Staying engaged—slides, video and the professor

My experience teaching online

B answers back to A enabling the green nodes to also learn where B is

Prof. Laurent Vanbever
nsg.ee.ethz.ch

Refresh Teaching @ETH Zurich
Thu Apr 8 2021
Over the last three semesters, I've been teaching four lectures

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course</th>
<th># students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring 2020</td>
<td>Communication Networks (BSc)</td>
<td>~150</td>
</tr>
<tr>
<td></td>
<td>2021</td>
<td></td>
</tr>
<tr>
<td>Fall 2020</td>
<td>Discrete Event Systems (BSc)</td>
<td>~90</td>
</tr>
<tr>
<td></td>
<td>Adv. Topics in Communications Networks (MSc)</td>
<td>~70</td>
</tr>
</tbody>
</table>
Over the last three semesters, I've been teaching four lectures:

**hybrid**  
Spring 2020  
Communication Networks (BSc)  
~150

2021  
Discrete Event Systems (BSc)  
~90

Fall 2020  
Adv. Topics in Communications Networks (MSc)  
~70
Over the last three semesters, I've been teaching four lectures:

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course</th>
<th># students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall 2020</td>
<td>Communication Networks (BSc)</td>
<td>~150</td>
</tr>
<tr>
<td>Spring 2021</td>
<td>Discrete Event Systems (BSc)</td>
<td>~90</td>
</tr>
<tr>
<td></td>
<td>Adv. Topics in Communications Networks (MSc)</td>
<td>~70</td>
</tr>
<tr>
<td>Spring 2021</td>
<td>pure online</td>
<td></td>
</tr>
<tr>
<td>Fall 2020</td>
<td>Communication Networks (BSc)</td>
<td></td>
</tr>
</tbody>
</table>
3 semesters, 3 iterations
hopefully, for the better
Step 1: The genesis

Learning what does *not* work
March 13 2020     Subject     Important information regarding online lecturing

Dear students,

We would like to update you on our online offerings following yesterday's suspension of all classroom teaching by the rectorate. […]

For the lectures, we'll mostly rely on the 2019 video recordings. We will update the course website every week with the slides and link to the corresponding recording(s).

[...]
Unsurprisingly, this ended up being highly suboptimal
Unsurprisingly, this ended up being highly suboptimal.

Students couldn't see me anymore.
Non-verbal communication was completely gone.

Students couldn't see what I was pointing at anymore.
Nor what I was writing on the blackboard.

Students couldn't interact anymore.
No more opportunities for questions, comments, etc.
Luckily we identified these problems early on as we always run our own students survey mid-term
Luckily we identified these problems early on as we always run our own students survey mid-term.

Questions:

Are you satisfied with the lecture so far?

What is it that you don't like about the lecture?

Any ideas on how we could improve going forward?
This made us switch to live, Zoom-based lectures
This made us switch to live, Zoom-based lectures.
Students appreciated the switch, even though it was still suboptimal.
Students appreciated the switch, even though it was still suboptimal.
Forward proxies cache documents close to clients, decreasing network traffic, server load and latencies.
Forward proxies cache documents close to clients, decreasing network traffic, server load and latencies.
Step 2: Experimenting

Learning from communication experts
In July 2020 I attended a lecture from Jean-luc Doumont on

Delivering your presentation remotely
In July 2020 I attended a lecture from Jean-luc Doumont on

Delivering your presentation remotely

Freely-available handout on www.principiae.be
Jean-luc perfectly describes the drawbacks of remote platforms
Jean-luc perfectly describes the drawbacks of remote platforms including the loss of control and of non-verbal communication.

Freely-available handout on www.principiae.be
Jean-luc perfectly describes the drawbacks of remote platforms as well as worthwhile alternatives.

Freely-available handout on www.principiae.be
During the Fall 2020

I decided to give the "alternating views" a shot
During the Fall 2020
I decided to give the "alternating views" a shot
Student feedback was good

*better* than in the Spring

<table>
<thead>
<tr>
<th>Student #1</th>
<th>Prof. Vanbever's video set up was grand, I loved it [...]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student #2</td>
<td>Prof. Vanbever's Zoom-Setup und Unterricht hat grosser Lob verdient (beste Zoom-Vorlesungen die ich in den letzten zwei Semester hatte)</td>
</tr>
<tr>
<td>Student #3</td>
<td>It was an absolute joy watching Prof. Vanbever's lectures [...]</td>
</tr>
</tbody>
</table>
Step 3: Polishing

Learning from... YouTube?

Spring 2020

Fall 2020

Spring 2021
My hardware setup
My hardware setup

behind
My hardware setup
My hardware setup
My hardware setup

- **yellow-ish lights** for my face
- **studio lights** for the green screen
My hardware setup

decent microphone
My hardware setup

tablet for "blackboarding"
My hardware setup

clicker for changing slides
My hardware setup

decent camera (personal one)
Much simpler setup works well too
this is how I started—this gets you 80+% there already
My software setup (I'm a mac user)
My software setup (I'm a mac user)

Open Broadcast Software  
blends multiple video scenes into one "virtual camera"

Loopback + Audio Hijack  
delay the audio wrt the video

Zoom/Teams/Hangout…  
meeting platforms
Open Broadcast Software blends multiple video scenes into one "virtual camera"
B answers back to A, enabling the green nodes to also learn where B is.
Few lessons I learned
Few lessons I learned

Teaching online is more *tiring*

Make sure to be fueled properly
Few lessons I learned

Teaching online is more *tiring*
Make sure to be fueled properly

Maintaining eye contact is key for students' engagement
*Stick a friendly face to your camera, it helps a ton*
Few lessons I learned

Teaching online is more *tiring*
Make sure to be fueled properly

Maintaining eye contact is key for students' engagement
*Stick a friendly face to your camera, it helps a ton*
Few lessons I learned

Teaching online is more *tiring*
Make sure to be fueled properly

Maintaining eye contact is key for students' engagement
Stick a friendly face to your camera helps a ton

Reading from a script doesn't work (for me)
Rehearse only the beginning then go with the flow
Few lessons I learned

Knowing "how to stream" is useful beyond the classroom
See it as a long term investment for you and your team
Few lessons I learned

Knowing "how to stream" is useful beyond the classroom
See it as a long term investment for you and your team

It's actually quite fun!  😊
Our student feedback is *even* better now
better than Fall 2020, which was itself better than Spring 2020

*Communication Networks 2021 mid-term student survey*
Staying engaged—slides, video and the professor

My experience teaching online