

HEIBRiDS Lecture Series – Wednesday 23rd January, 16.00 - 17.00
@ Einstein Center Digital Future, RKF, Wilhelmstrasse 67

Programme

Location: Room 104/105/106

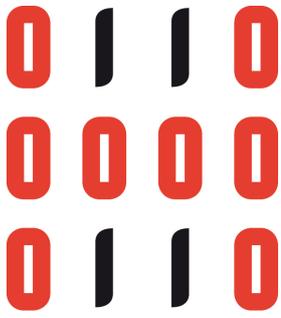
16:00 – 16:30 Permafrost is warming at a global scale: a data science approach

Speaker: Boris Biskaborn, AWI

16:30 – 17:00 Digitalization of Smart Buildings: Digital twins, Internet of Things and Algorithms

Speaker: Sergio Lucia, TU-Berlin

Next Lecture Series: **Wednesday, February 6th**



HEIBRIDS

Helmholtz Einstein International
Berlin Research School in Data Science

Abstract 1

Permafrost is warming at a global scale: a data science approach

Permafrost warming has the potential to amplify global climate change, because when frozen sediments thaw it unlocks soil organic carbon. Yet to date, however, no globally consistent assessment of permafrost temperature change has been compiled. In this presentation I show how we use data science methods to generate and analyze a global data set of permafrost temperature time series from the Global Terrestrial Network for Permafrost to evaluate temperature change across permafrost regions for the period since the International Polar Year (2007–2009).

Abstract 2

Digitalization of Smart Buildings: Digital twins, Internet of Things and Algorithms

Buildings are responsible for 40 % of the total energy consumption and 36 % of the CO₂ emissions in cities. Furthermore, humans spend more than 90 % of the time inside buildings. For all these reasons, improving the way in which we operate buildings can have a large impact on the lives of millions of persons.

In this talk, we will see how the interaction between digital twins, the internet of things and intelligent algorithms can contribute to achieve a significant step towards the design and operation of truly smart buildings. In particular, the use of mathematical models, numerical optimization and machine learning can be leveraged to design predictive methods that act proactively based on current data and models of the environment, achieving a significant improvement over current approaches for the energy management in buildings.