorch).

**BSc Physics (2.1 Upper Second), University of Cologne**
2012 - 2018
Completed a yearlong thesis research project on simulating merging galaxies (Python, Cython, FORTRAN exposure). See: [4].

## WORK EXPERIENCE

**NES Global Talent, Recruitment Consultant**
02.2019 - 09.2019
Business development in a targeted approach to break into the renewable power financing sector (infrastructure investment). Coaching of team members on best data practices for their recruitment pipelines.

**Omikron Systemhaus GmbH, Technical Translator**
05.2015 - 10.2018
Translation of banking software, manuals, white papers, and marketing material from German to English, including the translation of a 500-page handbook for the newest software release. Omikron's offerings were translated into 10+ other languages using my English translations.

**Deutsche Welle, Translator**
10.2014 - 12.2014
Translation of a training handbook on international journalism from German to English.

**Volunteering**
10+ years of leadership roles within the Salvation Army in both Germany and the United Kingdom: participating in board meetings, budget meetings and running youth outreach programmes.

## PUBLICATIONS

[1] **Micah Bowles**, Matthew Bromley, Max Allen, Anna M M Scaife, E(2) Equivariant Self-Attention for Radio Astronomy, preprint arXiv http://arxiv.org/abs/2111.04742v1, NeurIPS 2021 Workshop.

[2] **Micah Bowles**, Anna M M Scaife, Fiona Porter, Hongming Tang, David J Bastien, Attention-gating for improved radio galaxy classification, Monthly Notices of the Royal Astronomical Society, Volume 501, Issue 3, March 2021, Pages 4579–4595, https://doi.org/10.1093/mnras/staa3946

[3] David J Bastien, Anna M M Scaife, Hongming Tang, **Micah Bowles**, Fiona Porter, Structured variational inference for simulating populations of radio galaxies, Monthly Notices of the Royal Astronomical Society, Volume 503, Issue 3, May 2021, Pages 3351–3370, https://doi.org/10.1093/mnras/stab588

[4] Persis Misquitta, **Micah Bowles**, Andreas Eckart, Madeleine Yttergren, Gerold Busch, Monica Valencia-S., Nastran Fazeli, 2020. Interactions among intermediate redshift galaxies-The case of SDSS J134420. 86+ 663717.8. Astronomy & Astrophysics, 639, p.A30. https://doi.org/10.1051/0004-6361/201937009

### Conference Talks

[5] Paying Attention to Astronomy Data, NAM 2021 (long presentation).

### Conference Posters

[6] Attention-Gating for Improved Radio Galaxy Classification, EAS 2021.