**Berlin Research 50 Workshop on Artificial Intelligence in Research**

13 December 2021

📍 Zoom

The term artificial intelligence (AI) has been on everyone's lips for years and is thus no longer just fiction, but object of current research and real-life applications. AI has thus made the leap from science to politics and society, is widely discussed and is considered one of the most exciting research fields of the future, not only in the natural sciences and technical disciplines, but also in the social sciences and humanities.

In the context of the AI workshop, the terms machine learning, neural networks, learning systems and data science will first be clarified and classified relative to the concept of AI. Furthermore, AI will be considered from different perspectives such as: the development of AI itself, the use for and challenges to society and the ethical, social, and legal issues involved, and the application of AI in research to advance it and also make it more sustainable.

To address these issues, experts from the respective topic areas will be specifically invited to give presentations. In addition, the workshop offers a platform for an intensive exchange between the disciplines of AI with the aim to establish long-term networking.

**Program**

**09:15 – 09:30**  **Dial-in into Zoom / Waiting room open**

**09:30 – 09:45**  **Welcome on behalf of the coordinators of Berlin Research 50**
Prof. Dr. Michael Hintermüller, Director of the Weierstrass Institute for Applied Analysis and Stochastics Berlin
Prof. Dr. Ulrich Panne, President of the Bundesanstalt für Materialforschung und -prüfung

**09:45 – 10:15**  **Keynote** (20 minutes + 10 minutes for questions)
**Sustainability and AI: technological, ecological and social aspects**
Prof. Dr. rer. nat. Felix Bießmann, Einstein Professorship for Machine Learning
Berlin University of Applied Sciences / Einstein Center Digital Future

**10:15 – 11:30**  **AI, machine learning, and technological challenges** (10 min talks + 5 min Q&As)
Chair: Dr. Jing Zeng, Max Planck Institute for the History of Science // University of Zurich

**AI-driven predictive methods for accelerating the energy transition**
Dr. Milena Petkovic, Head of Predictive Methods Group
Zuse-Institute

**Explainable A.I. is critical for decision making and adding value**
Dr. Vikram Sunkara, Head of project Explainable AI for Biology
Zuse-Institute

**What can mathematics do for Artificial Intelligence?**
Prof. Peter K. Friz, Einstein Professorship in Mathematics
TU Berlin and Weierstrass Institute for Applied Analysis and Stochastics Berlin

**Smart on the move - intelligent travel systems and bike swarms**
Dr. Stefan Schaffer, Senior Researcher Cognitive Assistants
German Research Center for Artificial Intelligence

**15 minutes for overall discussion**

www.br50.org

**Berlin Research 50 Workshop on Artificial Intelligence in Research**

13 December 2021

📍 Zoom

**11:30 – 12:00   COFFEE BREAK – Breakout Sessions for informal exchange**

**12:00 – 13:15   <u>Applications of AI and machine learning</u>** (10 min talks + 5 min Q&As)
Chair: Prof. Dr. Christoph Lippert, Hasso Plattner Institute Potsdam

**Recent advances and applications of machine learning in bulk crystal growth**
Dr. Natascha Dropka, Head of Section Fundamental Description
Leibniz-Institut für Kristallzüchtung im Forschungsverbund Berlin e.V.

**QURATOR: AI- and NLP-driven Technologies for Smart Content Curation**
Prof. Dr. Georg Rehm, Principal Researcher Speech and Language Technology
German Research Center for Artificial Intelligence

**Better data quality for man and machine in the materials research and testing**
Dr. Thilo Muth, Head of Section eScience
Bundesanstalt für Materialforschung und -prüfung

**AI-enabled Troubleshooting for Complex Software Systems**
Dr. Alexander Acker, Postdoc on Distributed and Operating Systems (DOS)
TU Berlin

**15 minutes for overall discussion**

**13:15 – 14:15   LUNCH BREAK**

**14:15 – 15:45   <u>AI and Data Science in Health and Life Sciences</u>** (10 min talks + 5 min Q&As)
Chair: Dr. Milena Petkovic, Zuse Institute Berlin

**Can AI upgrade precision oncology therapeutics and diagnostics?**
Dr. Altuna Akalin, Head of Research Group "Bioinformatics and Omics Data Science"
Max Delbrück Center for Molecular Medicine in the Helmholtz Association

**Self-Explaining AI for Diagnostic Expert Systems**
Dr. Martin Dyrba, Head of Research Project explAInation
German Center for Neurodegenerative Diseases (DZNE), Rostock

**Computational Approaches to Understand Mechanisms of Gene Regulation** *(tbc)*
Prof. Dr. Uwe Ohler, Scientific Director Focus Area "Data Science and AI"
Max Delbrück Center for Molecular Medicine in the Helmholtz Association

**Enhancing the sterile packaging process with an AI-based image recognition system**
Jan Lehr, Researcher Automation Technology and Machine Vision
Fraunhofer Institute for Production Systems and Design Technology (Fraunhofer IPK)

**Artificial Intelligence in Digital Health (AIDHeal)**
Prof. Dr. Thoralf Niendorf, Head of Research Group Experimental Ultrahigh-Field MR
Max Delbrück Center for Molecular Medicine in the Helmholtz Association

**15 minutes for overall discussion**

**Berlin Research 50 Workshop on Artificial Intelligence in Research**

13 December 2021

📍 Zoom

**15:45 – 16:15   COFFEE BREAK – Breakout Sessions for informal exchange**

**16:15 – 17:30   <u>AI, society and culture</u>** (10 min talks + 5 min Q&As)
Chair: Dr. Vikram Sunkara, Zuse Institute Berlin

**_Imaginaries_ of AI in the Chinese context**
Dr. Jing Zeng, Visiting Postdoctoral Fellow
Max Planck Institute for the History of Science // University of Zurich

**Autonomy is in the eye of the beholder?**
Prof. Dr. Jeanette Hofmann, Head of the Research Group Politics of Digitalization
WZB Berlin Social Science Center

**AI and literary production**
Dr. Hanna Hamel, Head of the research project Neighborhood in Contemporary Berlin Literature
Leibniz-Zentrum für Literatur- und Kulturforschung (ZfL)

**The Impact of AI and Automation of Jobs and Skills**
Dr. Alex Rutherford, Senior Research Scientist
Max Planck Institute for Human Development

**15 minutes for overall discussion**

**17:30 – 18:00   <u>Wrap-up and initiation of the BR50 Interest Group KI</u>**
Chairs:   Dr. Anja Sommerfeld, BR50-Office Adlershof at Forschungsverbund Berlin
Dr. Gregor Hofmann, BR50-Office Mitte at WZB Berlin Social Science Center

**The initiative behind this event**

Strengthening Berlin as an international science metropolis is the goal of a joint initiative of the capital's non-university research institutions. At the beginning of 2020, they joined forces to form **BR50 (Berlin Research 50)**. This event is organized by the BR50 offices at WZB Berlin Social Science Center and Forschungsverbund Berlin.

Further information:              www.br50.org/en/br50

Questions to the organizers:      coordinators@br50.org

Information on Data Protection: https://wzb.eu/en/data-protection

www.br50.org