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9. Problem setup: weather forecasting

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Problem setup: weather forecasting

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Prof Jegelka: Now that we've talked a lot about linear models, I would like to show you one example of a non-linear model. And I'd like to do this at the example of weather forecasting. And this example is actually very related

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In this part, we will briefly introduce non-linear models used to model time series. We will discuss how to use non-linear models in the context of weather forecasting in the Western US. This is based on a research paper published in 2019 ([Link](#)).

The task is to predict the weather information three to four weeks ahead of time. This is potentially very important for resource management (such as getting prepared for extreme weather events like droughts). Since relationships between different weather variables are not necessarily linear, we want to use non linear models for this task.

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Calculating prediction

discussion posted 2 months ago by [jangil0225](#)

I could understand this method adopts local linear regression model on the training set within the range of D time steps (backward + forward from the target date), but I'm wondering whether how one could actually make a prediction from today when D time steps include future days. For instance, if I'm trying to predict tomorrow's precipitation based on the trained model, I need D(56) days before tomorrow and D(56) days after tomorrow. However, since I do not have any information about variables' values in the future, I could not use linear regression terms(variables) related with future dates. Thus, it might not yield a correct prediction value even though model had a good accuracy value in the test set. I would be glad to hear any comment about this question and want to check if I understood something wrong about the model's application.

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