Omran Ahmed Mohamed Salih

Department of Computer Science
University of KwaZulu Natal
Westville Campus, 4000
Durban, South Africa
Nationality: Sudanese Citizen – Gender: Male – Date of Birth: 01/01/1985

✉ omran@aims.ac.za   📞 +27 72 253 5596
Ⓢ omran.salih1   🐦 @O_Salih
in https://www.linkedin.com/in/omran-salih-ph-d-3b23b969/
Git https://github.com/omransalih
RG https://www.researchgate.net/profile/Omran_Salih
ID https://orcid.org/0000-0002-7861-5502

OBJECTIVE. Placement in an academic position (i.e., faculty, postdoctoral, or research scientist) that allows for advanced research in different areas where machine learning and applied mathematics are the instrument used to provide possible solutions.

Education

2018 – 2020	Ph.D. in Computer Science, University of KwaZulu Natal, Durban, South Africa. **Thesis title:** *Skin Lesion Segmentation Techniques Towards Melanoma Detection.*
2013 – 2014	M.Sc in Applied Mathematics **(with Distinction)**, University of KwaZulu Natal, Durban, South Africa. **Thesis title:** *Modeling The Burden of Disease for Cattle.* More details at https://pdfs.semanticscholar.org/b29c/9dd70681824e518bcf54c05c654393819298.pdf
2011 – 2012	PGD in Mathematical Sciences **(with Second Class)**, University of Cape Town (AIMS), Cape Town, South Africa. **Thesis title:** *Probabilistic Model Checking of a Web Server.* More details at http://archive.aims.ac.za/postgraduate-diploma-essays/2011-12
2006 – 2010	B.Sc in Mathematics and Computer Science **(with First Class)**, International University of Africa, Khartoum, Sudan.

Employment Details

Feb, 2018 – Present	**Tutor –** Department of Math, School of Math, Stat and Computer Science, University of KwaZulu Natal **– courses:** Quantitative Methods (Math134), Mathematics for Natural Sciences (Math150), Calculus and Linear Algebra (Math140).
Mar, 2016 – Jan, 2018	**Lecturer –** Department of Math, Faculty of Education, Alzaeim Alazhari University **– courses:** Calculus I (1st year B.Sc), Calculus II (1st year B.Sc), Linear Algebra (2nd year B.Sc), Real Analysis (3rd year B.Sc), Mathematical Methods (3rd year B.Sc).
Aug, 2015 – Jan, 2017	**Lecturer (Part Time) –** Department of Math, Faculty of Science, Sudan University of Science and Technology **– courses:** Introduction To Matlab (3rd year B.Sc), Numerical Methods (4th year B.Sc).

Continued ... Employment Details

Nov, 2016 – Feb, 2018   **Lecturer (Part Time) –** Department of Math, Faculty of Computing and Information System, Sudan International University **– courses:** Calculus I, Calculus II, Linear Algebra (1st year B.Sc).

Sep, 2016 – June, 2017   **Lecturer (Part Time) –** Department of Math and Computer Science, Faculty of Pure and Applied Sciences, International University of Africa **– courses:** Programming Language I [C++] (2nd year B.Sc), Programming Language II [Python] (2nd year B.Sc), Data Structure (3rd year B.Sc), Numerical Methods (3rd year B.Sc).

Jun, 2017 – Sep, 2017   **Lecturer (Visitor) –** Department of Math, Faculty of Mathematical Sciences and Statistics, Al-Neelain University **– courses:** Python.

Jun, 2013 – Oct, 2014   **Tutor –** Department of Math, School of Math, Stat and Computer Science, University of KwaZulu Natal **– courses:** Quantitative Methods (Math134), Mathematics for Natural Sciences (Math150), Calculus and Linear Algebra (Math140).

Aug, 2012 – Feb, 2013   **Teaching Assistant –** Department of Math and Computer Science, Faculty of Pure and Applied Sciences, International University of Africa.

Oct, 2010 – Aug, 2011   **Teaching Assistant (National Service) –** Department of Math and Computer Science, Faculty of Pure and Applied Sciences, International University of Africa.

Oct, 2010 – Aug, 2011   **Teaching Assistant (Part Time) –** Department of Computer Science, Bayan College for Science and Technology.

Skills

Communication   **Oral Communication skills –** Developed through studying and tutoring at different national universities in Sudan & South Africa.

Teamwork   **Teamwork skills –** Developed through working in groups that consist of different nationalities at AIMS, Cape Town, South Africa.

Prog Languages   C ++, Java and python.

Math Packages   Sage (Open-source mathematical software system), Singular (Open-source Computer Algebra System) and Matlab.

Stat Packages   SPSS, Excel, Origin & OriginPro, R.

IT and Typesetting   LaTeX, Word, General skills in Computer and Internet.

Miscellaneous Experience

14 – 17 Apr, 2019   Deep Learning IndabaX, South Africa 2019, University of KwaZulu Natal, Durban, South Africa. 🌐 https://indabax.co.za/2019/index.html

17 Oct, 2019   2019 Postgraduate Research and Innovation Symposium, University of KwaZulu Natal, Westville Campus, Durban, South Africa. 🌐 https://pris.ukzn.ac.za/2019-postgraduate-research-and-innovation-symposium/

22 May, 2019   High Performance Computing Workshop (CHPC), University of KwaZulu Natal, Westvile Campus, Durban, South Africa. 🌐 https://www.chpc.ac.za/

25 Oct, 2018   2018 Postgraduate Research and Innovation Symposium, University of KwaZulu Natal, Westvile Campus, Durban, South Africa. 🌐 https://pris.ukzn.ac.za/2018-pris/

11 – 14 Apr, 2018   Workshop on Using MATLAB in Applied Physics, Al-Neelain University, Khartoum, Sudan. 🌐 http://www.neelain.edu.sd/

1 Nov, 2013   2013 Postgraduate Research Day, University of KwaZulu Natal, Howard College Campus, Durban, South Africa. 🌐 https://pris.ukzn.ac.za/2013-2/

27 Oct, 2014   2014 Postgraduate Research Day, University of KwaZulu Natal, Westville Campus, Durban, South Africa. 🌐 https://pris.ukzn.ac.za/2014-postgraduate-research-day/

Scholarships and Awards

2019   First prize - Computer vision challenge - Aerobotics Hackathon 🌐 https://blog.aerobotics.co/   Awarded by the Deep Learning IndabaX South Africa 2019, Durban, South Africa 🌐 https://indabax.co.za/2019/index.html

2018   Scholarship from Ministry of Higher Education and Scientific Research, Ph.D.level, Khartoum, Sudan 🌐 http://www.mohe.gov.sd/index.php/en/services/details/1/2

2015   Prize money for a cum laude degree for my masters, University of KwaZulu Natal, Durban, South Africa 🌐 https://www.ukzn.ac.za/

2013   Scholarship from AIMS and University of KwaZulu Natal, M.Sc level, 🌐 https://aims.ac.za/   🌐 https://www.ukzn.ac.za/

2011   Scholarship from African Institute for Mathematical Science (AIMS), PostGraduate Diploma level, Cape Town, South Africa 🌐 https://aims.ac.za/

2007   Certificate of Excellence from Faculty of Pure and Applied Science, International University of Africa, Khartoum, Sudan 🌐 https://en.iua.edu.sd/

Courses Taught

Linear Algebra	Programming Language I (C++)
Calculus I (Differentiation)	Programming Language II (Python)
Calculus II (Integration)	Data Structure (With C++)
Real Analysis	Numerical Methods I (with Matlab)
Special Functions	Numerical Methods II (with Matlab)
Mathematical Methods	Discrete Mathematics
Ordinary Differential Equations	Programming Methods (with Java)

References

Prof. Serestina Viriri Academic Leader: Computer Science Department, School of Mathematics, Statistics and Computer Science, University of KwaZulu Natal, Durban 4000, South Africa. *(Ph.D. Supervisor)*

✉ viriris@ukzn.ac.za   📞 +27 31 260 7724

Prof. Kesh Govinder (Acting) Assistant Dean of Research, Research Office. Co-focal node leader of the ARUA CoE for Unemployment and Skills Development, University of KwaZulu Natal, Durban 4000. *(MS.C. Supervisor)*

✉ govinder@ukzn.ac.za   📞 +27 31 260 3021

Prof. Osman El nubi Mathematics Department, University of Alta'af, Saudi Arabia. *(BSc. Thesis Supervisor)*

✉ ahmed.elnubi61@gmail.com   📞 +966 50 723 1716

Professional Memberships

The South African Mathematical Society (SAMS).

Publications

1   **Salih**, O. & Viriri, S. (2020a). Skin lesion segmentation using local binary convolution deconvolution architecture. *Image Analysis and Stereology journal (Accepted)*.

2   **Salih**, O. & Viriri, S. (2020b). Skin lesion segmentation using stochastic region-merging and pixel-based markov random field. *Symmetry*, *12*(8), 1224.

3   **Salih**, O. & Viriri, S. (2019a). Skin lesion segmentation based on region-edge markov random field. in: Bebis g. et al. (eds) advances in visual computing. isvc 2019. *Lecture Notes in Computer Science*, *11845*, 407–418. Springer, Cham.

4   **Salih**, O. & Viriri, S. (2019b). Skin lesion segmentation techniques based on markov random field. *Lecture Notes in Computer Science*, Springer, Cham.

5   **Salih**, O. & Viriri, S. (2018a). Skin cancer segmentation using a unified markov random field. in: Bebis g. et al. (eds) advances in visual computing. isvc 2018. *Lecture Notes in Computer Science*, *11241*, 25–33. Springer, Cham.

6   **Salih**, O. & Viriri, S. (2018b). Skin lesion segmentation using enhanced unified markov random field. in: Groza a., prasath r. (eds) mining intelligence and knowledge exploration. mike 2018. *Lecture Notes in Computer Science*, *11308*, 331–340. Springer, Cham.

بسم الله الرحمن الرحيم

Department of Mathematics and Computer Science
Faculty of Pure and Applied Sciences
International University of Africa

قسم الرياضيات وعلوم الحاسوب
كلية العلوم البحتة والتطبيقية
جامعة افريقيا العالمية

Date: October, 8th . 2020

Subject: Recommendation for Omran Ahmed Mohamed Salih

I have Known Mr. **Omran Salih** for 10 years as a student and lecturer at International University of Africa. During his study at Department of Mathematics and Computer Science, Mr. Omran has shown the clear methodological problem-solving approach which enabled him to carry out with all success the multiple assignments which were given to him with precision in quest for knowledge.

Mr. Omran is a hard-working, responsible, dedicated person and cooperative with his colleagues. His relations with his peers and supervisors have been excellent and have earned him the respect of all those who have known him.

In general, he is a person who can be relied upon to perform his duties perfectly.

I highly recommend Mr. Omran for the course he applied for.

Sincerely,

Hafez Ibrahim Abd Alrahman Elfakie
Assistant Professor
Department of Mathematics and Computer Sciences
Faculty of Pure and Applied Sciences
 International University of Africa **2469, Khartoum, Sudan**
H/P   : +249917777123
Email : hz_4@iua.edu.sd
        : hz_4@hotmail.com

05 October 2020

DUT Postdoctoral Fellowship

Ref: **Support Letter for Postdoctoral Fellowship: (Dr Omran Salih).**

I am writing in support of Dr Salih's application for a Postdoctoral Fellowship. Dr Salih completed his Ph.D. studies in Computer Science under my supervision at the University KwaZulu-Natal. His project entails designing and developing deep learning models for the analysis of skin lesion images towards melanoma cancer detection. It is the application of machine learning techniques in detecting and diagnosing skin cancer diseases.

Deep learning models are important machine learning techniques that have been recently adopted in the field of computer vision for medical images analysis for detection and diagnosis of diseases. This has been proven to be efficient in managing disease such as brain tumor, breast cancer, lung cancer and melanoma skin cancer.

Dr Salih has achieved very promising results as evidenced by the quality of publications obtained.

I strongly recommend him for the Postdoctoral fellowship at DUT.

Yours faithfully,

Prof. Serestina Viriri
viriris@ukzn.ac.za
HoD: Computer Science (Supervisor)

University of Kwa-Zulu Natal │ School of Mathematics, Statistics and Computer Science

Letter of Reference: Omran Ahmed Mohamed Salih

I first met Dr Salih (electronically) in 2012 when he inquired about undertaking an MSc under my supervision. He was interested in numerical and computational analysis but was open to other areas of research. It was clear to me that he wanted to be involved in high quality, cutting edge science right from the start. While I did not have a suitable project in computational analysis, I successfully convinced him to work on a study on ticks and tick-borne diseases that I was embarking upon.

While Dr Salih had no experience in this area, he attacked the problem with great enthusiasm. It was a rather remarkable MSc in that it contained mathematical modelling, mathematical analysis, data collection and data interpretation. Even though he was working on an MSc, he produced a publishable piece of work introducing the idea of "productivity-adjusted life years" for cattle affected by tick-borne diseases. This was the first time such a concept had been explored and I believe would make an enormous impact on the field.

Upon completion of his MSc, Dr Salih expressed a desire to work on more computationally oriented problems. Knowing of the work of Dr Viriri in Computer Science, I was happy to suggest that the two of them work together. I am very pleased to see how successful that collaboration has been with six papers already published (or accepted to be published). That is a remarkable achievement for any PhD, let alone one in Computer Science.

Dr Salih was part of the 2011/2012 AIMS class. AIMS takes the top Mathematical Sciences students from around Africa into a coursework MSc program. The courses in this degree are taught by scientists from around the world. The recruitment process for AIMS is strict and only the best students are recruited into the program. Any student graduating from AIMS can be assumed to be of the highest academic standard. In addition to academic development, students are also exposed to personal and professional development, thus ensuring that they are well-rounded. In my experience, Dr Salih exemplifies the best that AIMS has produced over the years. He is a highly motivated, dedicated researcher, and, importantly, he is a true pleasure to work with. I strongly support his application for a postdoctoral fellow at DUT. The University would be fortunate to count him among its researchers.
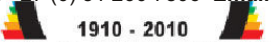
Yours sincerely

Professor K S Govinder   8 October 2020

Professor of Applied Mathematics

School of Mathematics, Statistics and Computer Science
Postal Address: Private Bag X54001, Durban 4000, South Africa
Telephone: +27 (0) 31 260 3021 **Facsimilie:** +27 (0) 31 260 7806 **Email:** govinder@ukzn.ac.za **Website:** www.ukzn.ac.za

1910 - 2010
100 YEARS OF ACADEMIC EXCELLENCE

Founding Campuses: Edgewood   Howard College   Medical School   Pietermaritzburg   Westville