

NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Machine Learning for Earth System Sciences

Subject Co-ordinator - Prof. Adway Mitra

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Basics of Spatio-Temporal Modeling
- Lecture 3 - Geostatistical Equation for Spatio-Temporal Process
- Lecture 4 - Gaussian Process Regression and Inverse Problems
- Lecture 5 - Anomaly Event Detection
- Lecture 6 - Extreme Events
- Lecture 7 - Extreme Value Theory
- Lecture 8 - Causality
- Lecture 9 - Networks
- Lecture 10 - Data Assimilation
- Lecture 11 - Challenges and Opportunities for ML in ESS
- Lecture 12 - Types of Machine Learning Problems in ESS
- Lecture 13 - Convolutional Networks for Spatial Problems
- Lecture 14 - Sequential Models for Temporal Problems
- Lecture 15 - Probabilistic Models for Earth System Science
- Lecture 16 - Identification of Indian Monsoon Predictors
- Lecture 17 - Statistical Downscaling of Rainfall with Machine Learning
- Lecture 18 - Detection of Anomaly and Extreme Events
- Lecture 19 - Identifying Causal Relations from Time-Series - 1
- Lecture 20 - Identifying Causal Relations from Time-Series - 2
- Lecture 21 - Spatio-Temporal Modelling of Extremes
- Lecture 22 - Hierarchical Bayesian Models for Spatio-Temporal Processes
- Lecture 23 - Geostatistical modelling for mapping based on in-situ measurements
- Lecture 24 - Nowcasting of Extreme Weather Events
- Lecture 25 - Discovering Clustered Weather Patterns
- Lecture 26 - Interpretable Machine Learning for Earth System Science
- Lecture 27 - Object Detection in Satellite Imagery - 1
- Lecture 28 - Object Detection in Satellite Imagery - 2
- Lecture 29 - Image Fusion from Multiple Sources for Remote Sensing

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- Lecture 30 - Image Segmentation for Remote Sensing
- Lecture 31 - Satellite Imagery as a Proxy for Geophysical Measurements
- Lecture 32 - Precipitation Nowcasting from Remote Sensing
- Lecture 33 - Deep Domain Adaptation for Remote Sensing
- Lecture 34 - Introduction to Earth System Modelling
- Lecture 35 - Stochastic Weather Generator
- Lecture 36 - Physics-Inspired Machine Learning for Process Models - 1
- Lecture 37 - Physics-Inspired Machine Learning for Process Models - 2
- Lecture 38 - Parameterizations for Sub-Grid Processes Using ML
- Lecture 39 - Data Assimilation for Earth System Model Correction
- Lecture 40 - ML for Climate Change Projection and Course Conclusion