Physics Colloquium

Tuesday, October 10, 2023 at 16:30

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Ensemble analysis of interpretable machine learning and its application to protein sequences

Explainable and interpretable unsupervised machine learning helps humans understand the underlying data structure. We introduce an ensemble analysis of machine learning models to consolidate their interpretation. Its application shows that restricted Boltzmann machines compress consistently into a few bits the information stored in a sequence of five amino acids at the start or end of alpha-helices or beta-sheets. Among several unexpected emerging traits, we discover an "effective hydrophobicity:" amino acids with the strongest tendency to mark amphiphilic patterns are not the chemically most powerful hydrophobic or hydrophilic amino acids.

Venue: Universität Leipzig, Faculty of Physics and Earth Sciences
04103 Leipzig, Linnéstraße 5, **Room: small lecture hall**

Everyone is welcome to a reception with coffee, drinks and cookies in the Aula following the talk.

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