

# Shane Josias - Curriculum Vitae

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## EDUCATION

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Stellenbosch University	PhD Applied Mathematics <a href="#">Reliable likelihoods for out-of-distribution data from continuous-time normalising flows</a> Promoter: Prof. Willie Brink	2021 - 2024
Stellenbosch University	MSc Applied Mathematics, cum laude <a href="#">Multitask learning and data distribution search in visual relationship recognition</a> Advisor: Prof. Willie Brink	2018 - 2020

## WORK EXPERIENCE

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### Stellenbosch University

<i>Lecturer, Applied Mathematics</i>	2025 - curr.
<i>Junior lecturer, Applied Mathematics</i>	2021 - 2024
<i>Standard Bank Lab co-chair, the School for DS and CT</i>	2021 - 2022

### VASTech

<i>Junior software engineer</i>	2020 - 2021
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## RESEARCH

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### Journals

- S Josias & W Brink. Reliable likelihoods from conditional flow matching generative models. Under review, 2024.
- DS Geldenhuys, S Josias et. al. Deep learning approaches to landmark detection in tsetse wing images. *PLoS Computational Biology*, 19(6): e1011194, 2023.
- S Josias & W Brink. Jacobian norm regularisation and conditioning in neural ODEs. *Springer Communications in Computer and Information Science*, volume 1734, pp 31-45, 2022.
- S Josias & W Brink. Class-selective mini-batching and multitask learning for visual relationship recognition. *SAIEE Africa Research Journal*, volume 112(2), pp 99-109, 2021.

### Conference and workshop proceedings

- S Josias & W Brink. Multimodal base distributions in conditional flow-matching generative models. *The British Machine Vision Conference*, 2024.
- S Josias & W Brink. Multimodal base distributions for continuous-time normalising flows. *The Symbiosis of Deep Learning and Differential Equations Workshop at NeurIPS*, 2023.
- S Josias & W Brink. Batch construction and multitask learning in visual relationship recognition. *International SAUPEC/RobMech/PRASA Conference*, pp 713-718, 2020.

### Collaborators

Mathematical Sciences, SU	Willie Brink, Pietro Landi, Cang Hui
SACEMA	John Hargrove, Marijn Hazelbag, Jeremy Bingham

### Research Assistant

Mathematical Sciences, SU	Cameron Painting
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## FUNDING

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DHET University Capacity Development programme ( $\pm$ R170K)	2024
NRF Thuthuka Research Grant ( $\pm$ R500K)	2022 - 2024
Google Deepmind PhD Scholarship (declined in favour of other opportunities)	2021

## TEACHING AND LEARNING

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<b>Mathematics for Machine Learning 811 (15 credits)</b> <i>MSc in ML &amp; AI, <math>\pm</math> 20 students</i>	2025
<b>Probability Theory &amp; Statistics 114 (16 credits)</b> <i>Science, <math>\pm</math> 300 students (out of 600)</i>	2024-2025
<b>Computer Vision 792 (16 credits)</b> <i>Applied Mathematics &amp; Computer Science Hons, <math>\pm</math> 50 students</i>	2024-2025
<b>Applied Maths for Civil Engineers B252 (8 credits)</b> <i>Engineering, <math>\pm</math> 80 students</i>	2023
<b>Statics B124 (15 credits)</b> <i>Engineering, <math>\pm</math> 200 students (out of 800)</i>	2021-2023

### Scholarship of teaching and learning

I presented a proof-of-concept online [interactive explanation](#) at the Scholarship of Teaching and Learning conference in Stellenbosch, 2021. The poster presentation at the conference was part of the Professional Educational Development of Academics (PREDAC) short course.

## LEADERSHIP AND SERVICE

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NITheCS Junior Associate	2021 - curr.
Reviewer: British Machine Vision Conference	2024
Reviewer: The Symbiosis of Deep Learning and Differential Equations Workshop	2023
SIAM student chapter advisor and career panel discussion	2023
Examiner: SU Masters in Machine Learning and AI	2023 & 2022
Examiner: SU Honours in Applied Mathematics	2023 & 2022
Launched a Data Science Hackathon (Standard Bank Lab)	2022
Standard Bank Lab consulting	2022
Co-led a computer vision journal club	2022 & 2021
LaunchLab Techpreneurship centre liason (Data School)	2021
Guest lecturer in the LaunchLab Techpreneurship programme (Data School)	2021