

# First Pan-African Artificial Intelligence and Smart Systems Conference

(PAN-AFRICAN AIS 2021)

October 7-9, 2021, University of Namibia, Windhoek, Namibia

Virtual Conference due COVID-19 Pandemic

## CONFERENCE PROGRAMME

### Day 1: Thursday October 7 (Namibian Time UTC+2)

10:00 – 10:30	Welcome Message
10:35 – 10:50	History of the Conference <b>Dr Thomas Ndousse</b>
11:00 – 12:00	Keynote Address  The Important Role of Operations Research (OR) Tools in the Success of AI and Smart Systems  <b>Prof. Attahiru S. Alfa</b> Professor Emeritus in the Department of Electrical and Computer Engineering , University of Manitoba, Manitoba, Canada and Extraordinary Professor in the Department of Electrical, Electronic and Computer Engineering, University of Pretoria, South Africa
12:00 – 12:20	<b>Break</b>
	<b>Section 1 : Deep Learning</b>
12:20 – 12:40	A Critical Analysis of Deep Learning Architectures For Classifying Breast Cancer Using Histopathology Images <i>Yusuf Seedat and Dustin Van Der Haar</i>
12:40 – 13:00	A Patch-based Convolutional Neural Network for Localized MRI Brain Segmentation <i>Trevor Vambe, Serestina Viriri and Mandlenkosi Gwetu</i>
13:00 – 13:20	Copy-Move and Splicing Forgeries in Digital Images using Deep Learning <i>Brice Mboule Ebele, Hippolyte Tapamo Kenfack, Serge Essuthi, Oscar Eone Etoua and Amos Mbietieu Mbietieu</i>
13:20 – 13:40	Facial Recognition through Localized Siamese Convolutional Neural Networks <i>Leenane Makurumure and Mandlenkosi Gwetu</i>
13:40 – 14:40	<b>Lunch Break</b>
14:40 – 15:40	Keynote Address  Artificial Intelligence for Language Technologies  <b>Prof. Ndapa Nakashole</b> Assistant Professor at the University of California, San Diego, USA
15:40 – 16:00	<b>Break</b>
	<b>Section 2 : Classification and Pattern Recognition I</b>
16:00 – 16:20	Face Recognition In Databases of images With Hidden Markov's Models <i>Amos Mbietieu Mbietieu, Hippolyte Tapamo Kenfack, Oscar Eone Etoua, Serge Essuthi Essoh and Brice Mboule Ebele</i>
16:20 – 16:40	Auto-encoders for Brain MRI Segmentation <i>Kishan Jackpersad and Mandlenkosi Gwetu</i>
16:40 – 17:00	Effective Feature Selection for Improved Prediction of Heart Disease <i>Ibomoiye Domor Mienye and Yanxia Sun</i>
17:00 – 17:20	Convolutional Neural Network Feature Extraction for EEG Signal Classification <i>Liresh Kaulasar and Mandlenkosi Gwetu</i>

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Day 2: Friday October 8 (Namibian Time UTC+2)	
09:00 – 10:00	<p>Keynote Address</p> <p>A Practical Framework for Impactful Statistical Machine Learning in Artificial Intelligence</p> <p><b>Prof. Ernest Fokoue</b> Professor at School of Mathematical Sciences, Rochester Institute of Technology, Rochester, New York, USA</p>
10:00 – 10:20	<b>Break</b>
	<b>Section 3 : Neural Networks and Support Vector Machines</b>
10:20 – 10:40	<p>Hybridized Loss Functions for Improved Neural Network Generalization <i>Matthew Dickson, Anna Bosman and Katherine Malan</i></p>
10:40 – 11:00	<p>Diverging Hybrid and Deep Learning Models into Predicting Students' Performance in Smart Learning Environments – A Review <i>Elliot Mbunge, Stephen Fashoto, Racheal Mafumbate and Sanelisiwe Nxumalo</i></p>
11:00 – 11:20	<p>Combining Multi-Layer Perceptron and Local Binary Patterns for Thermite Weld Defects Classification <i>Mohale Molefe and Jules-Raymond Tapamo</i></p>
11:20 – 11:40	<p>Classification of Semantic Web Ontologies with Support Vector Machines <i>Gideon Koech, Jean Vincent Fonou Dombeu and Mandlenkosi Gwetu</i></p>
11:40 – 12:00	<b>Break</b>
	<b>Section 4 : Smart Systems</b>
12:00 – 12:20	<p>An Elliptic Curve Based Biometric User Authentication Protocol for Smart Homes Using Smartphone <i>Amir Mohammadi Bagha, Isaac Woungang, Sanjay K. Dhurandher and Issa Traore</i></p>
12:20 – 12:40	<p>Efficient Sub-channel and Power Allocation in Multi-cell Indoor VLC Systems <i>Sylvester Aboagye, Telex M. N. Ngatched and Octavia A. Dobre</i></p>
12:40 – 13:00	<p>Autonomic IoT: Towards Smart System Components with Cognitive IoT <i>Justice Owusu Agyemang, Dantong Yu and Jerry John Kponyo</i></p>
13:00 – 13:20	<p>Study of customer sentiment towards smart lockers <i>Colette Malyack, Cheickna Sylla and Pius Egbelu</i></p>
13:20 – 14:20	<b>Lunch Break</b>
14:20 – 15:20	<p>Keynote Address</p> <p>Applications of Artificial Intelligence in Next-Generations Wireless Communications</p> <p><b>Prof. Telex M. N. Ngatched</b> Associate Professor in the School of Science and the Environment , Memorial University of Newfoundland, Canada</p>
15:20 – 15:40	<b>Break</b>
	<b>Section 5 : Classification and Pattern Recognition II</b>
15:40 – 16:00	<p>Race recognition using enhanced local binary pattern <i>Hippolyte Tapamo Kenfack, Brice Mboule Ebele, Amos Mbietieu Mbietieu and Serge Essuthi Essoh</i></p>
16:00 – 16:20	<p>Detection and Classification of Coffee Plant Diseases by Image Processing and Machine Learning <i>Serge Essuthi Essoh, Hippolyte Tapamo Kenfack, Brice Mboule Ebele, Amos Mbietieu Mbietieu and Oscar Eone Etoua</i></p>
16:20 – 16:40	<p>Plant Diseases Detection and Classification using Transfer Learning <i>Emma Genders and Serestina Viriri</i></p>

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### Day 3: Saturday October 9 (Namibian Time UTC+2)

09:00 – 13:00	<b>Tutorial</b>  On the Ubiquity of the Bayesian Paradigm in Artificial Intelligence and Statistical Machine Learning  <b>Prof. Ernest Fokoue</b> Professor at School of Mathematical Sciences, Rochester Institute of Technology, Rochester, New York, USA
13:00 – 13:20	<b>Break</b>
13:20 – 14:00	<b>Concluding Remarks</b>