

# NOE CAREME FOUOTSA MANFOUO, PHD

5919 boulevard Rene-Levesque, Sherbrooke, QC, J1R0Y3

Portfolio

◇ Email: noefouotsa@fomanconsulting.onmicrosoft.com

## SUMMARY

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Data analyst with a Ph.D. in Operations Research, and a proven track record of solving complex problems with advanced data analysis techniques and machine learning methodologies, through scientific research and consulting roles in South Africa and Canada. Please click **here** to find my research output and **portfolio**.

## TECHNICAL SKILLS

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<b>Programming Languages</b>	Python (Pandas, Numpy, Scipy, Matplotlib)
<b>Database management</b>	SQL ( SQL Server, MySQL)
<b>Data visualization</b>	Power BI, Tableau, Excel
<b>Big Data</b>	Pyspark, DataBricks
<b>Cloud computing</b>	Google Cloud Platform, AWS
<b>Statistical Software</b>	R, STATA
<b>Microsoft Office</b>	Excel (Vlookup, Conditional Formatting, Pivot Tables), Word, Powerpoint

## PROJECTS

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### 1. Smart Lending: Enhancing Financial Decisions with Data-Driven Insights

*July 2024*

- Used **SQL** and **Excel** to clean 38000 rows of loan data;
- Used **Python** and **Machine learning** to build a model that help the client to determine whether a customer will be charged off or will pay its loan in full;
- Used **Power BI** to build a dashboard that help the client to monitor its loan portfolio.

### 2. Credit Cards Complaints: Enhancing Customer Service Efficiency

*July 2024*

- Used Tableau software to build the interactive dashboard;
- Used **SQL** and **Excel** to compute and cross check the key metrics;
- Used **Python** to clean 30 000 rows of customer complains on credit cards data.

### 3. Employee Attrition and Satisfaction Insights

*July 2024*

- Used Tableau software to build the interactive dashboard;
- Used **SQL** and **Excel** to compute the key metrics;
- Used **Python** to clean the data.

### 4. Decoding customers departures

*July 2024*

- Used **Power BI** to prepare the interactive visualisation
- **SQL** and **Excel** to compute and cross check the key metrics;
- Used **Python** to clean the data.

## EDUCATION

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### University of Stellenbosch, South Africa

December 2020

Ph.D. in Operations Research

### African institute for Mathematical Sciences

June 2015

Msc. in Mathematical Sciences

### University of Dschang, Cameroon

November 2013

Msc. in Mathematical Economics

## CERTIFICATIONS

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### Hackerrank advanced SQL

Mars 2024

### Google Data Analytics Certification

Juin 2022

### SQL + Python + Tableau: Integrating Python SQL and Tableau

Juin 2022

## INDUSTRY EXPERIENCE

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### BeamData

March 2024 - Present

*Data Science consultant (Part time)*

*Toronto, Canada*

- We developed and deployed machine learning based dynamic pricing module for a car rental company.

### Ashanti AI

July 2020 - January 2021

*Data Science consultant (Part time)*

*Johannesburg, South Africa*

- We developed and deployed a machine learning solution for automatic resume screening for a recruitment company.

## RESEARCH EXPERIENCE

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### University of Sherbrooke

April 2023 - March 2024

*Postdoctoral Fellow, Faculty of Medicine and Health science*

*Sherbrooke, Canada*

- Investigated statistical and machine learning methodologies for early-onset type 2 diabetes.
- Contributed in a pioneering effort to modeling up to five diabetes complications sequences with a case study from Canada.

### University of Stellenbosch

July 2020 - March 2023

*Postdoctoral Fellow, Climate School*

*Stellenbosch, South Africa*

- Applied machine learning to satellite imagery for crop productivity monitoring.
- Developed frameworks for mapping three invasive species.

## TUTORING AND TEACHING EXPERIENCES

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### University of Stellenbosch

January 2018 - March 2023

*Assistant Lecturer*

*Stellenbosch, South Africa*

- Taught forecasting techniques to third-year undergraduates in Operations Research.
- Led two workshops on leveraging Google Earth Engine with Python for data analysis.

### Teach Me2

January 2019 - July 2020

*Tutor of Statistics and Econometrics*

*Cape Town, South Africa*

- Assisted undergraduate and postgraduate students from South Africa, Canada, and Australia with tutorials, homework, and research assignments in statistics and econometrics.

- Taught linear programming, inventory control, and financial mathematics to undergraduate students.
- Was appointed as program coordinator before embarking in pursuing a Ph.D. degree at Stellenbosch University.

## ARTICLES

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### **Published**

1. Fouotsa Manfouo Noé Carème, Ndjaboue Ruth, Ngueta Gerard. Race/Ethnicity and Other Predictors of Early-Onset Type 2 Diabetes Mellitus in the US Population, *Racial and Ethnic Health Disparities*, 2024;
2. Fouotsa Manfouo Noé Carème. Monitoring commercial and smallholder production inequalities during South Africa's lockdown using remotely sensed data, *Agrosystems, Geosciences and Environment*, vol 7 (1), 1-10 2024;
3. Fouotsa Manfouo Noé Carème and Potgieter, Linke and Watson, Andrew and Nel, Johanna H. A Comparison of the Statistical Downscaling and Long-Short-Term-Memory Artificial Neural Network Models for Long-Term Temperature and Precipitations Forecasting, *Atmosphere*, vol 14(4), p. 708, 2023;
4. Fouotsa Manfouo Noé Carème. Investigating the effects of drought and lockdowns on smallholder and commercial agricultural production in KwaZulu-Natal using remotely sensed data., *Heliyon*, vol 8(11), 2022.

### **Submitted**

5. Fouotsa Manfouo Noé Carème and Potgieter, Linke and Nel, Johanna H. Comparison of LSTM and GRU neural networks for Lake Chad Basin storage forecasting, *Journal of Forecasting*, 2024.
6. Fouotsa Manfouo Noé Carème and Ndjaboue, Ruth and Ngueta, Gérard. Temporal trajectories of type 2 diabetes complications from inpatient data collected from 2006 to 2021 at Centre Hospitalier Universitaire de Sherbrooke (CHUS), submitted to *Diabetes and its complications*, 2024.
7. Fouotsa Manfouo Noé Carème and Pirard, Romain and Watson, Andrew and Germishuisen, Ilaria and Midgley, Guy. Application of classification models on Sentinel-2 images and tree stands shapefiles for invasive alien trees mapping in the Overberg region in South Africa, submitted to *remote sensing of environmental*, 2024.

## CONFERENCES

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### **31st European Conference on Operational Research (Presenter) Athen, Greece**

*July 2021*

Topic: Application of GEE cloud, Sentinel2 and Landsat8 imageries for crop area mapping, crop quality and rainfall extraction at ward level in Kwazulu-Natal.

### **Seminar series, Department of Logistics (Guest speaker) Stellenbosch, South Africa**

*April 2018*

Topic: Machine Learning for time series analysis.

### **IndabaX conference (poster presenter) Stellenbosch, South Africa**

*September 2018*

Topic: Application of machine Learning to agricultural water demand and water supply estimation.

### **29th European Conference on Operational Research (presenter) Valencia, Spain**

*July 2018*

Topic: A model for optimal water resources allocation: A special application to the Lake Chad Basin.

### **Data Science & Theoretical foundations workshop (Participant) Muzenberg, South Africa**

*April 2018*

### **International Conference on Optimisation (presenter) Augsburg, Germany**

*March 2018*

Topic: Optimal Agricultural Water Right Management under a public water right system.

## AWARDS

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**Travel grant from the Réseau Canadien de recherche en santé CardioMétabolique, Diabète et Obésité (CMDO)**

*April 2022 - April 2024*

**Departmental Scholarship from the Department of Logistics, Stellenbosch University** *January 2019 - December 2019*

**Knowledge Interchange and Collaboration from National Research Foundation** *January 2018 - December 2018*

**Third category Poster award at Indaba Deep Learning conference** *April 2018*

**PhD Scholarship, from the Graduate School of Economics and Management at Stellenbosch University** *January 2019 - December 2018*

**Master Scholarship from the Next Einstein Initiative**

*August 2014 2014 - June 2015*

**Head of state higher Education excellence award**

*Oct 2011 -October 2013*