

ARTIFICIAL INTELLIGENCE SYMPOSIUM ON THEORY, APPLICATION & RESEARCH

Preliminary Programme

| CEST | TUESDAY (OCT 5) | WEDNESDAY (OCT 6) | GMT-4 | GMT+8 |
|----------|--|---|----------|----------|
| 09:00 AM | <p>Welcome by Dr. Gabriele De Canio</p> <p>Introduction of ESA - Dr. Rolf Densing Director of Operations (D/OPS) and Head of ESOC</p> <p>Introduction of Merck- Kai Beckmann Member of Merck Executive Board and CEO of Electronics</p> <p>Introduction of GSI/ FAIR- Prof. Dr. Paolo Giubellino Scientific Managing Director and Chair Management Board</p> | <p>Session opening</p> <p>Tech Talk 4 Hybrid operational digital twins for complex systems Prof. Dr. Olga Fink</p> <p>Tech Talk 9 Transforming Space with AI: Operations, Earth Observation, Telecommunication G. De Canio, G. Borghi, D. Mignolo</p> | 03:00 AM | 03:00 PM |
| 10:00 AM | <p>Keynote 1 Explainable AI for Intelligent Financial Services: Examples and Challenges Dr. Daniele Magazzeni</p> | <p>Tech Talk 5 Graph Networks for Track Reconstruction Dr. Marcel Kunze</p> <p>Tech Talk 10 AI robotics for sustainable space exploration and exploitation Prof. Yang Gao</p> | 04:00 AM | 04:00 PM |
| 11:00 AM | <p>Keynote 2 AI as a means for Intelligence Amplification and Augmentation Prof. Dr. Andreas Dengel</p> | <p>Tech Talk 6 Application of Machine Learning Analysis Techniques in Particle Physics Dr. Jeremy Wilkinson</p> <p>Poster session opening by Dr. Gabriele De Canio</p> <p>Virtual Poster Session and Matchmaking Session/Networking for All Participants</p> | 05:00 AM | 05:00 PM |
| | <p>Break</p> | <p>Break</p> | | |
| 12:00 PM | <p>Tech Talk 1 What did we learn in assessing Trustworthy AI in practice? Prof. Roberto V. Zicari</p> <p>Tech Talk 2 Artificial intelligence as part of a functionally safe system Frank Poignée & Dr. Roland Heinesch</p> <p>Tech Talk 3 AI & Digital Ethics - Patterns of Repeating Crisis Dr. André T. Nemat</p> | <p>Virtual Poster Session and 3 Topic Rooms with open discussions: 1. Human Impact 2. Theory & Research 3. Area of Application</p> <p>Session opening by Dr. Gabriele De Canio</p> <p>Tech Talk 7 AI for Intelligent Decision Making and Autonomy Dr. Simone Fratini</p> <p>Tech Talk 12 How to Enable the Next-Gen Manufacturing Excellence Through the Digital Continuum Prof. Dr. Michelangelo Canzoneri</p> | 06:00 AM | 06:00 PM |
| 01:00 PM | <p>Closing by Dr. Gabriele De Canio</p> | <p>Tech Talk 8 Pick your poison: Data hunger versus the knowledge bottleneck in language understanding José Manuel Gómez-Pérez</p> <p>Tech Talk 13 Pragmatically Radical Digitalization James Kugler</p> <p>Track summary and closing by session chairs Dr. Jean-Enno Charton, Dr. Mohammad Al-Turany, Dr. Gabriele De Canio</p> | 07:00 AM | 07:00 PM |

THEME

- HUMAN IMPACT
- AREAS OF APPLICATION
- RESEARCH, METHODS AND ALGORITHMS

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Confirmed Titles and Speakers

HUMAN IMPACT

Co-chair Dr. Jean-Enno Charton

Director Bioethics & Digital Ethics, Merck

Artificial intelligence as part of a functionally safe system

Frank Poignée, Consultant Safety/Chief Engineer, Infoteam software AG
Dr. Roland Heinesch, Customer & Teams Manager, Infoteam software AG

Explainable AI for Intelligent Financial Services: Examples and Challenges

Dr. Daniele Magazzeni
 AI Research Director and Head of Explainable AI Center of Excellence, J.P. Morgan

AI & Digital Ethics - Patterns of Repeating Crisis

Dr. André T. Nemat
 Surgeon & Managing Partner Institute for Digital Transformation in Healthcare GmbH

What did we learn in assessing Trustworthy AI in practice?

Prof. Roberto V. Zicari
 Z-Inspection@ Initiative; Arcada University of Applied Sciences, Helsinki, Finland;
 Graduate School of Data Science, Seoul National University, South Korea

AREAS OF APPLICATION

Co-chair Dr. Gabriele De Canio

Transformation Officer, European Space Operations Centre

AI as a means for Intelligence Amplification and Augmentation

Prof. Dr. Prof. h.c. Andreas Dengel
 Executive Director, Deutsches Forschungszentrum für Künstliche Intelligenz (DFKI)

AI robotics for sustainable space exploration and exploitation

Prof. Yang Gao
 Professor of Space Autonomous Systems, Head of STAR LAB Surrey Space Centre, University of Surrey, UK

Digital Twins of Matter under Extreme Condition – Where Exascale meets AI

Dr. Michael Bussmann, Founding Manager Center for Advanced Systems Understanding, Helmholtz-Zentrum Dresden - Rossendorf

How to Enable the Next-Gen Manufacturing Excellence Through the Digital Continuum

Prof. Dr. Michelangelo Canzoneri
 Global Head of Digital Data Healthcare business of Merck

Pragmatically Radical Digitalization

James Kugler
 Chief Digital Officer, Merck KGaA

Transforming Space with AI: Operations, Earth Observation, Telecommunications

Dr. Gabriele De Canio, Transformation Officer, ESOC
Domenico Mignolo, Head of Ground Segment Section in TIA Directorate of ESA
Giuseppe Borghi, Head of Φ-lab division at European Space Research Institute

RESEARCH, METHODS AND ALGORITHMS

Co-chair Dr. Mohammad Al-Turany

Head of the Software Development for Experiments group, GSI Helmholtz Centre for Heavy Ion Research

AI for Intelligent Decision Making and Autonomy

Dr. Simone Fratini
 Senior Research Engineer, Solenix Engineering GmbH

Application of Machine Learning Analysis Techniques in Particle Physics

Dr. Jeremy Wilkinson
 Postdoctoral Researcher, GSI Helmholtzzentrum für Schwerionenforschung GmbH, Darmstadt

Graph Networks for Track Reconstruction

Dr. Marcel Kunze
 Scientist, Heidelberg University Graph Networks

Hybrid operational digital twins for complex systems: integrating deep learning algorithms with structural inductive bias and physics

Prof. Dr. Olga Fink
 Chair of Intelligent Maintenance Systems, ETH Zürich

Pick your poison: Data hunger versus the knowledge bottleneck in language understanding

José Manuel Gómez-Pérez
 Director, Language Technology Research Expert.ai