

# Simon Rosen

PhD Candidate (Computer Science)

Johannesburg, South Africa

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## WHO AM I?

I am a PhD (Computer Science) candidate at the University of Witwatersrand, and an experienced software developer with over 8 years of coding experience in a professional environment. I have a passion for using software to solve difficult important problems.

The aim of my research is to improve the scalability of multi-agent reinforcement learning to broaden its applicability to real-world applications.

## EDUCATION

2024 - Current

**Doctor of Philosophy** • University of the Witwatersrand • Johannesburg, South Africa

- Research topic: Leveraging knowledge transfer for better sample efficiency in cooperative multi-agent reinforcement learning

2022 - 2024

**Masters (Upgraded to PhD)** • University of the Witwatersrand • Johannesburg, South Africa

2021

**Honors: Computer Science** • University of the Witwatersrand • Johannesburg, South Africa

2016 - 2020

**Bachelor of Science: Computer Science** • University of the Witwatersrand • Johannesburg, South Africa

2011 - 2015

**Matric (NSC)** • St David's Marist Inanda • Johannesburg, South Africa

## EXPERIENCE

March 2024 - Current

**Teaching and Learning Assistant (PMA)** • Contract • University of the Witwatersrand

- Courses tutored: Machine Learning, Parallel Computing, Computational Intelligence and Reinforcement Learning

Feb 2023 & Feb 2024 (6 days)

**Lecturer** • Contract • University of the Witwatersrand

- This work involved co-lecturing and co-running an introductory Python workshop for incoming MSc e-Science students.

Oct 2022 – Jan 2023 (4 Months)

**Research Consultant** • Contract • Independent Electoral Commission of South Africa

- This commissioned research focused on the effect of the Electoral Amendment Act on the proportionality of South Africa's elections. This research culminated in the technical report 'Analysis of the Effects of the Electoral Amendment Bill' co-authored with Halfdan Lyngne.

Nov 2016 – 2023 (7 Years)

**Full-Stack Developer** • Intermediate, Half-Time • Technical Application Software (TAS)

Nov & Jun 2020 (2 Months)

**Data Scientist** • Internship • Business Intelligence Services – University of Witwatersrand

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## ACHEIVEMENTS

2021

**BANKSETA Bursary** • Bursary for Honors

2016, 2019 & 2020

**Certificate of First Class** • Basic Computer Organisation I (81%), Introduction to Algorithms and Programming I (94%), Computer Graphics and Visualisation III (78%), Advanced Analysis of Algorithms III (85%) & Software Design III (90%).

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## RESEARCH OUTPUTS

Journal Articles

2024

**Constitutionality, Bias, and Overhang: The Effects of South Africa's Electoral Amendment Act** • Under Review • Halfdan Lyngne and Simon Rosen • Politikon

Workshop Papers

2024

**Optimal Task Generalisation in Multi-Agent Reinforcement Learning** • Accepted • Simon Rosen, Abdel Mfougouon Njupoun, Geraud Nangue Tasse, Steven James, Benjamin Rosman • Coordination and Cooperation in Multi-Agent Reinforcement Learning Workshop at Reinforcement Learning Conference 2024

Talks

2024

**Optimal Task Generalisation in Multi-Agent Reinforcement Learning** • Presented • Simon Rosen • IndabaX South Africa 2024

Technical Report

2023

**Analysis of the Effects of the Electoral Amendment Bill** • Produced • Halfdan Lyngne and Simon Rosen • Commissioned by Electoral Commission of South Africa • Published by the University of the Witwatersrand

Other

2023

**Joint report of experts in Constitutional Court of South Africa case CCT144/23 on constitutionality of electoral amendment bill** • Produced • Michael Atkins, Halfdan Lyngne, Simon Rosen, Johan Human

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## REFERENCES

[Available upon request]