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受中国矿业大学人工智能研究院邀请，华南理工大学刘锐教授在我校举行学术报告，欢迎广大师生踊跃参加！

Auto-reservoir computing for multistep-ahead prediction

2020/10/09周五上午10:00

腾讯会议 ID: 656434689

报告摘要

It is a challenging task to accurately predict the future states of a short-term time-series. The major difficulty to solve such a task is the lack of the information, which typically results in the failure of most existing approaches due to the overfitting problem of the small sample size. To address this issue, we recently proposed a computing framework: Auto-Reservoir Neural Network (ARNN), to efficiently and accurately make the multi-step-ahead prediction based on a short-term high-dimensional time-series. Different from traditional reservoir computing whose reservoir is an external dynamical system irrelevant to the target system, ARNN directly transforms the observed high-dimensional dynamics as its reservoir, which maps the high-dimensional/spatial data to the future temporal values of a target variable based on a spatiotemporal information (STI) transformation. The application in predicting the tipping points of biological systems will also be referred in this talk.

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刘锐，华南理工大学数学学院教授，博士生导师，入选国家青年人才计划。任华南理工大学数学学院大数据研究中心副主任，广州市工业与应用数学学会副理事长。现主持国家自然科学基金面上项目，广东省杰出青年基金等项目。主要围绕复杂生物过程的临界点预警这一条主线，在数据挖掘与分析、动力系统的分岔方法及应用、生物分子网络的推断等几个方面发展数学理论与计算方法。

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