



YASSER BUCHANA, ***PhD***

Senior Research Specialist & Data Scientist

Professional summary

Yasser Buchana is a Senior Research Specialist at the Centre for Science, Technology, and Innovation Indicators (CESTII), with a diverse background spanning over a decade in roles such as software engineering, business analysis, project management, and data science within both public and private sectors.

Yasser holds a Ph.D. in Information Systems from the University of Cape Town, a Master's degree (Cum-Laude) in Information Systems from the University of the Western Cape, and a Bachelor's degree in Computer Science. His academic achievements are complemented by a strong track record of contributions to the field, including peer-reviewed journal articles and presentations at both domestic and international conferences.

Yasser has played a leadership role in the management and delivery of high-impact government research projects focusing on innovation measurement in key economic sectors in South Africa. More recently, he has lead the measurement of innovation in the agricultural sector in South Africa.

Yasser's work has become the primary source for evidence-based policy-making on Science, Technology and Innovation (STI) in South Africa, making him a highly respected researcher and expert in the field.

Currently Based in Cape Town – South Africa

Open to Travel and Relocation

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Professional experience

Jan 2017 – **Senior Research Specialist**, *Human Sciences Research Council (HSRC)*.
Current

Responsible for leading South Africa's national research project on the measurement of innovation in the agricultural sector on behalf of the South African ministry of Science and Innovation

Role and responsibilities:

- Conceptualising and implementation of South Africa's AgriBIS research project:
 - Project Management
 - Leading of a diverse team of 7 researchers
 - Monitoring and evaluation of survey data responses with machine learning techniques in Python
 - Analysing and visualising innovation data using machine learning techniques in python.
 - Report and Policy brief writing
 - Peer reviewed research publications;
- Other CESTII responsibilities:
 - Chairperson of data committee
 - Leadership of digitalisation special project (DSP)
 - Designed and developed CeSTII's data request management system

2015 – 2016 **Systems implementation analyst**, *University of Cape Town Research Office*.

I worked on the implementation project of the Converis Research management system for the University of Cape Town

Roles and Responsibilities:

- Thompson Reuters Converis Research Management System:
 - System maintenance and support;
 - Documentation and testing;

2014 – 2015 **Systems implementation analyst**, *Valentia Technologies LTD*.

I worked on the implementation project of the new Computer Aided Dispatch System (CAD) for the Western Cape Ambulance Services

Roles and Responsibilities:

- Implementation of the CareMonx Computer Aided Dispatch (CAD) system for the Western Cape Ambulance Services:
 - Liaison between client and Valentia Technologies developers;
 - Mobile application support (MDT application);

2007 – 2010 **Software developer (Part-time)**, *Free Software Innovation Unit*.

Software Development and Testing on the Chisimba PHP framework

Database administration and Project management

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Education

- 2014 – 2018 **PhD (Information Systems)**, *Graduated: 2018.*
University of Cape Town – Cape Town, South Africa
- 2012 – 2013 **Master of Commerce (Information Management)**, *Graduated: 2014.*
University of The Western Cape – Cape Town, South Africa
- 2011 – 2012 **B.Com (Honours) Information Systems**, *Graduated: 2012.*
University of The Western Cape – Cape Town, South Africa
- 2007 – 2010 **B.Sc Computer Science**, *Graduated: 2011.*
University of The Western Cape – Cape Town, South Africa

Peer reviewed publications

- **Buchana, Y.**(2023). Eco-innovation and agricultural sustainability: empirical evidence from South Africa's agricultural sector. *Innovation and Development*, 1-20.
- **Buchana, Y.** & Sithole, M. (2022). Towards a conceptual framework for measuring innovation in the agricultural sector in sub-Saharan developing countries. *African Journal of Science, Technology, Innovation and Development*. 1-11. Routledge
- Kahn, A., Sithole, M & **Buchana, Y.** (2022) An analysis of the impact of technological innovation on productivity in South African manufacturing firms using direct measures of innovation. *South African Journal of Economics*,90,1,37-56.
- Kasongo, A., Sithole, M.& **Buchana,Y.** (2021). Empirical analysis of innovation and productivity in services firms: The case of South Africa. *African Journal of Science, Technology, Innovation and Development*. 1-13,2021,Routledge.
- Kruss, G., Sithole,M., **Buchana, Y.**, (2021); Towards an indicator of R&D and human development. *Development Southern Africa* ,38,2,248-263,2021,Routledge
- Sithole, M; **Buchana, Y.** (2021). Effects of innovation activities on employment growth in upper-middle-income countries with high unemployment rates. *Development Southern Africa*,38,3,371-390,Routledge.
- **Buchana, Y.**, Garbutt, M & Seymour, L.F. (2018). Identifying micro-level generative mechanisms of ICT-enabled performance improvement in resource-constrained healthcare organisations: A critical realist perspective. *The Electronic Journal of Information Systems in Developing Countries*.

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- **Buchana, Y.,** & Seymour, L.F (2015) *Theorising inter-organisational health information systems as complex adaptive systems in the context of emergency medical services*, Proceedings of the 2015 Annual Research Conference on South African Institute of Computer Scientists and Information Technologists 1-7
- **Buchana, Y.,** & Visvanathan, N., (2014) The Effect Of Mobile BI On Organisational Managerial Decision-Making. *Journal of Applied Business Research (JABR)* 30,4,1003-1018

Conference presentations

- **Buchana, Y.,** (2023) *A cluster analysis of innovation barriers in agricultural sector: A k-modes machine learning algorithm approach*. Atlanta Conference on Science and Innovation Policy, Atlanta, USA.
- **Buchana, Y.,** (2023) *Problematising the role of STI policy in agricultural innovation in developing countries: The case of South Africa*. Atlanta Conference on Science and Innovation Policy, Atlanta, USA.
- **Buchana, Y.,** Sithole, M.M, Kruss, G. & Majokweni, P. (2022) *Investigating patterns of innovation in agricultural businesses: Evidence from South African AgriBIS 2016-201*. Agricultural Economics Association of South Africa conference, Windhoek, Namibia.
- **Buchana, Y.,** & Sithole, M.M. (2019) *Exploring the influence of absorptive capacity on innovation performance of non-R&D intensive firms: Evidence from South Africa*. Atlanta Conference on Science and Innovation Policy, Atlanta, USA.
- Habiyaemye, A. & **Buchana, Y.** (2019) *Co-operative learning and innovation co-creation in university community engagement projects*. Atlanta conference on Science and Innovation Policy. Atlanta, USA.
- **Buchana, Y.** (2019) *Innovation collaboration mechanisms enabling innovation performance in a triple helix innovation ecosystem: evidence from South Africa*. The triple helix conference, Cape Town, South Africa.
- **Buchana, Y.,** & Seymour, L. F. (2017). *Institutional Logics of IT-enabled Organizational Performance in Resource Constrained EMS Organizations*. Proceedings of the Americas Conference on Information Systems (AMCIS), Boston, USA.

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Research reports

- **Y Buchana**, M Sithole, G Kruss, G Ralphs, , A Kahn, P Majokweni, V Sigenu (2024) *Modernising South Africa's agricultural sector through innovation: Results from the South African Agricultural Business Innovation Survey, 2019 -2021*. Human Sciences Research Council.
- **Buchana, Y.**, Sithole, MM; Kruss, G; (2021) *Innovation performance in South African commercial agriculture, forestry and fisheries businesses, 2016-2018: results of a baseline survey with key national and sectoral trends*. Human Sciences Research Council.
- **Y Buchana** M Sithole, C Moses, G Kruss, G Ralphs, , A Kahn, A Kasongo (2020) *Innovation performance in South African businesses, 2014-2016: activities, outcomes, enablers, constraints*. Human Sciences Research Council.

Policy briefs

- **Buchana, Y.** (2024). *Towards a unified eco-innovation policy framework for sustainable agriculture in South Africa*. HSRC.
- Majokweni, P, Kruss, G, Kahn A, Sithole, M. & **Buchana, Y.**; (2022), *Adoption and diffusion of advanced ICTs in South Africa's agricultural sector: policy issues and implications*. HSRC.
- **Buchana, Y.**, Sithole, M & Majokweni, P; (2022). *Promoting innovation collaboration in South Africa: unveiling patterns and barriers*. HSRC.
- **Buchana, Y.** & Sithole, M (2020). *Innovation and employment growth in South Africa: effects and Implications*. HSRC.
- Kruss, G., Sithole, M & **Buchana, B**; (2020). *Towards an R&D indicator and human development*. HSRC.

Teaching experience

- 2015 – 2017 **Lecturer (Part-time)**, Radiography Department – Cape Peninsula University of Technology.
- 2012 – 2013 **Assistant Lecturer**, Computer Science Department –University of the Western Cape.

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Technical strengths

Data Science Tools Jupyter Notebook, pandas, matplotlib, seaborn, numpy, scikit-learn

DS & ML Algorithms Classification algorithms, Regression, Clustering algorithms

Programming Languages Java, Python, PHP, C, Swift, Javascript

Databases MySQL, PostgreSQL, Microsoft SQL, Oracle

Other Tools Linux, Vim, LaTeX, Git

IDEs Visual Studio Code, Android Studio, X Code

Certifications and awards

AEASA 2022 2nd Best Poster Paper at the 59TH AEASA Conference on Agricultural Economics Association of South Africa

Big Data IBM Big Data Developer Mastery Certification (2016)

CCNA 1 Network Fundamentals

CCNA 2 Routing Protocols and Concepts

References

Dr Innocent Karangwa , *Statistical Consultant, University of Cape Town.*

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Email address: innocent.karangwa@uct.ac.za

Dr Alexis Habiyaemye , *Associate Professor, University of Johannesburg.*

o **Contact details:**

Tel-work: +27 73 544 4540

Email address: habiyaemye@merit.unu.edu

Dr Moses Sithole , *Research Director, Human Sciences Research Council.*

o **Contact details:**

Tel-work: +27 21 466 7862

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