Online collaborations

Martin Singull

Pyramid hotels & resorts, Bishoftu, Ethiopia
August 5 - 9, 2019

Online meetings

- Regular online meetings will strengthen the collaborations in a research group.

- It is better they are short (30-60 min) and more regular than longer and more seldom.

- One can also run a seminar series online, with both locally and international speakers and participants.

- …

Software

Different softwares to use for on-line collaborations

- FaceTime (Apple)

- WhatsApp

- Google Duo

- Skype

- Adobe Connect

- Zoom

- Overleaf

- ShareLatex

- Zoom is a tool for distance education, online meetings and supervision.

- It is available for downloading, and can be taken into use immediately.

- Resources are available to provide training in the use of the tool and in teaching methods used in online education and collaborations.

- Zoom is also available as an app for mobile phones.

Is Zoom free to use? How many people can use one host license?

- Zoom offers a full-featured Basic Plan for free with unlimited meetings.

- All plans allow up to 100 participants by default in every meeting (up to 500 with Large Meeting add-on).

- Try Zoom for as long as you like - there is no trial period.

LiU LINKÖPING UNIVERSITY

Zoom Meeting Plans

Basic
Personal Meeting

Free

Sign up, It's Free

Host up to 100 participants

Unlimited 1 to 1 meetings

Pro
Great for Small Teams

$14.99/mo/host

Buy Now

All Basic features +

Includes 100 participants
Need more participants?

Business
Small & Med Businesses

$19.99/mo/host

*Minimum of 10 hosts

Buy Now

All Pro features +

Includes 300 participants
Need more participants?

Enterprise
Large Enterprise-Ready

$19.99/mo/host

*Minimum of 50 hosts

Contact Sales

All Business features +

Up to 1,000 participants
Unlimited Cloud Storage

LINKÖPING UNIVERSITY

Basic (Free)

- Host up to 100 participants
- Unlimited 1 to 1 meetings
- 40 mins limit on group meetings (if more than 3 participants)
- Unlimited number of meetings
- Online support
- HD video
- HD voice
- Active speaker view

- Full screen and gallery view
- Simultaneous Screen Share
- Desktop and application sharing
- Personal room or meeting ID
- Instant or scheduled meetings
- Host controls
- Raise hand
- Breakout Rooms
- Screen share any iPad/iPhone app
- Co-annotation on shared screen
- Whiteboarding
- Multi-share

LINKÖPING UNIVERSITY

Pro - Great for Small Teams ($14.99 / mo)

- **All Basic features** +

- Includes 100 participants

- Meeting duration limit is 24 hrs

- Admin feature controls

- Custom Personal Meeting ID

- Assign scheduler

- 1GB of MP4 or M4A cloud recording

LINKÖPING UNIVERSITY

Does Zoom use a lot of Mobile Data?

"When your mobile device is running in 3G or 4G/LTE mode, the zoom app will only send a maximum of 1MB/min of data."

Of course recommendation to use WiFi when possible for the best overall experience.

LINKÖPING UNIVERSITY

How do you make a zoom?

1. Downloaded the Zoom application. Visit the Zoom Download and Setup tutorial.

2. Open the Zoom.us application.

3. Host a Meeting.

4. Click the Invite button at the bottom of the meeting window.

5. You can share the invitation in a few different ways.

6. Schedule a Meeting.

7. In the meeting you can share screen etc.
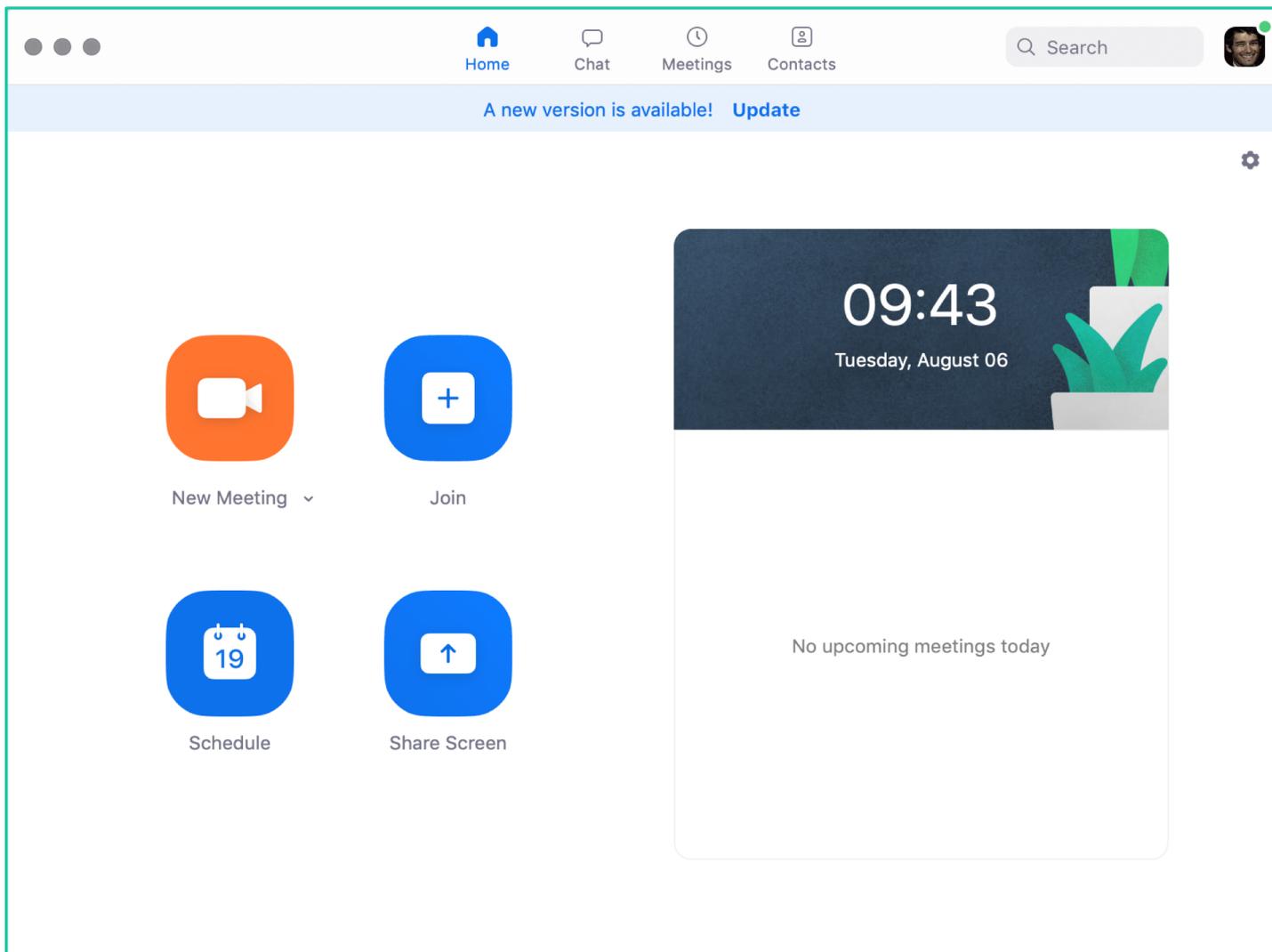
LINKÖPING
UNIVERSITY
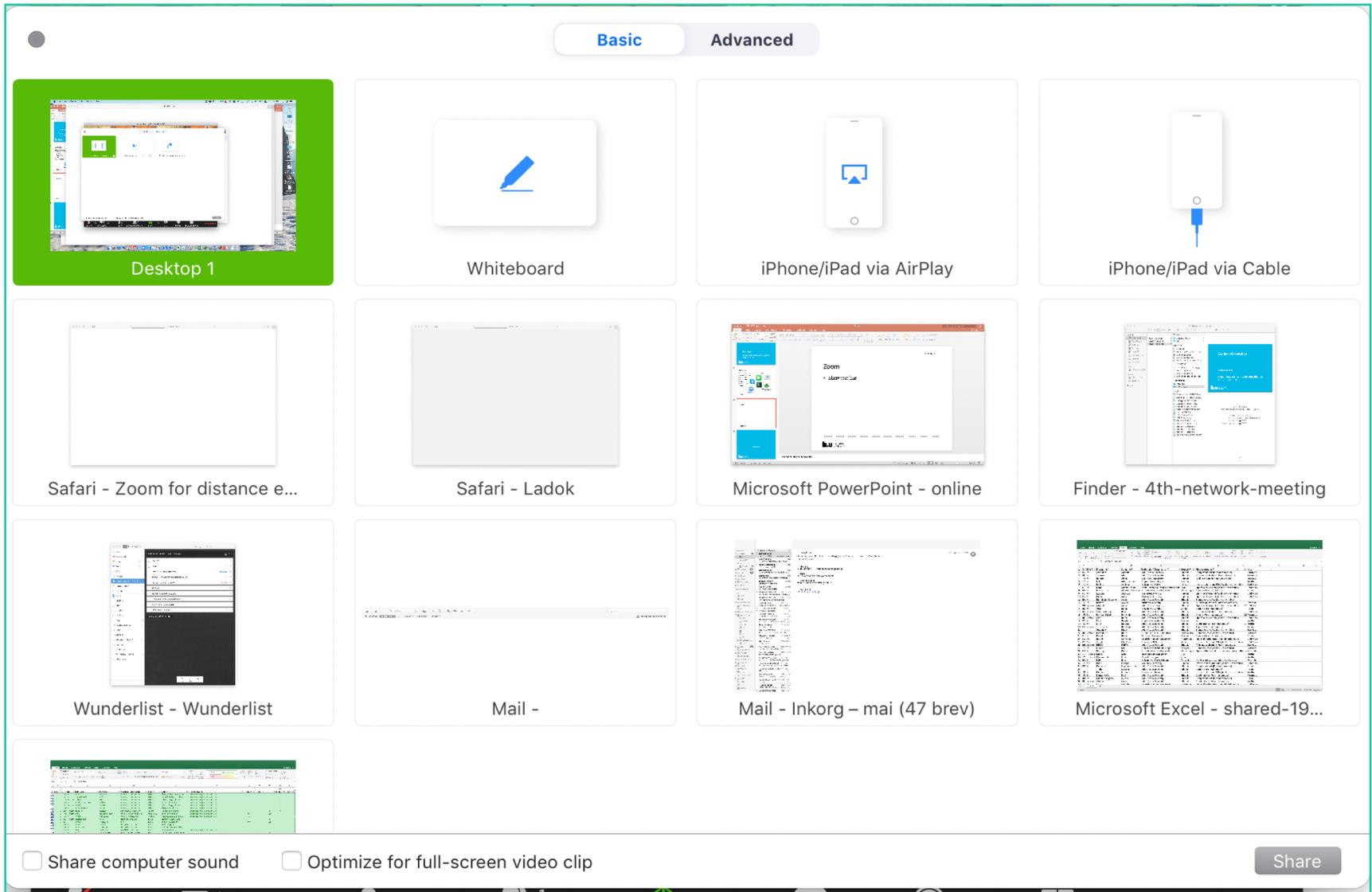
Connect to my colleague Nils-Hassan at Department of Mathematics, LiU.

Equipment

and/or

Overleaf + ShareLatex = true!

- Overleaf is the world's easiest to use LaTeX editor.

- The aim of Overleaf is to make the process of writing, collaborating, and publishing scientific documents in LaTeX quicker and easier.

- It is easy to stay up to date with your collaborators, keep track of all changes to your work, and use our LaTeX environment from anywhere in the world.

- Overleaf is a browser-based editor that allows direct code editing, and templates for major journals.

LINKÖPING UNIVERSITY

Personal	Collaborator	Professional
Ideal when working solo	Great for shared projects	For those working with many
Free	**$15**/mo	**$30**/mo
Only one collaborator	**10 collaborators per project**	**Unlimited collaborators**
	All premium features	**All premium features**
	Sync with Dropbox and GitHub	Sync with Dropbox and GitHub
	Full document history	Full document history
	Track changes	Track changes
	+ more	+ more

LINKÖPING UNIVERSITY

Menu   Review   Share   Submit   History   Chat

Source   Rich Text   Recompile

GCM.bib
main.tex

```latex
1  \documentclass{amsart}
2  \usepackage[utf8]{inputenc}
3  \usepackage{amsmath}
4  \usepackage{amsthm}
5  \usepackage{amsfonts}
6  \usepackage{amssymb}
7  \usepackage{amscd}
8  \usepackage{upgreek}
9  %\usepackage{dsfont}
10 \usepackage{bbm}
11 \usepackage{natbib}
12
13 \newcommand{\mat}[1]{\mathbf{#1}}
14 \newcommand{\matg}[1]{\boldsymbol{#1}}
15
16 \title{Growth Curve Model with Orthogonal Covariance Structure}
17 \author{martin.singull }
18 \date{}
19
20 \begin{document}
21
22 \maketitle
23
24 \section{Model}
25
26 Consider the multivariate model
27 \begin{equation}
28     \mat Y_{p\times n}=\mat A_{p\times s}\mat B_{s\times q}\mat
       C_{q\times n}+\mat E_{p\times n},
29 \end{equation}
30 consisting of $n$ multivariate observations with $p$ components. It has
   distribution
31 \begin{equation}
32     \mat Y_{p\times n}\sim\mathrm{MN}(\mat A_{p\times s}\mat B_{s\times
       q}\mat C_{q\times n},\mat\Sigma_{p\times p},\mat\Psi_{n\times n}),
33 \end{equation}
34 where $\mat\Sigma$ and $\mat\Psi$ are symmetric positive definite
   matrices.
```

GROWTH CURVE MODEL WITH ORTHOGONAL COVARIANCE
STRUCTURE

MARTIN.SINGULL

1. MODEL

Consider the multivariate model

$$\mathbf{Y}_{p\times n} = \mathbf{A}_{p\times s}\mathbf{B}_{s\times q}\mathbf{C}_{q\times n} + \mathbf{E}_{p\times n}, \tag{1}$$

consisting of n multivariate observations with p components. It has distribution

$$\mathbf{Y}_{p\times n} \sim \mathrm{MN}(\mathbf{A}_{p\times s}\mathbf{B}_{s\times q}\mathbf{C}_{q\times n}, \boldsymbol{\Sigma}_{p\times p}, \boldsymbol{\Psi}_{n\times n}), \tag{2}$$

where $\boldsymbol{\Sigma}$ and $\boldsymbol{\Psi}$ are symmetric positive definite matrices.
Suppose now that

$$\boldsymbol{\Sigma} = \sum_{i=1}^{w} \mathbf{Q}_i \otimes \boldsymbol{\Gamma}_i, \tag{3}$$

with

$$\boldsymbol{\Gamma}_i \text{ is of size } p_0 \times p_0; \tag{4}$$
$$\mathrm{rank}(\mathbf{Q}_i) = p_i; \tag{5}$$
$$\mathbf{Q}_i \text{ are idempotent and symmetric}; \tag{6}$$
$$\mathbf{Q}_i\mathbf{Q}_{i'} = \mathbf{0}, i \neq i'; \tag{7}$$
$$\sum_{i=1}^{w} \mathbf{Q}_i = \mathbf{I}_{p_*}. \tag{8}$$

Matrix $\mathbf{H}_i$, of size $p_* \times p_i$, is such that

$$\mathbf{H}_i\mathbf{H}_i' = \mathbf{Q}_i; \tag{9}$$
$$\mathbf{H}_i'\mathbf{H}_i = \mathbf{I}_{p_i}; \tag{10}$$

with $p_* p_0 = p$.
Similarly, let

$$\boldsymbol{\Psi} = \sum_{j=1}^{m} \mathbf{R}_j \otimes \boldsymbol{\Delta}_j, \tag{11}$$

Next (before lunch)

Meet again in your groups and discuss which and how you can use online tools to get better progress.

LINKÖPING
UNIVERSITY

www.liu.se