

Department of Astrophysics  
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# Tahina Princy Ranaivomanana

PhD candidate

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## EDUCATION

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

## EXPERIENCE

<b>PhD project</b> <i>Radboud University</i>	<b>10/2021 – Present</b> <i>The Netherlands</i>
<ul style="list-style-type: none"><li>Leveraging multiband time-series data from ground- and space-based telescopes and machine learning methodologies to advance the understanding of the formation and evolution of hot subwarf stars.</li></ul>	
<b>Teaching Assistantship</b>	
<ul style="list-style-type: none"><li>Course: Astronomical Instrumentation and Data Analysis – Radboud University</li></ul>	1st Semester 2024
<ul style="list-style-type: none"><li>Course: Astronomical Instrumentation and Data Analysis – Radboud University</li></ul>	1st Semester 2023
<ul style="list-style-type: none"><li>Bachelor projects supervisors – KU Leuven</li></ul>	Fall & Spring, 2022
<ul style="list-style-type: none"><li>Course: Data Analysis – Radboud University</li></ul>	Fall, 2021
<b>MPhil project</b> <i>University of Manchester</i>	<b>09/2020 – 09/2021</b> <i>United Kingdom</i>
<ul style="list-style-type: none"><li>Semi-supervised generative adversarial network (SGAN) for pulsar synthetic image generation and classification.</li></ul>	

## SKILLS

<b>Computational skills</b>	<ul style="list-style-type: none"><li>- Python programming: Data analysis</li><li>- Machine learning: Perform classification, prediction, and clustering related tasks</li><li>- Deep learning: Synthetic data/image generation tasks</li><li>- SQL: Perform SQL query to retrieve datasets from astronomical databases</li><li>- Cloud computing &amp; bash scripting</li></ul>
<b>Machine learning libraries</b>	Familiar with Tensorflow, Keras, Pytorch
<b>Astronomy software</b>	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

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- 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

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- 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