



# Dr. Bradley Max Segal

MBBCh (Wits), MSc Engineering (Wits)

## Professional Summary

A practicing medical doctor with a passion for technology and innovation. Simultaneously pursued medicine along with a master's degree in biomedical engineering focusing on the applications of machine learning for health. He has worked extensively at the intersection of healthcare and data science to develop solutions to the challenges found in low-resource health systems, often serving as a bridge between technical and clinical teams. He is fascinated by the future of medical practice and how artificial intelligence will shape and enhance it.

## Work History

### South African National Department of Health - Intern Medical Officer

Johannesburg, South Africa

01/2022 - Current

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

### Phithos Technologies / Phylaxis.ai - Head Clinical Data Scientist

Johannesburg, South Africa

06/2021 - Current

- 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 in the clinical environment.
- Research areas: HIV seroconversion risk estimation, temporally and geographically sensitive disease screening, non-communicable disease management, patient 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.

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📍 Johannesburg, South Africa

## Skills

- Clinical Medicine
- Research
- AI / Machine Learning
- Data Analysis & Visualisation
- Software Development
- 3D Printing

## 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 on the application of deep learning techniques applied to medical imaging with an emphasis on 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.

## Wits Healthcare Innovation - Head of Technology

Johannesburg, South Africa

01/2021 - Current

- Collaborated with kindred spirits in the healthcare space to solve problems in the low-resource public healthcare sector through digital innovation.
- Projects focused on solving healthcare system failures and inefficiencies. These ranged from clinic booking management to chronic disease monitoring, and machine learning-based disease screening methodologies.
- Served both a technical and clinical role across projects working to communicate and align details between teams.

## Wits Bioinformatics & Translational Science - Health Data Scientist

Johannesburg, South Africa

01/2019 - 06/2022

- Worked to provide insight into several medical data sets collected as part of routine clinical practice.
- Provided academic support assisting researchers with data extraction and analysis, as well as lecturing medical students on research methodologies and novel applications of machine learning for healthcare.

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## Research Publications

1. The Unintended Consequences of Artificial Intelligence in Paediatric Radiology (Paediatric Radiology · Awaiting Publication)
2. Analysis of the Trends of Methicillin-Resistant Staphylococcus aureus in Gauteng Public Hospitals from 2009-2018 (\*) (Microbiology Spectrum · Jun 20, 2023)
3. 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)
4. The Role of Machine Learning in HIV Risk Prediction (^) (Frontiers in Reproductive Health · Dec 22, 2022)
5. D-Dimers in Omicron versus Delta: A Retrospective Analysis (Southern African Journal of Infectious Diseases · Nov 10, 2022)
6. Heterologous vaccination of BNT162b2 in Ad26. COV2.S-vaccinated Healthcare Workers Elicits Long-Term Humoral Immune Response (South African Medical Journal · Oct 1, 2022)
7. Evaluating the Clinical Realism of Synthetic Chest X-Rays Generated Using Progressively Growing GANs (\*) (Springer Nature Computer Science · Jun 2, 2021)
8. 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 authorship indicated with an asterisk (\*), supervising role with a caret (^)

## Bachelor of Medicine & Surgery (MBBCh)

01/2016 - 12/2021

University of The Witwatersrand

Johannesburg, South Africa

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

## National Senior Certificate

01/2011 - 12/2015

King David Victory Park High School

Johannesburg, South Africa

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

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## Certifications

- Good Clinical Practice (GCP) - 2022
- Basic Life Support (BLS) - 2016 & 2021

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## Community

SisonkeBiotik Cofounder

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