OVERVIEW: ML in IP & DA.

October 27TH '25

STRUCTURE //

Six 40 minute lectures:

Andrew Stuart

Two 40 minute demonstrations:

Ricardo Baptista

LECTURE NOTES // ML for IP & DA

Bach, Baptista, Sanz-Alonso, Stuart

arXiv: 2410.10523

ML Machine Learning

DA Data Assimilation

IP Inverse Problems

TOPICS OF LECTURES // Andrew

- L1: Metrics & Divergences (ch 11)
- L2: variational Inference (ch 1,2)
- L3: Transport (ch 11, 13 & 4)
- L4: Learning 3DVAR (ch 9)
- L5: Learning EnKF (ch 9 + Papers)
- L6: Scoring Rules (ch 11, Ch 10).

TOPICS OF DEMONSTRATIONS // Ricardo

- D1: Transport for IP : VI & Amortization (ch 2 & ch 5)
- D2: Learning Filters for DA (3DVar) (ch 9 + Paper)