

Vongani Maluleke

Ph.D. Student · UC Berkeley · 3D Vision, Generative Models, and AI for Social Good

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EDUCATION

University of California, Berkeley, California, USA

Ph.D. in Computer Science

Present

Advisors: Prof. Jitendra Malik and Prof. Angjoo Kanazawa | Expected: May 2026

Research: 3D Vision, Generative Models, AI for Social Good

University of Cape Town, Cape Town, South Africa

Master of Science in Advanced Analytics

2019

Advisors: Prof. Sebnem Er and Dr. Quentin Williams

Dissertation: Estimating Poverty from Aerial Images Using Convolutional Neural Networks Coupled with Statistical Regression Modelling

Awards: Graduated with Distinction

University of Cape Town, Cape Town, South Africa

Bachelor of Business Science (Analytics)

2016

Advisor: Prof. Ian Durbach

Thesis: Identifying a cryptic frog species using acoustic data.

RESEARCH EXPERIENCE

Berkeley Artificial Intelligence Research (BAIR), California, USA

PhD Graduate Researcher

2021 – Present

- Developed an architecture for predicting social motion in couple swing dance using internet data to predict realistic and plausible movements from historic motion
- Collected and preprocessed **30+ Hrs** of internet video data
- Optimized data processing pipeline to handle **27k+** motion sequences
- Mentoring 2 undergraduate researchers
- Presented research at BAIR seminars, international conferences and workshops

Council of Scientific and Industrial Research (CSIR), Pretoria, South Africa

Graduate Researcher

2017 – 2019

- Developed an aerial poverty estimation system to assist policymakers in monitoring the impact of implemented policy in accordance with South Africa's [National Development Plan](#) to reduce poverty and alleviate inequality by 2030 in the country
 - Developed a pipeline on GCP to process satellite imagery data
 - Published findings in a peer-reviewed venue
 - Mentored 3 interns, resulting in the successful deployment of an early warning of large rockfall in underground mines called [Rockpulse](#) and 3 full-time hires
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RESEARCH PROJECTS

3D Human Motion Prediction

- Developed VQ-VAE and Transformer-based architecture to perform unary and dyadic motion prediction from historic motion
- Developed a novel spatial-temporal attention mechanism that prevents future motion leakage during unary and dyadic motion prediction.
- Developed visualization pipeline using Blender

Racial Bias in GANs

- Conducted a systematic study to demonstrate racial bias in face generation using StyleGAN2
- Analyzed synthetic faces, identifying significant bias patterns including the use of truncation
- Published at ECCV 2022 (Poster)

Poverty Estimation Using Aerial Images

- Built CNN-regression model to estimate poverty rate from satellite imagery
 - Processed satellite imagery on GCP
 - Published in DataSCI 2018 (Best Paper Award)
 - Presented a poster at the Black in AI workshop hosted alongside Neurips in Canada (Best Student Poster Award)
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PUBLICATIONS

Vongani H. Maluleke, Lea Müller, Jathushan Rajasegaran, Georgios Pavlakos, Shiry Ginosar, Angjoo Kanazawa, Jitendra Malik. "Synergy and Synchrony in Couple Dances" Preprint, 2024.

[Project Page](#) | [Paper](#) | [Code](#)

Vongani H. Maluleke, Neerja Thakkar, Tim Brooks, Ethan Weber, Trevor Darrell, Alexei A. Efros, Angjoo Kanazawa, Devin Guillory. "Studying Bias in GANs through the Lens of Race." European Conference on Computer Vision (ECCV), 2022.

[Project Page](#) | [Paper](#)

Vongani H. Maluleke, Sebnem Er, et al. "Estimating poverty using aerial images: South African application." DataSCI, 2018.

[Paper](#)

INDUSTRY EXPERIENCE

Deloitte Consulting, Johannesburg, South Africa

AI Senior Consultant

2020 – 2021

- Led development of AI content ranking system to increase user engagement
 - Led the development and deployment customer churn prediction model that reduced customer attrition
 - Led the development and deployment of a hybrid model that personalizes telecommunication package plans based on customer database usage behavior
 - Managed team of 8 (5 developers, 3 data scientists) across 3 major client projects in the Entertainment, Logistics and Telecommunication industries
 - Deployed ML solutions on GCP and Azure
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VOLUNTEER WORK

Black in AI (BAI) Academic Program, USA

Program Facilitator and Mentor

2023-2024

- Review **20+** graduate school applications and conduct mock interviews annually
- Facilitate bi-weekly discussions and mentor **5** program participants
- Organized 2 workshops on ML research and academic career development

NeurIPS Workshops, USA

Volunteer & Panel Moderator

2021-2023

- Moderated a panel at a Black in AI workshop focusing on AI ethics and inclusion
 - Coordinated workshop logistics for **200+** participants
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TECHNICAL SKILLS

Deep Learning: PyTorch (Expert), TensorFlow

Programming Languages: Python (Expert), R, MATLAB, VBA, Java, JavaScript, SQL

Cloud & MLOps: GCP (Certified), Azure, W&B,

Databases: MongoDB, PostgreSQL, MySQL, MS SQL server

HONORS & AWARDS

2021-Present: Berkeley Graduate Fellowship

2021: Deloitte Consulting Exceptional Performer

2020: Deloitte Consulting Exceptional Performer

2019: Black in AI co-located at Neurips Best Student Poster