Dr. Bradley Max Segal

MBBCh (Wits), MSc Engineering (Wits)

✉ Brad@Segal.co.za
BradleyMaxSegal@gmail.com

📞 +27 791737867

in Brad on LinkedIn

🩺 Segal.co.za

📍 Johannesburg, South Africa

Professional Summary

An innovative medical doctor and biomedical engineer at the forefront of healthcare technology integration. With a unique blend of clinical expertise and engineering skills, Dr Segal pioneers the application of artificial intelligence and machine learning in medical practice. His work focuses on developing cutting-edge solutions for complex healthcare challenges, particularly in resource-constrained environments. As a bridge between clinical and technical domains, Dr Segal excels in translating medical needs into technological solutions, driving forward the future of healthcare delivery. His expertise spans from hands-on patient care to the development of large-scale analytics platforms, positioning him as a domain expert in the rapidly evolving field of medical technology and AI-enhanced healthcare.

Skills

- Clinical Medicine
- AI / Machine Learning
- Medical Research
- Healthcare Innovation
- Data Science & Engineering
- Translational Science

Work History

Engage Mx – Cofounder & Chief Technology Officer

Johannesburg, South Africa, *04/2023 – Current (1 year)*

- Spearheaded the design and development of a large-scale patient analytics platform, integrating diverse data sources to provide aggregate clinical insights and predictive analytics.
- Engineered an end-to-end system for data ingestion, cleaning, and analysis, actively tracking over 1 million patients with daily data granularity.
- Developed predictive analytics tools offering multilevel insights into practitioner and patient behaviour, as well as forecasting temporal changes.
- Led clinical and technical integration, ensuring development work aligns with clinical endpoints and addresses challenges in the medical field. Implemented the platform using Python and PostgreSQL on Azure hosting.

South African National Department of Health – Community Service Medical Officer

Johannesburg, South Africa, *01/2024 – 09/2024 (9 months)*

- Fulfilled national medical service requirements within the City of Johannesburg's primary health sector, focusing on Primary Care and Emergency Medicine.
- Served as clinical manager and supervisor for a large provincial clinic in Soweto, balancing individual patient management with overall service delivery optimization.
- Contributed to research and authored articles on system dynamics in public healthcare, with emphasis on AI decision support implementation.

South African National Department of Health - Intern Medical Officer

Johannesburg, South Africa, *01/2022 - 12/2023 (2 years)*

- Completed post-graduate medical training at Chris Hani Baragwanath Academic Hospital, the largest hospital in Africa.

Education

Ph.D. Biomedical Engineering

01/2022 - 12/2025
University of The Witwatersrand
Johannesburg, South Africa

- Research focus on the application of Neural Implicit Representations for Biomedical Imaging Problems.
- PhD Academic Merit Scholarship

MSc Biomedical Engineering

06/2020 - 12/2021
University of The Witwatersrand
Johannesburg, South Africa

- Degree by thesis and publication.
- Research focus: Deep learning techniques applied to medical imaging, emphasizing generative adversarial networks for synthesizing realistic chest x-rays and controlling pathological features
- MSc Academic Merit Scholarship
- Completed Udacity AI Programming with Python and Machine Learning Engineer Nanodegrees.
- Completed simultaneously with MBBCh.

- Spent several months rotating through Internal Medicine, General Surgery, Paediatrics, Neonatology, Obstetrics, Gynaecology, Family Medicine, Emergency Medicine, Psychiatry, Orthopaedics, and Anaesthesiology.
- Involved in numerous quality improvement projects, such as the development of a digital discharge repository, design and manufacture of low-cost 3D printed tools such as neonatal incubator IV fluid attachments and otoscope tips, creation of an automated patient file management system, and the development of roster balancing software using machine learning and constrained optimisation.

Phylaxis.ai - **Cofounder, Clinical Lead, & Head Clinical Data Scientist**

Johannesburg, South Africa, *06/2021 – Current (3 years)*

- Supervised the development of healthcare-focused risk analysis and targeted intervention technology. This included conventional biostatistical research methods to cutting-edge machine learning utilities for data analysis and model development.
- Worked to package models into production-ready APIs for the deployment of research within the clinical environment.
- Research areas: HIV seroconversion risk estimation, temporally and geographically sensitive disease screening, non-communicable disease management, patient disease awareness quantification, and automated clinical triage systems.
- Engaged in grant and proposal writing, as well as acting as a healthcare expert for research and implementation design.

Wits Healthcare Innovation - **Head of Technology Development**

Johannesburg, South Africa, *01/2021 – 04/2024 (3 years)*

- Collaborated with interdisciplinary teams to address challenges in the low-resource public healthcare sector through digital innovation.
- Led projects targeting healthcare system inefficiencies, ranging from clinic booking management to chronic disease monitoring and ML-based disease screening.
- Served in both technical and clinical capacities, facilitating communication and alignment between diverse teams.

Wits Bioinformatics & Translational Science - **Health Data Scientist**

Johannesburg, South Africa, *01/2019 - 06/2022 (3.5 years)*

- Analysed medical datasets from routine clinical practice in the public healthcare sector to derive actionable insights.
- Provided comprehensive analytic support for data extraction, analysis, visualization, and subsequent publications.
- Lectured medical students on research methodologies and novel applications of machine learning in healthcare.

Research Publications

1. The incidence and determinants of necrotising enterocolitis among neonates at a public hospital in South Africa from 2013–2018 (Archives of Disease in Childhood · Aug 1, 2024)
2. Outcomes and prognostic factors for survival of neonates with necrotizing enterocolitis at a public hospital in South Africa from 2013–2018 (Archives of Disease in Childhood · Aug 1, 2024)

Bachelor of Medicine & Surgery (MBBCh)

01/2016 - 12/2021

University of The Witwatersrand

Johannesburg, South Africa

- o Graduated with Distinction / Cum Laude
- o Class Representative (2017 - 2021)
- o Best Undergraduate Research Poster Award (2019)
- o Best Physiology & Biochemistry Student - HS Ebrahim Memorial Award (2018)
- o Best Physics Student - Isaac Kushlik Memorial Prize (2017)
- o Multi-year Top Ten Ranked Medical Student
- o Multi-year Dean's Merit List
- o Vice President of the Wits Student Physicians' Society
- o Technical Lead for the Wits Student Surgical Society

National Senior Certificate

01/2011 - 12/2015

King David Victory Park High School

Johannesburg, South Africa

- o Graduated Summa Cum Laude with 9 Distinctions
- o Ranked Top 1% Nationally for Information Technology and English
- o Received Tri-Colour Honours for Achievement in Academics, Debating, and Community Service
- o Received Silver and Bronze President's Award (Duke of Edinburgh's International Award)
- o Elected Head of PR & Communications on Student Representative Council
- o Saxophonist for Johannesburg Youth Orchestra (Symphonic Wind Band)

Certifications

- o Good Clinical Practice (GCP) - 2022
- o Basic Life Support (BLS) – 2016, 2021, 2024
- o Advanced Life Support (ACLS) - 2024

Community

SisonkeBiotik Cofounder

Grass roots volunteer community organisation that brings healthcare and machine learning practitioners together to tackle challenges in healthcare.

3. The determinants of intraventricular hemorrhage among neonates at a public hospital in South Africa from 2013–2020
(Archives of Disease in Childhood · Aug 1, 2024)
4. The Unintended Consequences of Artificial Intelligence in Paediatric Radiology (Paediatric Radiology · Sept 4, 2023)
5. Analysis of the Trends of Methicillin-Resistant Staphylococcus aureus in Gauteng Public Hospitals from 2009-2018 (*)
(Microbiology Spectrum · Jun 20, 2023)
6. Utility of a Machine-Guided Tool for Assessing Risk Behaviour Associated with Contracting HIV in Three Sites in South Africa
(Informatics in Medicine Unlocked · Feb 5, 2023)
7. The Role of Machine Learning in HIV Risk Prediction (^)
(Frontiers in Reproductive Health · Dec 22, 2022)
8. D-Dimers in Omicron versus Delta: A Retrospective Analysis
(Southern African Journal of Infectious Diseases · Nov 10, 2022)
9. Heterologous vaccination of BNT162b2 in Ad26. COV2.S-vaccinated Healthcare Workers Elicits Long-Term Humoral Immune Response
(South African Medical Journal · Oct 1, 2022)
10. Evaluating the Clinical Realism of Synthetic Chest X-Rays Generated Using Progressively Growing GANs (*)
(Springer Nature Computer Science · Jun 2, 2021)
11. NLP Models for Length of Stay Prediction in Surgical Wards at a South African Academic Hospital (*)
(University of the Witwatersrand Biennial Research Day · Oct 23, 2019)

*First author, ^Supervising role

News Features

- [Dr Bradley Segal heading to Oxford as Rhodes Scholar-elect](#)
- [Understanding the Promise and Limitations of AI in Healthcare Delivery: Dr. Bradley Max Segal](#)
- [Engage Mx wins big in Future Trust awards](#)
- [AI-assisted HIV case finding in Ukraine](#)

Awards

- Rhodes Scholarship 2023 – Rhodes Trust
- Best Tech Entrepreneur 2024 – South African Future Trust (Engage Mx)