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Tahina Princy Ranaivomanana

PhD candidate

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EDUCATION

Joint PhD candidate , <i>Radboud University – KU Leuven</i>	10/2021 – Present
MPhil in Astronomy , <i>University of Manchester</i>	2020 – 2021
M.Sc. in Astronomy , <i>University of Antananarivo</i>	2016 – 2017
B.Sc. Honours in Astrophysics , <i>University of Antananarivo</i>	2015 – 2016
B.Sc in Physics , <i>University of Antananarivo</i>	2012 – 2015

EXPERIENCE

PhD project <i>Radboud University</i>	10/2021 – Present <i>The Netherlands</i>
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- Leveraging multiband time-series data from ground- and space-based telescopes, and machine learning methodologies to advance the understanding of formation and evolution of hot subwarf stars.

Teaching Assistantship

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| • Course: Astronomical Instrumentation and Data Analysis – Radboud University | 1st Semester 2024 |
| • Course: Astronomical Instrumentation and Data Analysis – Radboud University | 1st Semester 2023 |
| • Bachelor projects supervisors – KU Leuven | Fall & Spring, 2022 |
| • Course: Data Analysis – Radboud University | Fall, 2021 |

MPhil project <i>University of Manchester</i>	09/2020 – 09/2021 <i>United Kingdom</i>
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- Semi-supervised generative adversarial network (SGAN) for pulsar synthetic image generation and classification.

SKILLS

Computational skills	- Python programming: Data analysis - Machine learning: Perform classification, prediction, and clustering related tasks - Deep learning: Synthetic data/image generation tasks - SQL: Perform SQL query to retrieve datasets from Astronomy database - Cloud computing & bash scripting
Machine learning libraries	Familiar with Tensorflow, Keras, Pytorch
Astronomy software	Topcat: TAP query, data manipulation, and visualisation

RELEVANT PEER-REVIEWED PUBLICATION

- [1] P. Ranaivomanana, C. Johnston, P. J. Groot, et al. "Identifying and characterising the population of hot sub-luminous stars with multi-colour MeerLICHT data". In: 672, A69 (Apr. 2023), A69. doi: [10.1051/0004-6361/202245560](https://doi.org/10.1051/0004-6361/202245560). arXiv: [2302.07266](https://arxiv.org/abs/2302.07266) [[astro-ph.SR](#)].

CURRENT PROJECTS

- [1] P. Ranaivomanana, C. Johnston, P.J. Groot, et al., "Variability of hot sub-luminous stars and binaries: Machine learning analysis of Gaia DR3 multi-epoch photometry". Submitted to A&A.
- [2] C. Johnston, P. Ranaivomanana, P.J. Groot, C. Aerts, "Multi-colour amplitude ratios and phase differences for asteroseismology from combined ground- and space-based telescopes". Submitted to A&A.

CERTIFICATION

Advanced Machine Learning and Signal Processing: Offered by IBM Skills Network ([online certificate](#))
Data Analysis with Python: Offered by IBM Skills Network ([online certificate](#))
Exploratory Data Analysis for Machine Learning: Offered by IBM Skills Network ([online certificate](#))

PRIZES AND GRANTS

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| • Receipt of the Leids Kerkhoven-Bosscha Fonds (LKBF) grant (EUR 600) to attend the TASC/KASC 15 conference in Porto | 2024 |
| • Receipt of the Leids Kerkhoven-Bosscha Fonds (LKBF) grant (EUR 500) to attend the Oxford machine learning school | 2023 |
| • Recipient of the UK's Newton Fund/DARA Big Data MPhil Bursary | 2020 |
| • Receipt of SKA/SARAO grant to attend the 2nd Big Data Africa School – South Africa | 2018 |

CONFERENCES ATTENDED & CONTRIBUTIONS

- KOPAL 2024 conference (flash talk) – Litomysl, Czech Republic 2024
- TASC/KASC 15 conference (Poster) – Porto, Portugal 2024
- AMCVn5 workshop (*Poster*) – Armagh, UK 2023
- sdOB11 conference (*Poster*) – Armagh, UK 2023
- Oxford machine learning school – UK 2023
- MW-Gaia WG2 conference (*Talk*) – Sofia, Bulgaria 2023
- TASC/KASC13 conference (*Poster*) – Leuven, Belgium 2022
- sdOB10 conference (*Poster*) – Liege, Belgium 2022

EXTRACURRICULAR ACTIVITIES AND MEMBERSHIP

- Student member of the Malagasy Astronomical Society (MAS) – IAU-adhering organisation for Madagascar 2017 – Present
- Student member of the African Astronomical Society (AfAS) 2021 – Present
- Student member of the African Astronomical Society (AfAS) 2021 – Present
- Participated in African Space Generation Advisory Council (AF-SGAC) / DARA Big Data Hackathon 2020
- Project leader of a OAD/DARA funded project: *Madagascar Astronomy Magazine* 2018
- Member of the IAU100 National Committee: leader of national activities during the IAU100 celebration 2019
- National Coordinator of Malagasy Astronomical Society (MAS) 2019