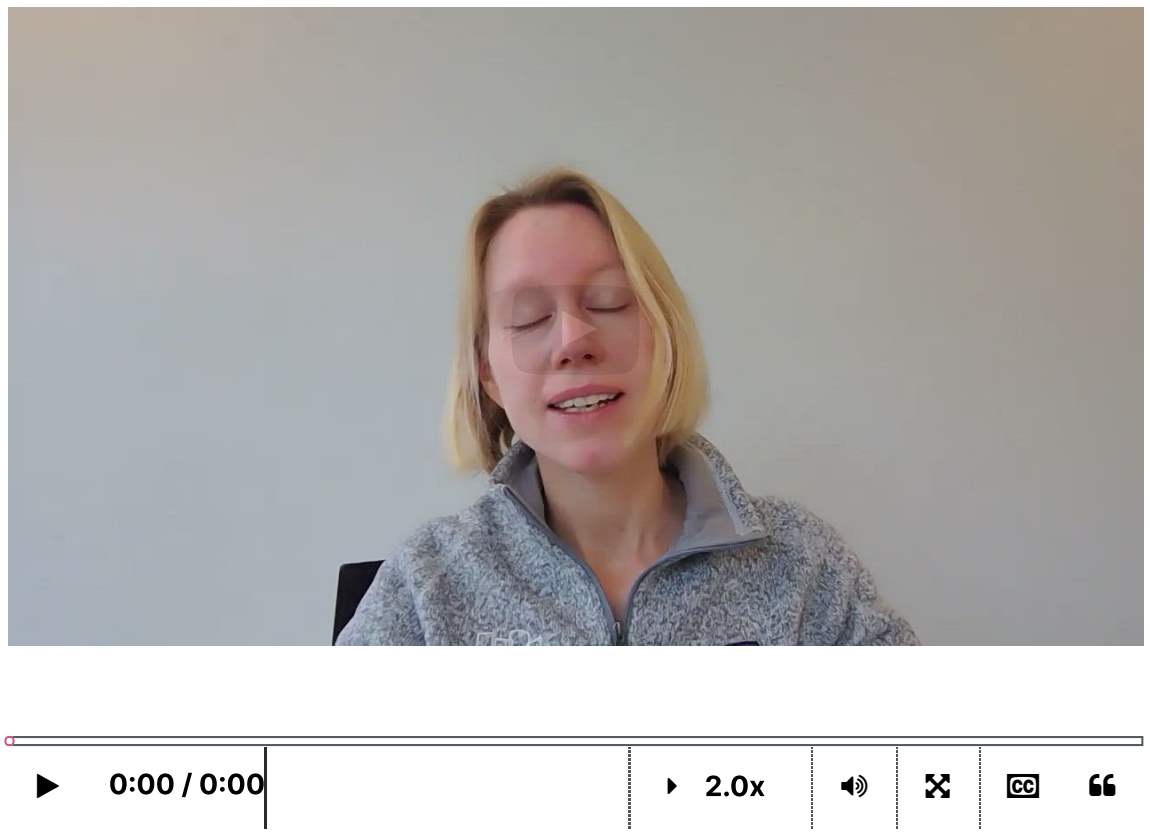
2. Recap

Bookmark this page

Exercises due Nov 10, 2021 17:29 IST Completed

Recap

Start of transcript. Skip to the end.



Prof Jegelka: Hello, and welcome back, everyone.

In this lecture, we'll finish up our time series module,

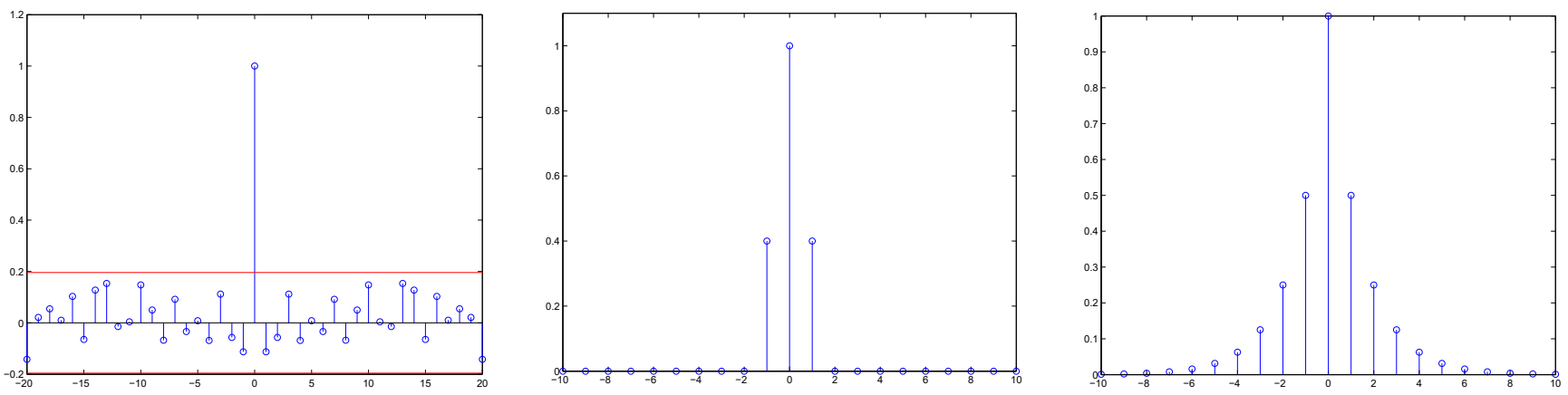
and we'll talk about a few other important topics in time series analysis.

So what we'll start with is our discussion about determining

Video
Download video file

Transcripts
Download SubRip (.srt) file
Download Text (.txt) file

The autocovariance (autocorrelation) function is a very useful tool to identify and differentiate stationary time series models that we introduced:



White Noise MA AR

- For a **WN** (σ^2) model, the autocovariance function is a spike at zero and flat everywhere else.
- For a **MA** (q) model, the autocovariance function is non-zero for q time shifts from zero, and zero everywhere else.
- For a stationary **AR** (p) model, the autocovariance function is non-zero everywhere, but decays exponentially fast.

ACF and stationarity

1/1 point (graded)
If the autocovariance function is non-zero everywhere and does not decay to zero or decays to zero very slowly, is the time series stationary?

- Yes

- (●) No

✔

Solution:

The autocovariance function of a stationary time series must be either identically zero after some lag, or decay to zero exponentially fast. If the autocovariance function does not decay to zero at all, or decays to zero very slowly, it is an indication of nonstationarity.

Submit You have used 1 of 1 attempt

ℹ Answers are displayed within the problem

Discussion

Hide Discussion

Topic: Module 4: Time Series:Introduction to Time Series Analysis 3 / 2. Recap

Add a Post

All Posts

@STAFF ACF and stationarity

discussion posted 2 months ago by **freichenbach**

Can you please check if the grader works correctly? There is nothing marked green if I click on "Show answer" and from the text I would assume that I chose correctly...

This post is visible to everyone.

Add a Response

1 response

karenechu (Staff)
2 months ago - endorsed 2 months ago by **lam_trinh** (Community TA)

Thank you! Fixed and regrading in progress. Please let us know if there are other issues!

The explanation seems to be somewhat incomplete. It is probably true in practice (or, say, for all ARMA process with non-trivial noise or something like that), but what about the time series where X_t=Z for all t (and some fixed RV Z)?

posted 2 months ago by **MaksM** (Community TA)

Add a comment

Showing all responses

Add a response:

Preview

Submit

‹ Previous

Next ›

edX