Daniel Egbo

Curriculum Vitae

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Education

April 2021 - Present	**PhD, Astronomy**, *University of Cape Town*, Cape Town, Thesis: Multiwavelength Study of the SARAO MeerKAT Galactic Plane Point Sources Advisors: Prof. David Buckley and Prof. Paul Groot
Dec. 2019	**MSc. in Physics (Astrophysics optional)**, *University of Nigeria*, Nsukka, *Grade* Thesis: Photometric Study of White Dwarf Pulsar AR Scorpii Advisors: Dr. F. I. Odoh
Aug. 2014	**BSc. (Hons) Physics & Astronomy**, *University of Nigeria*, Nsukka,

Scholarships and Grants

2021 - 2024	SAAO PhD Prize Scholarship
2023	Breakthrough Listen Travel Grant to attend the ThunderKAT meeting at the University of Oxford.
2018	African German Network of Excellence in Science (AGNES) Intra-Africa Mobility Grant.

Specialised Trainings

May 2023	Oxford Machine Learning (OxML) Summer School
Feb 2023	COSPAR X-ray Vision School of the Energetic Universe, North West University, Potchefstroom, South Africa
August 2021	ZTF Summer School
June 2021	ESCAPE Summer School - Data Science for Astronomy, Astroparticle and Particle Physics
August 2020	GROWTH Summer School

Volunteer Opportunities

May 2025 - July 2025	Lead Facilitator, BRICS Astronomy & IDIA Data Analytics Program.
Sept 2024 - March 2025	Volunteer, 5th Big Data Africa School- a program organised by the Development of Africa through Radio Astronomy (DARA).
Aug 2022 - Present	SAAO Open Night- a bimonthly talks with SAAO tour and star gazing event at the SAAO facility in Cape Town.

| Aug 2024 | Volunteer, International Astronomical Union General Assembly (IAU GA), Cape Town, South Africa |
| Nov - Dec 2023 | Observational and Data Analysis Trainer, International School of Young Astronomers (ISYA), SAAO, Cape Town, South Africa |

Observational experience

| 2023 - 2024 | South African Astronomical Observatory, SA, multiple observations using SpUPNIC spectroscopic instrument mounted on the 1.9 m Telescope |
| 2021 | South African Astronomical Observatory, SA, multiple observations using SHOC photometric instrument mounted on the 1.0 m Telescope |

Conferences & Seminar Talks

2025	The 5th Annual AfAS Conference, UNISA, Johannesburg, South Africa, contributed talk: "Corona and Chromospheric Active Stars from the SARAO MeerKAT Galactic Plane Survey
2024	International Astronomical Union General Assembly, Division G-3: Stars and Stellar Physics, Cape Town, South Africa, poster: "A Multi-wavelength Study of the Galactic Point Sources in the MeerKAT Galactic Plane Survey with GAIA DR3"
2024	The 4th Annual AfAS Conference, Marrakech, Morocco, contributed talk: "A Multi-wavelength Study of the Galactic Point Sources in the MeerKAT Galactic Plane Survey with GAIA DR3"
2024	MeerKAT@5 Conference, Stellenbosch, South Africa, poster: "A Multi-wavelength Study of the Galactic Point Sources in the MeerKAT Galactic Plane Survey with GAIA DR3"
2023	Surveying the Milky Way: The Universe in Our Own Backyard, Pasadena, California, US, contributed talk: "A Multi-wavelength Study of the Galactic Point Sources in the MeerKAT Galactic Plane Survey with GAIA DR3"
2023	2023 ThunderKAT Workshop, University of Oxford, UK, contributed talk: "A Multi-wavelength Study of the Galactic Point Sources in the MeerKAT Galactic Plane Survey with GAIA DR3"
2023	The Milky Way Revealed by Gaia: The Next Frontier, University of Barcelona, Spain, contributed talk: "A Multi-wavelength Study of the Galactic Point Sources in the MeerKAT Galactic Plane Survey with GAIA DR3"

Publications

| 2025 | **Egbo, O. D.**, Buckley, D. A. H., Groot, P. J., Cavallaro, F., Woudt, P. A., Thompson, M. A., Mutale, M. & Bietenholz, M. (2025). The stellar population in the SARAO MeerKAT Galactic Plane Survey. Monthly Notices of the Royal Astronomical Society, 540(3), pp.2685-2702. doi:10.1093/mnras/staf847 |

2024   Erasmus, N., Steele, I. A., Piascik, A. S., Bates, S. D., Mottram, C. J., Rosie, K. A., ... & **Egbo, O. D.**. (2024). Mookodi: multi-purpose low-resolution spectrograph and multi-filter photometric imager for rapid follow-up observations of astronomical transient events. Journal of Astronomical Telescopes, Instruments, and Systems, 10(2), 025005-025005. doi:10.1117/1.JATIS.10.2.025005

2024   Potter, S. B., Buckley, D. A., Scaringi, S., Monageng, I. M., **Egbo, O. D.**, Charles, P. A., ... & Hlakola, M. (2024). Optical spectroscopic and photometric classification of the X-ray transient EP240309a (EP J115415. 8- 501810) as an intermediate polar. Monthly Notices of the Royal Astronomical Society: Letters, 532(1), L21-L26. doi:10.1093/mnrasl/slae038

2024   Goedhart, S., Cotton, W. D., Camilo, F., Thompson, M. A., Umana, G., Bietenholz, M., ... & **Egbo, O. D.** ... & Williams, L. P. (2024). The SARAO MeerKAT 1.3 GHz Galactic Plane Survey. Monthly Notices of the Royal Astronomical Society, 531(1), 649-681. doi:10.1093/mnras/stae1166

2023   Garnavich, P., Potter, S. B., Buckley, D. A., van Dyk, A., **Egbo, O. D.**, Littlefield, C., & Greiveldinger, A. (2023). Rapid Evolution of the White Dwarf Pulsar AR Scorpii. The Astrophysical Journal Letters, 958(2), L22. doi:10.3847/2041-8213/ad0be7

2023   O'Connor, B., Kouveliotou, C., Evans, P. A., Gorgone, N., Van Kooten, A. J., Gagnon, S., ... & **Egbo, O. D.** ... & Younes, G. (2023). The swift deep galactic plane survey (DGPS) phase I catalog. The Astrophysical Journal Supplement Series, 269(2), 49. doi:10.3847/1538-4365/ad0228

Computer skills

Operating systems	Full dominance including installations	*Macintosh, Linux (Ubuntu) and Windows*
Programming languages	Python and R	
Astronomy Data Tools	Astropy, ADQL, TOPCAT, IRAF/pyRAF, CARTA, DS9	

Skill Matrix

	Level	Skill	Years	Comment
Language:	■■■■■	Python	7	*Proficient*
	■■■□□	R	4	*Intermediate*
	■■■■□	LATEX	6	*LATEX for my academic writing*
OS:	■■■■■	Linux	6	*I use linux and bash scripting.*
Database:	■■■■■	PostgreSQL	2	*Can create database, table and perform analytics.*
	■■■□□	Google BigQuery	2	*Creation of tables and analytics.*
Methods:	■■■■□	Numerical methods	4	*Statistical Analysis, cross-correlation*

■■■■□	Data Analytics	6	*EDA, Visualisation, Feature engineering,*
■■■■□	Machine Learning	5	*Regression, Classification, Clustering*
■■■■□	MLOps	3	*Concepts of feature, training and inference (FTI) pipeline.*
■■■■□	Deep Learning	2	*Image analysis, Diffusion, transfer learning*
■■■■□	AI Engineering	2	*prompting, vector embeddings, RAG, Fine-tuning*
■■■□□	GPU Programming	1	*Accelerated data processing, accelerated machine learning, CUDA workflow*

Certifications

2024 NVIDIA - Getting Started with Deep Learning
2024 NVIDIA - Accelerating End-to-End Data Science Workflows
2023 Data Talks Club Machine Learning ZoomCamp
2021 WorldQuant Scientific Computing & Python
2021 WorldQuant Machine Learning & Statistical Analysis.

Research interests

○ Variable stars: chromospherically active stars, radio stars, flare stars, X-ray stars, young stellar, transients, spectroscopy and photometry in observational astrophysics.
○ Stellar Planet Interactions: brown dwarfs, exoplanets
○ Statistical/Machine Learning: multi-wavelength cross-correlation, regression, classification, clustering, anomaly detection.

References

Name	Prof. David Buckley
Position	Astronomer
Institution	SAAO/UCT/UFS
Email	dibnob@saao.ac.za

Name	Dr. Stephen Potter
Position	Head of Astronomy
Institution	SAAO
Email	spb@saao.ac.za

Name	Prof. Paul Groot
Position	Astronomer
Institution	SAAO/UCT/Rayboud
Email	p.groot@astro.ru.nl