Dr. Chris Fourie

MLOps Engineer
(Software, Backend, DevOps, Data, ML Engineer)

Medical Doctor

Data Scientist

Technical Consultant
(Software, Digital Health)

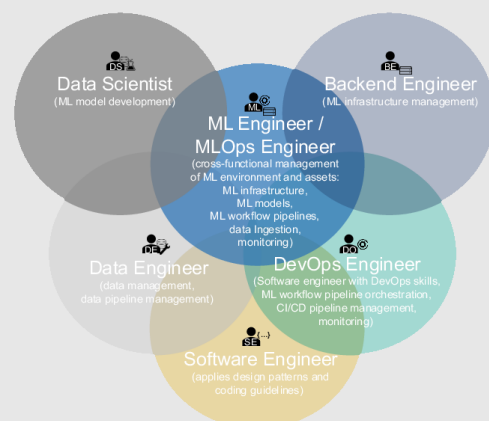- +2776 768 1853
- https://chrisfourie.africa
- chris.fourie@proton.me
- South African

Skills

- Leading teams
- MLOps engineering
- Cloud engineering
- Data engineering
- Backend engineering
- DevOps
- AWS, Boto3, Chalice, Batch, SQS, SageMaker, DynamoDB, Lambda
- Postgres, SQL, noSQL
- Jenkins, Airflow, Terraform
- AI / Machine learning
- Data and ML pipelines
- PyTorch, SK Learn, Pandas
- Reinforcement learning
- Health data science
- Python, C, Java, TypeScript
- Linux
- Docker
- Git

MLOps

Work experience

2020 – 2023 Full-time	**MLOps Engineer and Health Data Scientist**	LifeQ (USA)

Working on projects related to analysis of health / biometric data from continuous and remote monitoring devices. Generally, machine learning (ML) and data pipelines, backend, DevOps and cloud infrastructure for AI / machine learning.

- Lead on project to investigate using biometric data from wearables for covid detection, optimized existing approach by decreasing resource requirements while increasing accuracy with multi-modal approach
- Lead on project for rapid model benchmarking pipeline
- Worked on project to standardise data science projects as serverless AWS Chalice apps with focus on parallelization of data pipelines and containerisation.

2020 – now
Part-time

Technical Consultant

RetroRabbit (ZA) - conducting technical interviews for intermediate and senior software engineers
MambaInsights (UK) - MLOps software solution implementation for video segementation and analysis in industrial settings
Cebisa Health (ZA) - Strategy consulting for feasiblity and implementation of electronic health record platform for schools in Africa

2020 Internship	**MLOps Engineer**	DataProphet (ZA)

Projects on ETL and cloud orchestration for ingestion of factory sensor data to ML and data pipelines.

Education

Postgraduate

2019 – 2022 **Masters in Computer Science** *(Focus on AI/ML)*   University of the Witwatersrand (ZA)

Courses in machine learning, robotics, high performance computing, algorithm analysis, computer vision and reinforcement learning (RL). Research related to machine learning, computational neuroscience and multi-agent RL. **Research:** *Impact of Noise on Learned Value Functions at Depth in CoAgent Networks for Neural Network Credit Assignment* [link to report]

Undergraduate

2017 – 2018 **BSc Engineering**   University of Salzburg & Technical University of Munich

First semester completed (in German) of Joint Degree Bachelorstudium Ingenieurwissenschaften. Discontinued for move to computer science

2009 – 2015 **Medical Degree**   University of the Witwatersrand (ZA)

Courses in physics, chemistry, biology, statistics, system dynamics, physiology, pathology, microbiology, pharmacology and anatomy. Clinical training in all major medical and surgical domains. Rotations through Baragwanath, Helen Joseph, Charlotte Maxeke and Klerksdorp Hospitals.

Publications

2023 **A Framework for Grassroots Research Collaboration in Machine Learning and Global Health [link to paper] (ICLR)**

2018 **Essentials of Global Health Text Book**
Co-Author of chapter on Trauma and Injury. British Medical Journal Book Awards, 1st place in Public Health division. [link to book]
(Elsevier, edited by Parveen Kumar)

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About Me ————————

Medical doctor working as an MLOps engineer and technical consultant in AI for health, trying to use the powers of AI for social good. Interested in research at the intersections of machine learning, computational neuroscience, multi-agent systems, complexity science and public health.

I am motivated by my experience growing up in South Africa, witnessing the devastating effects of perpetuated inequity. During my medical training, I saw first hand the challenges this has created and the impact that resource scarcity can have on the health and wellbeing of individuals. My long term research and career interest intersect at collaboratively developing solutions to address inequity, with consideration for the diverse and complex nature of our societal systems.

Social & Repos ————

https://za.linkedin.com/pub/
chris-fourie/79/9ab/952/

https://gitlab.com/users/
chris_fourie/

https://github.com/
Chris-Fourie

Languages ————————

English	● ● ● ● ●
German	● ● ● ● ○

MLOps ————————

⚙ MLOps engingeering is at the intere-section of software, backend, De-vOps, data and machine learning engineering

📖 More info on MLOps here

Volunteer work and independent research

2023 – now	Co-founder of the African Grassroots Participartory Community Collective
2021 – now	Co-founder of the SisonkeBiotik community for data science / AI / machine learning research for healthcare in Africa
2014 – 2015	Co-Founder and Chairperson of the South African Medical Students Association (SAMSA) / International Federation of Medical Student Associations (IFMSA) President South Africa)

Conference / international academic experience

2023	Invited speaker AI for health @ IndabaX Rwanda / ICLR
2023	Deep Learning Indaba (organising committee)
2023	DS4Health Workshop @ Deep Learning Indaba (lead organiser)
2023	Deep Learning IndabaX South Africa (organising committee)
2023	Invited speaker AI for health @ IndabaX Zimbabwe
2022	AML Health Workshop @ Deep Learning Indaba (lead organiser)
2022	Deep Learning IndabaX South Africa (organising committee)
2021	Deep Learning IndabaX South Africa (organising committee)
2020	African Institute for Mathematical Sciences (AIMS) African Machine Learning Masters (AMMI) Rwanda, Reinforcement Learning Course (tutor)
2019	Deep Learning Indaba, Kenyatta University, Nairobi Kenya (presented poster on pan-African ML for health collaboration)
2019	IBRO-Simons Computational Neuroscience Imbizo / Summer School (participant fully funded)
2014	South African Medical Association(SAMA) annual conference (student delegation leader)
2013	IFMSA General Assembly, Tunisia (South African delegation leader)
2013	Academic Observership at Hospital for Special Surgery, New York

Extra-Curricular Activities

Outdoors	I enjoy long-ish walks in the mountains and will snowboard down any stretch of snowy hillside that happens to be nearby. Hiking, rock climbing and trail running.
Indoors	Always keen for a game of squash. Board game evenings are great. Big on reading, speculative fiction, especially hard and utopian sci-fi, Ursula Le Guin, Greg Egan, Peter Hamilton, Olivia Butler and Dennis Taylor.
Educational	Recreational language learning. Cooking, sometimes baking. I enjoy casual sketching and water colours too.

References

Professional	**George Cooper**
	Team Lead at LifeQ, MLOps Engineer and Systems Biologist, george.cooper@lifeq.com, https://www.lifeq.com/, (+27)829222334
Academic Supervisor	**Prof. Benjamin Rosman**　　University of the Witwatersrand
	RAIL Lab Director, Benjamin.Rosman1@wits.ac.za, https://www.benjaminrosman.com, (+27)117176167
Post-grad Coordinator	**Dr. Pravesh Ranchod**　　University of the Witwatersrand
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Character	**Dr. Muziwakhe Khumalo**
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