Thabang L. **Mashinini**

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Education

The University of the Witwatersrand *JHB, South Africa*

MSc in Computer Science *2019 - Present*

- **Learning Level Set Method by Echo State Network for Image Segmentation.**
- Working on finding computational cheaper techniques for training Recurrent neural networks.

The University of the Witwatersrand *JHB, South Africa*

BSc Honours in Computer Science *2017*

- **Wildfire Estimation Using Kernel Density Estimators.**
- Predicting wildfire occurrence in South Africa using unsupervised machine learning.

The University of the Witwatersrand *JHB, South Africa*

BSc in Computational and Applied Mathematics And Astronomy and Astrophysics *2014 - 2016*

Experience

IBM Research *JHB, South Africa*

Machine Learning Research Scientist intern *Apr. 2020 - Present*

- Using machine/deep learning and data-driven approaches on Petabytes of data for making long-range seasonal forecast of temperature and precipitation.
- Technical lead for the South African team in a international weather forecast project for a week.
- Integration and deployment of machine learning models into IBM PAIRS ↗ (**IBM PAIRS**)
- Involved in the initial development of the Covid-19 dashboard used by Gauteng.
- Assist with ad-hoc training, code reviews and tutorials as required for new team members.

Business Intelligence Service (University of the Witwatersrand) *JHB, South Africa*

Data Scientist intern *Jun. 2018 - Apr. 2020*

- Worked for a central unit for that organize information and make it available to management for the purpose of understanding, planning, managing and running the university and its processes.
- Implemented and deployed a course recommendation system for 1st year students.
- Reporting based on business requirements using SQL, SAP BO and OBIEE.
- Facilitation of workshops for teaching and training co-workers and vacation students in Data science.

CSIR *PTA, South Africa*

Data Scientist and Software Engineer intern *Nov. 2017 - Jan. 2018*

- Implemented machine learning models(SVM, PCA and Random Forest) to aid municipalities of South Africa to better measure their performance in terms of Service Delivery, Efficiency and youth employment.
- The system was deployed as a django web server to be used by municipal managers for the city of Cape Town.
- The project was mentioned on ↗ **Mail and Guardian**, **CSIR** and **DST**

ZAR X *JHB, South Africa*

System Analyst and Support intern *Jun. 2017 - Oct. 2017*

- Troubleshooting and testing of trading system. Modify and update system reports.

Skills

Programming	Python, MATLAB, R, C/C++, JavaScript, LaTeX, shell, SQL
Database	MongoDB, MySQL
Frameworks	PyTorch, TensorFlow, Scikit-learn, Spark, Git version control
Web	Django/Flask with Python, HTML5, CSS
Areas of Expertise	Signal Processing, Machine/Deep Learning, OOP, Software Engineering, Web Scraping, Data Processing/Engineering
Languages	English, SeSotho, Setswana, Sepedi, Isizulu

Publications

Long-Range Seasonal Forecasting of 2m-Temperature with Machine Learning

Etienne E. Vos, Thabang Mashinini, Ashley Gritzma, Sibusisiwe Makhanya and Campbell Watson   *2020*

- 34th Conference on Neural Information Processing Systems [NeurIPS 2020].
- ⬈ **paper   poster**

Mine Worker Threshold Shift Estimation via Optimization Algorithms for Deep Recurrent Neural Network

Milka C.I.Madahana, John E.D.Ekoru, Thabang L.Mashinini, Otis T.C.Nyandoro   *2019*

- 18th IFAC Symposium on Control, Optimization and Automation in Mining, Mineral and Metal Processing [MMM 2019]
- ⬈ **paper**

Noise Level Policy Advising System for Mine Workers

Milka C.I.Madahana, John E.D.Ekoru, Thabang L.Mashinini, Otis T.C.Nyandoro   *2019*

- 18th IFAC Symposium on Control, Optimization and Automation in Mining, Mineral and Metal Processing [MMM 2019]
- ⬈ **paper**

Selected Projects

Covid-19 Visual Analytic Tool

IBM Research

- The purpose of the tool is to provide citizens with accurate and up-to-date data on Covid-19 in Gauteng.
- ⬈ **dashboard**

WITS Recommendation System

Thabang L.Mashinini

- 1st year course recommendation system for the faculty of Humanities.
- Private project, permission granted on request.
- ⬈ **code**

Municipal Money and Youth Explorer

Thabang Mashinini, Anri Smith, Tebogo Lejaka

- Machine learning system to aid municipalities of South Africa to better measure their performance in terms of Service Delivery, Efficiency and youth employment.
- ⬈ **code   slides**

News Classification

Thabang L.Mashinini

- Classification of news headline from websites using (NLP).
- ⬈ **code   video**

Honors & Awards

Certificates

2019	**Altron**, Power BI masterclass	
2019	**Decision Inc**, SAP Web intelligence	
2018	**Decision Inc**, SAP information design tool	

Scholarships

2018-2019	**Masters**, Awarded the Bank Seta MSc Scholarship	
2017	**Honors**, Awarded the National Research Foundation (NRF) Honours Grant Bursary	
2019	**DST Conference grant**, Travel Award to attend Deep Learning Indaba	*Nairobi, Kenya*

Committees

2015-2017	**Wits Astronomy Club(WAC)**, Co-founder and Executive	

References

Dr.	**Etienne Vos (Team Lead)**, Etienne.vos@ibm.com	*IBM Research*