Anke van Dyk, M.Sc.

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Education

2019 – present   🔖 **M.Sc., University of Cape Town** in Astrophysics and Space Science.
Coursework: Cataclysmic Variables, Time Series and Data Analysis, Extra-galactic Astrophysics, Observational Cosmology, Computational Astrophysics.
Thesis title: *Capturing Transients: An application of Biostatistics to Astronomy.* Supervised by Associate Professor V.A. McBride and Professor P.J. Groot.

2018   🔖 **B.Sc. (Hons), University of Cape Town** in Astrophysics and Space Science. *First Class Honours.*
Coursework: General Astrophysics, Optical and Radio Observational Techniques, Spectroscopy, Astrophysical Fluid Dynamics, Computational and Numerical Methods, Newtonian Cosmology, and Electrodynamics.
Project title: *Machine Learning for Radio Frequency Interference.* Supervised by Professor B. Bassett and Dr. Alireza Vafaei Sadr.

2015 – 2017   🔖 **B.Sc., University of Cape Town, Cape Town** in Astronomy and Physics.
Coursework: Introductory Astrophysics, Stellar Astrophysics, Galactic and Extragalactic Astrophysics, Electrodynamics, Quantum and Atomic Physics, Statistical Mechanics, Classical Mechanics, Nuclear Physics, Vector Calculus, Linear Algebra, Differential Equations.
Final year project title: *The use of light guides to improve the resolution of a compact scintillation detector.* Supervised by Professor A. Buffler and Dr. A. Comrie.

Research Publications

1   van Dyk, A., McBride, V. A., & Groot, P. J. (*In prep.*). Capturing Transients: An application of Biostatistics to Astronomy.

Skills

Languages	🔖 Strong reading, writing and speaking competencies for English and Afrikaans. Basic competency for German.
Coding	🔖 Python, R, Git, SQL, HTML, shell.
Astronomy Software	🔖 Astropy, Numpy, Scipy, Matplotlib, IRAF, SAOImage DS9, TOPCAT, GIMP, CASA.
Other Software	🔖 Microsoft Office, Google Office.
Misc.	🔖 Academic research, scientific report writing, teaching, scientific and statistical programming, algorithm design, machine learning, data visualisation, high performance computing with Slurm Workload Manager, LaTeX typesetting, Markdown editing.

Extracurricular Activities

Awards and Achievements

2019 – 2020	NRF SARChI Grantholder Linked Scholarship
2019	National Astrophysics and Space Science Programme Masters Scholarship
2018	*First Class Award*, National Astrophysics and Space Science Honours, Department of Astronomy, University of Cape Town.
	National Astrophysics and Space Science Programme Honours Scholarship

Leadership Positions

2020 – present	SAAO Student Representative
2019 – present	Founder and coordinator of the Postgraduate Research Help Group at SAAO.
2019	Mentor to two Astronomy and Physics Undergraduates.
2017	Undergraduate Class Representative for Astronomy.
2016	Marketing and Social Coordinator on the Executive Committee for Space and Astronomy Society, University of Cape Town.

Collaborations

2019 – present	Member of the SAAO X-ray Binary Group led by Dr. V.A. McBride.

Practical Training

2020	Participated in the Caltech GROWTH Astronomy School.
2017, 2020	5 cumulative evenings on the 1.9m Telescope using SpUpNIC long-slit spectrograph at the South African Astronomical Observatory in Sutherland.
2018	Participated in AIMS-DISCNet Data-science School. *13 - 15 June*
	Participated in the National Astrophysics and Space Science Program's Summer School. *January*

Conferences, Travel and Talks

2020	*Capturing Transients: An application of Biostatistics to Astronomy* - Poster presentation on M.Sc. research at the SAAO 200 Symposium. *October 20-23*
	Capturing Transients: An application of Biostatistics to Astronomy - Presented M.Sc. research at the Science Virtual Symposium hosted by the University of Cape Town Science Faculty. *September 16*
	Capturing Transients: An application of Biostatistics to Astronomy - Showcased a poster at the Royal Astronomical Society Early Career Poster Exhibition. *September 14 - September 28*
	Capturing Transients - Presented M.Sc. research to the BANG group at SAAO. *April 15*
2019	Attended .AstronomyTO in Toronto, Canada on *October 22-25* – collaborated on a document to introduce early career astronomy researchers on tools and tips of the trade.
	Capturing Transients - Presented M.Sc. thesis project to the University of Cape Town Astronomy Department, *Nov.*
2018	*Machine Learning for RFI* - Presented Honours research project to the University of Cape Town Astronomy Department, *Nov.*
2015	WiPiSA Women in Physics South Africa Field Trip to SANSA and Houwteq, *18-19 June*.

Teaching

2019, 2020	🔖 NASSP Honours Computational & Numerical Methods Tutor
2013 – 2017	🔖 Freelance High School Mathematics Tutor

Public Outreach

2020   🔖 Assisted at public open nights at the South African Astronomical Observatory in Cape Town where speakers present an astronomy lecture, followed by a tour of the facility. Duties included receiving guests as well as operating the telescopes for observation.

🔖 Assisted in planning for the IAU Office of Astronomy for Development (OAD) Science4Development Workshop on *30-31 January*.

2018   🔖 UCT Open Day, Astronomy Stand Hand.

Certifications ([DataCamp](#))

2019	🔖 **Introduction to Shell**
2018	🔖 **Image Processing with Keras in Python**
	🔖 **Introduction to Deep Learning in Python**
	🔖 **Supervised Learning with scikit–learn**
	🔖 **pandas Foundations**
	🔖 **Intermediate Python**
	🔖 **Introduction to Python**

References

Dr V.A. McBride (*M.Sc. Supervisor*)
Associate Professor
University of Cape Town/
South African Astronomical Observatory.
✉ vanessa@astro4dev.org

Dr P. Groot (*M.Sc. Supervisor*)
Professor
University of Cape Town/
Radboud University/
South African Astronomical Observatory.
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