

informatik-Kolloquium

The Department of Computer Science of Johannes Kepler University Linz¹ together with the Austrian Society of Computer Science (ÖGI) invites to the following talk:

- Topic:** On Particle Physics, Information, and Machines That Learn
- Presenter:** Wolfgang Waltenberger, HEPHY -Institut für Hochenergiephysik, Wien
- Date:** January 25th 2018, 10:30 am
- Location:** Johannes Kepler University Linz, Room S2 219

Abstract: Recent advances in machine learning have not only innovated much of the hi-tech industry, they also change how modern science is pursued.

By giving a few subjectively selected highlights from the field of particle physics, I wish to describe the data challenges that particle physics is currently facing, the solutions that have worked in the past, and possible ideas for the future.

I shall however argue that not only does machine learning affect particle physics, physics might also help elucidate on machine learning, similar to how biology or neuroscience inspired many machine learning algorithms. "Why is deep learning so cheap? Can we apply the mathematics of curved spacetimes to information spaces? Could the notion of quantum mechanical superpositions help in developing efficient algorithms? Can machine learning benefit from quantum computing?" These are questions that physicists are currently debating. I shall briefly (and only superficially) touch upon these topics and some of their possible answers.

Short Bio: Dr Wolfgang Waltenberger

Geboren 1974 in Gmunden, OÖ

Diplom 2001 in theoretischer Physik, TU Wien

Dissertation 2004 in Teilchenphysik / Statistik, TU Wien

Seit 2001 wissenschaftlicher Mitarbeiter der österr. Akademie der Wissenschaften

Seit 2001 Mitglied der CMS Kollaboration am CERN, Genf

Seit 2015 Vorlesungen in Astroteilchenphysik und Statistik an Uni Wien und TU Wien

Arbeitsschwerpunkte: Supersymmetrie, Interpretation der LHC Daten, Statistische Datenauswertung, Maschinelles Lernen

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Organizer: Prof. Dr. Sepp Hochreiter
Institute of Bioinformatics

The department consists of the following institutes::

Application Oriented Knowledge Processing (FAW), Bio Informatics, Computational Perception, Computer Architecture,, Computer Graphics, Formal Models and Verification, Networks and Security, Integrated Circuits, Pervasive Computing, Software Systems Engineering, System Software, Telecooperation, Signal Processing