JANET VAN NIEKERK

2025

Contents

1. Biographical sketch

1.1. General information

Surname	VAN NIEKERK						
First names	JANET		**ID Number**		8912010018081		
Citizenship	South African		**Title**	Dr	**Female**	X	**Male**	

Place of birth	Pretoria				**Date of birth**		01/12/1989		
Population group	**African**		**Coloured**		**Indian**		**White**	X	**Other (Please specify)**	
Passport number	M00335798				**Nationality**		South African		
Direct Telephone	+96654 549 3903				**Direct workphone**		+96612 808 0214		
E-mail	Janet.vanNiekerk@kaust.edu.sa								

1.2. Qualifications

Degree / Diploma	Field of study	Higher education	Year	Distinctions
BSc	Actuarial and Financial Mathematics	University of Pretoria	2011	With distinction
BSc(Hons)	Mathematical Statistics	University of Pretoria	2012	With distinction
MSc	Mathematical Statistics Dissertation[1]	University of Pretoria	2013	With distinction
PhD	Mathematical Statistics Thesis[2]	University of Pretoria	2017	
Higher Education Teaching Certificate	Higher education teaching	Harvard University	2022	Final mark of 97%

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[1] http://hdl.handle.net/2263/30945
[2] http://hdl.handle.net/2263/93806

1.3. Work experience

Name of employer	Capacity and/or type of work	Period From: mm//yy to mm//yy
King Abdullah University of Science and Technology Computer, Electrical and Mathematical Sciences and Engineering School Saudi Arabia	Research Scientist (R4) Research Scientist (R3)	2024 – present 2021-2024
King Abdullah University of Science and Technology Computer, Electrical and Mathematical Sciences and Engineering School Saudi Arabia	Post-Doctoral fellow	09/2018 - 2021
University of Pretoria Department of Statistics South Africa	Extraordinary lecturer Senior Lecturer (previously lecturer)	09/2018 - present 01/2013 – 09/2018

2. Research outputs

2.1. Publications in peer-reviewed or refereed journals

2025

1. Abdul-Fattah, E., **Van Niekerk, J**., & Rue, H. (2025). INLA+--Approximate Bayesian inference for non-sparse models using HPC. *Statistics and Computing 35*(1), pp. 1-12.
2. Burger, D.A., van der Merwe, S., **Van Niekerk, J**., Lesaffre, E. & Pironet, A. (2025). Joint quantile regression of longitudinal continuous proportions and time-to-event data: application in medication adherence and persistence. *Statistical Methods in Medical Research, 34*(1), pp. 111-130, doi:10.1177/09622802241300845.

3. Ye, X., **Van Niekerk, J**., & Rue, H. (2025). Principled priors for Bayesian circular models. *Journal of the American Statistical Association (JASA)*, (submitted).

4. Dutta, S., **van Niekerk, J**. & Rue, H. (2025). Scalable skewed Bayesian inference for latent Gaussian models. *Journal of Computational and Graphical Statistics* (under review).

5. Burger, D.A., Van Niekerk, J. and Lessafre, E. (2025). A robust contaminated discrete Weibull regression model for outlier-prone count data. *ASta: Advances in Statistical Analysis* (under review).

6. Liu, Z., Rue, H. & **Van Niekerk, J**. (2025). Leave-Group-Out Cross-Validation for Latent Gaussian Models. *Statistics and Operations Research Transactions* (Accepted).

7. Freni-Sterrantino, A., Rustand, D., **van Niekerk, J.**, Krainski, E. T., & Rue, H. (2025). A Graphical Framework for Interpretable Correlation Matrix Models. *Statistical Methods and Applications* (Accepted).

2024

8. **Van Niekerk, J**. and Rue, H. (2024). Low-rank Variational Bayes correction to the Laplace method. *Journal of Machine Learning Research 25*(62), pp. 1-25*.

9. Rustand, D., **van Niekerk, J**., Krainski, E. T., Rue, H., & Proust-Lima, C. (2023). Fast and flexible inference approach for joint models of multivariate longitudinal and survival data using Integrated Nested Laplace Approximations. *Biostatistics 25*(2), pp. 429-448.

10. Alvares, D., **Van Niekerk, J**., Krainski, E. T., Rue, H., & Rustand, D. (2024). Bayesian survival analysis with INLA. *Statistics in Medicine*, *43*(20), pp. 3975-4010.

11. Fattah, E. A., Krainski, E., **van Niekerk, J**., & Rue, H. (2023). Non-stationary Bayesian Spatial Model for Disease Mapping based on Sub-regions. *Statistical Methods in Medical Research, 33*(6), pp. 1093-1111.

12. Alahmadi, H., **Van Niekerk, J**. & Rue, H. (2024). Joint quantile disease mapping with application to malaria and G6P deficiency. *Royal Society Open Science 11*(1), pp. 1-19.

13. De Bie, M., **Van Niekerk, J**. & Bekker, A. (2024). Spatio-temporal insights for wind energy harvesting in South Africa. *International Journal on Geomathematics* (under review)

14. **Van Niekerk, J**. and Rue, H. (2024). Restricting feedback in joint models for robust inference. *The American Statistician (*under review*).

15. Van Wyk, A., **Van Niekerk, J**., Arashi, M. & Bekker, A. (2024). Bayesian Variable Selection for Skew Normal Models. *Journal of Multivariate Analysis (*under review*).

16. Chiuchiolo, C., **van Niekerk, J**., & Rue, H. (2023). An Extended Simplified Laplace strategy for Approximate Bayesian inference of Latent Gaussian Models using R-INLA. *Electronic Journal of Statistics (*in revision*). arXiv preprint arXiv:2203.14304*.

2023

17. **Van Niekerk, J**., Krainski, E., Rustand, D., & Rue, H. (2023). A new avenue for Bayesian inference with INLA. *Computational Statistics & Data Analysis*, *18*(1), pp. 1-14. https://doi.org/10.1016/j.csda.2023.107692

18. Gaedke-Merzhäuser, L., **van Niekerk, J**., Schenk, O., & Rue, H. (2023). Parallelized integrated nested Laplace approximations for fast Bayesian inference. *Statistics and Computing*, *33*(1), pp. 1-25.

19. Rustand, D., **Van Niekerk, J**., Rue, H., Tournigand, C., Rondeau, V., & Briollais, L. (2023). Bayesian estimation of two-part joint models for a longitudinal semicontinuous biomarker and a terminal event with R-INLA:

Interests for cancer clinical trial evaluation. *Biometrical journal, 65*(4), pp. 1-20. https://doi.org/10.1002/bimj.202100322

20. Chiuchiolo, C., **van Niekerk, J**., & Rue, H. (2023). Joint posterior inference for latent Gaussian models with R-INLA. *Journal of Statistical Computation and Simulation*, *93*(5), 723-752.

21. **Van Niekerk, J.,** Bakka, H., & Rue, H. (2023). Stable non-linear generalized Bayesian joint models for survival-longitudinal data. *Sankhya A*, *85*(1), 102-128.

2022

22. Fattah, E. A., **Van Niekerk, J**., & Rue, H. (2022). Smart Gradient-An adaptive technique for improving gradient estimation. *Foundations of Data Science*, *4*(1), 123-136.

23. **Van Niekerk, J**., Bekker, A. and Arashi, M. (2022). Matrix-variate beta generator – developments and application, *Journal of the Iranian Statistical Society*, 20(1), pp.289-306.

2021

24. **Van Niekerk, J**., Bakka, H., Rue, H., & Schenk, O. (2021). New Frontiers in Bayesian Modeling Using the INLA Package in R. *Journal of Statistical Software*, *100*, 1-28.

25. **Van Niekerk, J**., Bakka, H., & Rue, H. (2021). Competing risks joint models using R-INLA. *Statistical Modelling*, *21*(1-2), 56-71.

26. **Van Niekerk, J**., and Rue, H. (2021). Skewed probit regression – identifiability, contraction and reformulation. *REVSTAT-Statistical journal*, 19(1), pp.1-22.

27. **Van Niekerk, J**., Bakka, H. and Rue, H. (2021). A principled distance-based prior for the shape of the Weibull model. *Statistical and Probability Letters*, 174, pp.98-109.

2019

28. **Van Niekerk, J**., Bekker, A. and Arashi, M. (2019). Beta regression in the presence of outliers – a wieldy Bayesian solution. *Statistical Methods in Medical Research*, *28*(12), pp.3729-3740.

29. Benson, J. F., Schoeman, J. P., Venter, F. J., Ker, J. A., Zeiler, G. E., Bester, L., **van Niekerk, J**. and Tintinger, G. R. (2019). Aortic arch baroreceptor stimulation in an experimental goat model: a novel method to lower blood pressure. *Frontiers in Cardiovascular Medicine*, *5*, 193.

30. Arashi, M., Bekker, A. and **Van Niekerk, J.** (2019). Weighted distributions of Eigenvalues, *Linear Algebra and its Applications*, 561, pp.24-40.

31. Masoumi Karakani, H, Human, S.W. and **Van Niekerk, J**. (2019). A double generally weighted moving average exceedance control chart, *Quality and Reliability Engineering International*, 35(1), pp.224-245.

2017

32. **Van Niekerk, J.,** Bekker, A. and Arashi, M. (2017). *Weighted-type Wishart distributions with application*. RevStat, 15(1), pp.205-222.

33. Bekker, A., **Van Niekerk, J**. and Arashi, M. (2017). Wishart distributions: Advances in theory with Bayesian application. *Journal of Multivariate Analysis*, 155, pp.272-283.

34. Prinsloo, T., de Villiers, C., & **van Niekerk, J**. (2017). The role of the Namibian Livestock Traceability Systems in containing the recent foot-and-mouth disease outbreak: Case study from the Northern parts of Namibia. *IEEE Next Generation Computing Applications (NextComp)*, pp.30-35.

35. **Van Niekerk, J**., Bekker, A. and Arashi, M. (2017). A gamma-mixture class of distributions with Bayesian application. *Communications in Statistics-Simulation and Computation*, 46(10), pp.8152-8165.
36. Gawler, N. and **Van Niekerk, J**. (2017). Judicial decision making: a statistical perspective. *South African Statistical Journal proceedings*, pp.17-24.

2012 - 2016

37. **Van Niekerk, J.,** Bekker, A., Arashi, M. and De Waal, D.J. (2016). Estimation under the matrix variate elliptical model. *South African Statistical Journal*, *50*(1), pp.149-171.
38. **Van Niekerk, J**., Bekker, A., Arashi, M. and Roux, J.J.J. (2015). Subjective Bayesian analysis of the elliptical model. *Communications in Statistics-Theory and Methods*, *44*(17), pp.3738-3753.
39. **Van Niekerk, J**. and Bekker, A. (2012). Bayesian estimation of location parameter of the normal model with unknown variance. *South African Statistical Journal proceedings,* pp*.*10-17.

2.2. Books or book chapters

1. **Van Niekerk, J**., & Rue, H. (2022). Use of the INLA Approach for the Analysis of Interval-Censored Data. In *Emerging Topics in Modeling Interval-Censored Survival Data* (pp. 123-140). Cham: Springer International Publishing.
2. Lombardo, L., Freni-Sterrantino, A., **Van Niekerk, J**., Tanyas, H., Krainski, E., Castro-Camilo, D., Opitz, T and Chiuchiolo, C. (2025). Temporal and Spatial modeling of Landslide hazards. Wiley (in process).
3. Rustand, D., **Van Niekerk, J**., Krainski, E.T. and Rue, H. (2025). Advanced survival and longitudinal joint analysis with INLA. CRC Press (in process).
4. **Van Niekerk, J**. and Rue, H. (2025). Efficient spatio-temporal Bayesian modeling with INLA. In *Environmental Statistics: Innovative Methods and Applications,* CRC Press (in process).

3. Research-based contributions

3.1. Conferences

3.1.1. Invited and plenary contributions

2025

O'Bayes international conference, Athens, Greece
Invited discussant
https://obayes25.aueb.gr/speakers.html

SASA 2025, South Africa
Plenary Speaker

INLA: Past, present and future international workshop, Glasgow, Scotland
The present of INLA (Keynote speaker)

2024

WASA international workshop, Brasilia, Brazil
Complex survival analysis with INLA (Opening plenary speaker)
https://viiwasa.softaliza.com.br/palestrantes/

IBC: International Biometrics Conference, Atlanta, USA
Approximate Bayesian inference for Biostatistics (Showcase and Award winner)
https://members.biometricsociety.org/ibc2022/events/is22

CMStatistics, London, UK
C0096: Innovative statistical approaches for climate change studies

International Symposium for Modern Statistics and Biostatistics, Pretoria, South Africa
Workshop presenter of Spatial Modeling with INLA
https://www.up.ac.za/cf-symposium2024/article/3232129/workshop-presenters

GEOMED, Hasselt, Belgium
Beyond the basic Laplace Approximations for Biostatistics
https://www.uhasselt.be/en/events-en/2023-2024/geomed2024/material

2023

JSM, Joint Statistical meetings, Canada
New Methodological and Practical Approaches for Facilitating Drug Approvals in Rare Disease

2022

CMStatistics, London
E0148: Statistical summits: Highlights of contemporary results in methodology and computing.

IBC: International Biometrics Conference, Latvia
IS.16: New advances in Bayesian modeling
https://members.biometricsociety.org/ibc2022/events/is22

2021

CMStatistics, London
E0312: Statistical joint modeling with longitudinal and survival data
http://www.cmstatistics.org/CMStatistics2021/fullprogramme.php

SASA2021: Annual conference of the South African Statistical Association, 2021, Stellenbosch, South Africa
Advanced survival data analysis and causal inference
https://www.sastat.org/events/conferences/sasa-2021

2020

ICOMCOS 2020: International Conference in Mathematics, Computation Sciences and Statistics, Indonesia
http://icomcos.fst.conference.unair.ac.id/index.php

2019

62nd ISI World Statistics Congress, Malaysia
IPS-97: Developing leadership skills in Women in Statistics

3.1.2. Contributed participations

2020

ISBA 2020: Complex survival models with R-INLA
SAfJR 2020: Workshop in Survival Analysis for Young researchers, Germany.

2019

IWSM 2019: Workshop in Statistical Modelling, Portugal.
SAfJR 2019: Workshop in Survival Analysis for Young researchers, Denmark.
ISBS 2019: International Symposium in Statistics and Biostatistics, South Africa.

2018

ISBA 2018: International Society for Bayesian Analysis World Meeting, Scotland.

2017

ISI 2017: 61st ISI World Statistics Congress, Morocco.

2012 - 2016

SASA 2016: Conference of the South African Statistical Association 2016, South Africa
ISI 2015: 60th ISI World Statistics Congress, 2015, Brazil
SASA 2015: Conference of the South African Statistical Association 2015, South Africa
SAAWK 2015: Symposium of the academy of science and art, 2015, South A Africa
SASA 2014: Conference of the South African Statistical Association 2014, South Africa
SAAWK 2014: Symposium of the academy of science and art, 2014, South Africa
ISI 2013: 59th ISI World Statistics Congress, 2013, Hong Kong
ISBASA 2013: Workshop of the International Society for Bayesian Analysis South African chapter, Grahamstown, South Africa
SASA 2012: Conference of the South African Statistical Association 2012, South Africa
SAAWK 2012: Symposium of the Academy of Science and Art, 2015, South Africa

3.2. Short courses developed and presented

2024

Data science for Public Health, Centers for disease control and prevention, Atlanta, USA
Data science for Environmental Sciences, Pretoria, South Africa

2022

Advanced epidemiological models with R-INLA, Bordeaux
New advances in Bayesian inference, Lisbon

2021

Valencia International Bayesian Analysis summer school, Spain
http://vabar.es/events/vibass4/

2019

Statistical modelling using INLA, June 24-27, University of South Africa
https://www.wits.ac.za/media/wits-university/faculties-and-schools/science/computer-science-and-applied-mathematics/Invitation%20INLA%20UNISA%2024-27%20June%202019.pdf

3.3. Membership in national and international bodies

Registration category	Professional Body	From
Associate Editor – Bayesian Analysis https://www.e-publications.org/ims/submission/BA/help/about/	Journal of the International Society of Bayesian Analysis	2022 - 2025
Associate Editor – Statistics and Computing https://link.springer.com/journal/11222/editorial-board	Springer Nature journal	2025 - 2029
Co-lead - ISI Public Voice Consortium https://isi-web.org/public-voice	International Statistical Institute	2025 - current
ISI Nominations Committee https://www.isi-web.org/isi-community/committees/nominations	International Statistical Institute	2020 - current

Management of the committee on Women in Statistics https://cw-isi.org/ and https://www.isi-web.org/isi-community/committees/women-in-statistics	International Statistical Institute	2016 - current
Regular member	International Society for Bayesian Analysis	Since 2017
Regular member	South African Statistical Association	Since 2014
Regular member	International Biometrics Society	Since 2022
Regular member	Bernoulli society	Since 2012
Member	Golden Key Honorary Society	Since 2009

3.4. International research visits

1. Flatiron Institute, New York, USA: 8 – 12 December 2024
2. Centers for Disease Control and Prevention, Atlanta, USA: 15 – 31 May 2024
3. University of Lisbon, Portugal: 15 – 31 July 2022
4. INCERM, University of Bordeaux, France: 1 – 14 July 2022

3.5. Postgraduate student supervision[3]

Current
Mr. Xiang Ye, KAUST (PhD Statistics)
Ms. Martina Le-Bert Heyl, KAUST (PhD Marine Science)
Mr. Arno van Zyl, UP (PhD Mathematical Statistics)
Mr. Ricardo Marquez, UP (PhD Statistics)
Mr. Matthew de Bie, US (PhD Statistics)
Mr. Samuel Nakale (not yet registered)

2024
Dr. Shourya Dutta, KAUST (PhD Statistics)
Mr. Matthew de Bie, UP (MCom Advanced data analytics)

2023
Dr. Esmail Abdul-Fattah, KAUST (PhD Statistics)

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[3] KAUST – King Abdullah University of Science and Technology, Saudi Arabia
UP – University of Pretoria, South Africa
US – University of Stellenbosch, South Africa
UFS – University of the Free State, South Africa

Ms. Chiarra Fazzini, UP (MCom Advanced data analytics)

2022

Dr. Christian Chiuchiolo, KAUST (PhD Statistics)
Ms. Dilyara Uvasheva, KAUST (MSc Statistics)

2021

Ms. Hanan Al-Ahmadi, KAUST (MSc Statistics)

2020

Dr. Hossein Massoumi Karakani, UP (PhD Mathematical Statistics)

2018

Ms. Chandre Teise, UFS (MSc Mathematical Statistics)
Mr. Carel van Niekerk, UP (MSc Mathematical Statistics)

2016

Mr. Hossein Massoumi Karakani, UP (MSc Mathematical Statistics)

4. Scholarly service

4.1. Statistical consultant

- R-INLA project http://www.r-inla.org/home

- Accutrak http://www.accutrak.co.za/

- South African National Joint Registry (SANJR) https://www.sanjr.co.za/

- African Health Placements (AHP) https://ahp.org.za/

- Netcare group https://www.netcare.co.za/

- University of South Africa http://www.unisa.ac.za

- Werner Boshoff attorneys http://www.wernerboshoffinc.co.za/

4.2. Referee duties

Reviewer for:

- Bayesian Analysis

- Journal of the American Statistical Association

- Canadian Journal of Statistics

- Biostatistics

- Statistical Methods in Medical Research

- Journal of Quantitative Analysis in Sports

- Numerical Algorithms

- Communications in Statistics – Theory and Methods

- South African Statistical Journal

5. Funding obtained

2015
World bank Trust fund for Statistical Capacity building (TFSCB) award

2017
World bank Trust fund for Statistical Capacity building (TFSCB) award

2018
University of Pretoria research development program (RDP) award
National Research Foundation (NRF) of South Africa: Teaching development grant
(TDG) award (Grant numbers: 123 and 110117)

2023
Research grant (OFP) at KAUST award for "A Bayesian computing framework for
precision medicine".

2024
International Biometrics Society and International Statistical Institute young
ambassador travel grant

6.   Teaching activities

I have been involved in teaching in higher education since 2012 and obtained my Higher Education Teaching Certificate from Harvard University, USA in 2022. I have presented courses from first year level to PhD level as well as to scientists at public institutes like the CDC, USA.

I was awarded the Department of Statistics Teaching Award at The University of Pretoria in 2017.

A compressed and elaborated teaching portfolio is available: https://github.com/JanetVN1201/Documents.

6.1.   Courses presented (Summary)

Course	Level (*e.g. second year, Masters*)	Self developed (*Yes or No*)
Bayesian analysis	Postgraduate	Yes
Computational Statistics	Postgraduate	No
Biostatistics	1st year, Honours	Yes
Mathematical Statistics	1st and 2nd year	Yes
Statistics	3rd year	Yes
Research methodology	Honours	Yes
SAS and R training	Honours, Masters	Yes

7 Awards and scientific/scholarly recognition

2008
- University of Pretoria Undergraduate Achievement Bursary

2009
- University of Pretoria Undergraduate Achievement Bursary
- Golden Key membership

2011
- University of Pretoria Postgraduate Achievement Bursary
- University of Pretoria Academic Honorary colours
- STATOMET bursary award

2012
- University of Pretoria Academic Honorary colours
- STATOMET bursary award
- SASA students project competition – 4th place
- African Bank award for the top achiever in the BSc(Hons) program
- Blue Stallion award for contribution of scientific merit

2013
- University of Pretoria Academic Honorary colours
- STATOMET prize for the most exceptional student in the Magister program of the Department of Statistics
- World Bank Fund prize for participation in the 59th World Statistics Congress in Hong Kong in 2013

2014
- University of Pretoria Research Support bursary

2015
- World Bank Fund award for participation in the 60th World Statistics Congress in Brazil
- Best doctoral presentation at the South African Statistical Association conference

2016
- University of Pretoria Postgraduate Achievement bursary

2017
- University of Pretoria Teaching award for excellence in teaching
- University of Pretoria incentive award for being the youngest PhD Mathematical Statistics graduate

2018
- International Society for Bayesian Analysis Travel Award.

2024
- International Biometrics Society Young Ambassador Award.

8 References

1. **Haavard Rue (current line manager)**
    Professor, CEMSE, King Abdullah University of Science and Technology, Kingdom of Saudi Arabia
    Haavard.Rue@kaust.edu.sa

2. **Andriëtte Bekker (previous line manager)**
    Emeritus Professor of Statistics, University of Pretoria, South Africa
    Andriette.bekker@up.ac.za

3. **Anna Freni-Sterrantino**
    Senior Research Associate, Alan Turing Institute and Honorary Research Associate, Imperial College London, United Kingdom
    afrenisterrantino@turing.ac.uk

4. **Renee Ehlers (teaching referee)**
    Senior lecturer, Department of Statistics, University of Pretoria, South Africa
    Rene.Ehlers@up.ac.za

5. **Ding-Geng Chen**
    Professor and Executive Director in the Biostatistics College, Arizona State University, United States of America
    SARChI chair in Biostatistics, University of Pretoria, South Africa
    ding-geng.chen@asu.edu

6. **Lola Ugarte**
    Professor, Mathematics and Statistics, Universidad de Navarra, Spain
    lola@unavarra.es

7. **Virgilio Gomez-Rubio**
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