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MASTER'S THESIS PRESENTATION

Spatiotemporal Conformal Prediction — With Application to Subseasonal Climate Forecasting

WHEN
April 29, 2022
12:00 PM

WHERE
Jones Laboratory, Room 304/Hybrid Session

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While conformal prediction has emerged as a powerful tool for uncertainty quantification without making distributional assumptions, the main requirement of exchangeable data presents challenges for spatiotemporal prediction. In addition, conformal prediction is generally used to quantify uncertainty for a single scalar response, but in the spatiotemporal setting we have a spatially-correlated array of responses. By using subseasonal climate forecasting as a guiding example, we develop tools to remove temporal dependencies and make data behave in an exchangeable manner. On a real-world climate dataset, we compare the coverage and length of intervals generated for each spatial location using our conformal method and baseline approaches, such as quantile regression. Finally, to quantify uncertainty in light of spatial structure, we propose as an area of future research the possibility of generating prediction intervals for several spatial resolutions at once.

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