



## SACAIR2020: Programme

Please note:

Presentation slots are 20 minutes long (1 min. introduction and sharing of screen, 12 min. presentation and 7 min. Q&A)

### DAY 1 | 24 February 2021

| Theme  | Time  | Title  | Presenter   | Chair   |
|--|-------|--|---|---|
| <b>Social Session</b>  | 08:30 |  |   |   |
| <b>Welcome &amp; Organisation</b>                                    | 09:15 | <b>Prof. Emma Ruttkamp-Bloem</b> , Chairperson SACAIR2020 & <b>Prof. Aurora Gerber</b> , SACAIR2020 Technical Chair            |   |   |
| <b>Keynote</b>   | 09:45 |  | <b>Prof. Peter-Paul Verbeek</b><br>Professor of Philosophy of Technology, University of Twente, (the Netherlands) | <b>Prof Emma Ruttkamp-Bloem</b> ,<br>Professor and Head Department of Philosophy, Faculty of Humanities, University of Pretoria |
| <b>Break</b>   | 10:45 |  |   |   |
| <b>AI for Ethics and Society</b>                                     | 11:00 | Human-Robot Moral Relations: Human Interactants as Moral Patients of their Own Agential Moral Actions Towards Robots           | Cindy Friedman  | Jaco Kruger   |
|  | 11:20 | Nature, Culture, AI and the Common Good – Considering AI's Place in Bruno Latour's Politics of Nature                          | Jaco Kruger   | Emma Ruttkamp-Bloem   |
|  | 11:40 | The Quest for Actionable AI Ethics   | Emma Ruttkamp-Bloem   | Heather Rufus   |
|  | 12:00 | The Implications of Personalization Algorithms on Individual Autonomy  | Heather Rufus   | Herklaas Combrink   |
|  | 12:20 | A Framework for Undergraduate Data Collection Strategies for Student Support Recommendation Systems in Higher Education        | Herklaas Combrink, Vukosi Marivate and Benjamin Rosman  | Johan Breytenbach   |
|  | 12:40 | Embedding Ethics into 4 IR Information Systems Teaching and Learning   | Johan Breytenbach and Carolien van den Berg   | Cindy Friedman  |
| <b>Lunch</b>   | 13:00 |  |   |   |
| <b>AI in Information Systems, AI for Development and Social Good</b> | 14:00 | Dataset Selection for Transfer Learning in Information Retrieval   | Yastil Rughbeer, Anban Pillay and Edgar Jembere   | Hakunavanhu Ndoro   |
|  | 14:20 | Artificial Intelligence Uses, Benefits and Challenges: A Study in the Western Cape of South Africa Financial Services Industry | Hakunavanhu Ndoro, Kevin Johnston and Lisa Seymour  | Asad Jeewa  |
| <b>Applications of AI</b>  | 14:40 | Analysing Coronavirus Trends in South Africa and Countries with a Similar Coronavirus Profile                                  | Asad Jeewa, Edgar Jembere, Nirvana Pillay, Yuvika Singh, Serestina Viriri and Anban Pillay                        | Lisa-Ann Kirkland   |
|  | 15:00 | An Evaluation Framework for Wildlife Security Games  | Lisa-Ann Kirkland, Alta de Waal and Pieter de Villiers  | Lulamile Mzamo  |
|  | 15:20 | Evaluation of Heuristic Guided Character Level World Models for Morphological Segmentation of isiXhosa                         | Lulamile Mzamo, Albert Helberg and Sonja Bosch  | Matthew Baas  |
| <b>Break</b>   | 15:40 |  |   |   |
| <b>Applications of AI</b>  | 16:00 | StarGAN-ZSVC: Towards zero-shot voice conversion in low-resource contexts  | Matthew Baas and Herman Kamper  | Johannes Louw   |
|  | 16:20 | Text-to-speech duration models for resource-scarce languages in neural architectures   | Johannes Louw   | Nuette Heyns  |
|  | 16:40 | Word Embeddings for Recognised Multilingual Speech   | Nuette Heyns and Etienne Barnard  | Rhyno Strydom   |
|  | 17:00 | Classifying Recognised Speech with Deep Neural Networks  | Rhyno Strydom and Etienne Barnard   | Yastil Rughbeer   |
| <b>Social Session</b>  | 17:20 |  |   |   |
| <b>End</b>   | 19:00 |  |   |   |

**DAY 2 | 25 February 2021**

| Theme   | Time  | Title  | Presenter  | Chair   |
|---|-------|--|--|---|
| <b>Social Session</b>                         | 08:30 |  |  |   |
| <b>Machine Learning Theory</b>                | 09:00 | Tracking Translation Invariance in CNNs  | Johannes Christiaan Myburg, Coenraad Mouton and Marelie Davel  | Coenraad Mouton   |
|   | 09:20 | Stride and Translation Invariance in CNNs  | Coenraad Mouton, Johannes Christiaan Myburg and Marelie Davel  | Arthur Venter   |
|   | 09:40 | Pre-interpolation Loss Behaviour in Neural Networks  | Arthur Venter, Marthinus Theunissen and Marelie Davel  | Jamie Burns   |
|   | 10:00 | Automated Music Recommendations Using Similarity Learning  | Jamie Burns and Terence van Zyl  | Daniël Haasbroek  |
| <b>Break</b>                                  | 10:20 |  |  |   |
| <b>Machine Learning Theory</b>                | 10:40 | Exploring Neural Networks Training Dynamics through Binary Node Activations  | Daniël Gerbrand Haasbroek and Marelie Davel  | Dylan Lamprecht   |
|   | 11:00 | Using a Meta-model to Compensate for Training-evaluation Mistakes  | Dylan Lamprecht and Etienne Barnard  | Willie Brink  |
|   | 11:20 | Link Prediction in Knowledge Graphs using Latent Feature Modelling and Neural Tensor Factorisation                                   | Luyolo Manangane and Willie Brink  | Claire Denny  |
| <b>Keynote</b>                                | 11:40 |  | <b>Prof. Bernhard Nebel</b><br>Professor at Albert-Ludwigs-Universität Freiburg (Germany) and head of the research group on Foundations of Artificial Intelligence | <b>Prof. Tommie Meyer</b> , UCT-CSIR Chair in Artificial Intelligence, Professor in the Department of Computer Science at the University of Cape Town |
| <b>Lunch</b>                                  | 12:40 |  |  |   |
| <b>Knowledge Representation and Reasoning</b> | 13:40 | Cognitive Reasoning: The Extent to which Forms of Defeasible Reasoning correspond with Human Reasoning                               | Clayton Baker, Claire Denny, Paul Freund and Thomas Meyer  | Guy Paterson-James  |
|   | 14:00 | A Boolean Extension of KLM-style Conditional Reasoning   | Guy Paterson-James, Thomas Meyer and Giovanni Casini   | Adam Kaliski  |
|   | 14:20 | Quo Vadis KLM-style Defeasible Reasoning?  | Adam Kaliski and Thomas Meyer  | Ivan Varzinczak   |
|   | 14:40 | An Exercise in a Non-classical Semantics for Reasoning with Incompleteness and Inconsistencies                                       | Ivan Varzinczak  | Lethabo Maluleke  |
| <b>Break</b>                                  | 15:00 |  |  |   |
| <b>Knowledge Representation and Reasoning</b> | 15:20 | A Formal Concept Analysis Driven Ontology for ICS Cyberthreats   | Lethabo Maluleke, Luca Singels and Caryn Biebuyck  | Laurette Marais   |
|   | 15:40 | Exploiting a Multilingual Semantic Machine Translation Architecture for Knowledge Representation of Patient Information for COVID-19 | Laurette Marais and Laurette Pretorius   | Iena Derks  |
|   | 16:00 | A Taxonomy of Explainable Bayesian Networks  | Iena Derks and Alta de Waal  | Clayton Baker   |
| <b>Social Session</b>                         | 16:20 |  |  |   |
| <b>End</b>                                    | 19:00 |  |  |   |

**Day 3 | 26 February 2021**

| Theme                     | Time  | Title  | Presenter  | Chair   |
|---------------------------|-------|--|--|---|
| <b>Keynote</b>            | 09:00 |  | <b>Mr Lee Annamalai</b><br>CTO at Geo Intelligence Corp (GeoInt) | <b>Dr Alta de Waal</b> , Senior Lecturer and Researcher, Department of Statistics, University of Pretoria |
| <b>Applications of AI</b> | 10:00 | Hybridized Deep Learning Architectures for Human Activity Recognition                          | Bradley Pillay, Anban Pillay and Edgar Jembere                   | Ditebogo Masha  |
|                           | 10:20 | Importance Sampling Forests for Location Invariant Proprioceptive Terrain Classification       | Ditebogo Masha and Michael Burke                                 | Shivaar Sooklal   |
|                           | 10:40 | DRICORN-K: A Dynamic CORrelation-driven Nonparametric Algorithm for Online Portfolio Selection | Shivaar Sooklal, Terrence van Zyl and Andrew Paskaramoorthy      | Jocelyn Mazarura  |
| <b>Break</b>              | 11:00 |  |  |   |
| <b>Applications of AI</b> | 11:20 | Learning to Generalise in Sparse Reward Navigation Environments                                | Asad Jeewa, Anban Pillay and Edgar Jembere                       | Koume Kouassi   |
|                           | 11:40 | An Analysis of Deep Neural Networks for predicting Trends in Time Series Data                  | Kouame Kouassi and Deshendran Moodley                            | Edgar Jembere   |
|                           | 12:00 | Probabilistic Distributional Semantic Methods for Small Unlabelled Text                        | Jocelyn Mazarura, Alta de Waal and Tristan Harris                | Tshidiso Mazibuko   |
| <b>Lunch</b>              | 12:20 |  |  |   |
| <b>Applications of AI</b> | 13:20 | Machine Learning for Improved Boiler Control in the Power Generation Industry                  | Tshidiso Mazibuko and Katherine Malan                            | Nirvana Pillay  |
|                           | 13:40 | Future Frame Prediction in Transformation Space using good STN                                 | Nirvana Pillay and Edgar Jembere                                 | Olasupo Ajayi   |
|                           | 14:00 | On the Performance of Off-peak Workload Allocation Models in Cloud Computing                   | Olasupo Ajayi, Isaac Odun-Ayo and Louise Leenen                  | Teriza Wanyana  |
|                           | 14:20 | An Ontology for supporting Knowledge Discovery and Evolution                                   | Tezira Wanyana, Deshendran Moodley and Thomas Meyer              | Bradley Pillay  |

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| <b>Closure</b>                             | 14:40 | <b>Prof. Emma Rutkamp-Bloem</b> , Chairperson SACAIR2020 &<br><b>Prof Thomas Meyer</b> , UCT-CSIR Chair in Artificial Intelligence |
| <b>Conference Meeting</b>                  | 15:00 | <b>Anban Pillay</b> , University of KwaZulu-Natal, School of Mathematics, Statistics and Computer Science                          |
| <b>CAIR Steering<br/>Committee Meeting</b> | 16:00 | <b>Committee Members Only</b>  |