Distributional Modelling in R

About the Course

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https://nikum.org/dmr.html

Goals of this Course

Distributional Modelling: This course aims to explore distributional modelling as a means of extending traditional mean regression models, offering increased flexibility in statistical analysis.
Conceptual Understanding: Participants will gain insight into the central concepts of distributional modelling and its modern extensions, providing a solid foundation for advanced statistical analysis.
Practical Application: Through hands-on exercises and real-world examples using R, participants will learn how to practically apply distributional modelling techniques, bridging theory with practice.

- Use of flexible methods for estimating smooth functions.
- Modeling complex interactions, space-time, etc.
- Applying advanced algorithms for efficient computation and analysis.
- Probabilistic forecasting challenge.

Outline

Day 1

1. Introduction to Distributional Modelling
2. Smooth Additive Terms
3. Model Checking and Predictive Evaluation
4. Case Studies I – Continuous Distributions
5. Case Studies II – Discrete Distributions

Day 2

6. Bayesian Distributional Regression
7. Distributional Trees and Forests
8. Quantile Regression
9. Transformation Models
10. Distributional Neural Networks

Outline

Day 1 Schedule

09:30–10:45	Lecture 1–2
10:45–11:15	Coffee Break
11:15–12:30	Practical 1–2
14:00–14:15	Lecture 3–5
11:15–15:45	Coffee Break
15:45–17:00	Practical 3–5

Day 2 Schedule

09:00–10:15	Lecture 6–8
	Forecasting Challenge
10:15–10:45	Coffee Break
10:45–12:00	Practicals 6–8
	Forecasting Challenge
13:30–14:45	Lecture 9–10
14:45–15:15	Coffee Break
15:15–16:30	Forecasting Challenge