

# TianTheunissen



## Contact

+27 83 661 0522

tiantheunissen@gmail.com

## Affiliations

MuST, North-West University

CAIR, CSIR

## Languages

English [100%]  
Afrikaans [100%]

## Profile

South African  
Caucasian  
Male  
27 y.o



## Career status

I am working as an academic researcher in the process (full-time) of obtaining a PhD in computer and electronic engineering with a focus on machine learning. The research aims to provide an improved understanding of the ability of artificial neural networks to generalize. Upon completion of my PhD, I aim to contribute as much as possible to the field of machine learning, either in a purely academic capacity, or in the industry with a strong emphasis on research.

## Education

- 2018–2020 **D.Eng.** in Computer and Electronic Engineering [WIP] North-West University, South Africa  
(Thesis: Generalization in deep learning: Bilateral synergies in MLP learning)
- 2016–2017 **M.Eng.** in Computer and Electronic Engineering [78%] North-West University, South Africa  
(Thesis: Raw coal ore classification using image segmentation methods)
- 2011–2015 **B.Eng.** in Computer and Electronic Engineering [72%] North-West University, South Africa  
(Thesis: Virtual advertisement area identification)

## Experience

- 2019–Now **Multilingual Speech Technologies (MuST)** Potchefstroom, South Africa  
*Researcher*  
Independent and collaborative research efforts. Server administration. Software development. Mentor/advise younger postgraduate students. Publication.
- 2018 **North-West University** Potchefstroom, South Africa  
*Teaching assistant*  
Give weekly classes (on mathematics) for a bridging course aimed to prepare learners to do a degree in engineering. Test grading.
- 2016–2017 **North-West University** Potchefstroom, South Africa  
*Lecturer's assistant*  
Give weekly tutorial classes on 3<sup>rd</sup> and 4<sup>th</sup> year level signal theory. Test grading. Handling and grading of practical demonstration projects. Test supervision.
- 2014 **Council for Scientific and Industrial Research (CSIR)** Pretoria, South Africa  
*Contractor*  
Required practical work experience. FPGA programming. General debugging.

## Publications

Co-Author: Davel MH, Theunissen MW, Pretorius AM, Barnard E. **DNNs as layers of cooperating classifiers**. Proc. Thirty-Fourth AAAI Conference on Artificial Intelligence. 2020. New York

Main-Author: Theunissen MW, Davel MH, Barnard E. **Benign interpolation of noise in deep learning**. Spec Issue. (in development) South African Computer Journal. 2020

Main-Author: Theunissen MW, Davel MH, Barnard E. **Insights regarding overfitting on noise in deep learning**. Proc. South African Forum for Artificial Intelligence Research. 2019. Cape Town

Presentation: **The propagation of class information in neural networks**. South African Forum for Artificial Intelligence Research. 2018. Hermanus

## Ability and Skill

**Academic:** Investigative research ability. Technical writing. Communicating abstract concepts. Firm grasp on machine learning theory. Teaching.

**Professional:** Skilled at various programming languages (Python, C#, C++, SQL, etc.). Comfortable in Debian or Windows environments. Can apply learned theory about various software development methods. Applying machine learning concepts in practice.

**Personal:** Excellent English linguistic and grammatical proficiency. Good balance of critical and creative thinking. A self-sustained drive to exceed expectations.

## References

**Current research supervisor:** Prof. Etienne Barnard  
etienne.barnard@gmail.com

**Current research co-supervisor:** Prof. Marelie Davel  
marelie.davel@gmail.com

**Previous research supervisor:** Prof. Willie Venter  
willie.venter@nwu.ac.za