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Building Transformer-Based Natural Language Processing Applications

LRZ | 19 October 2021



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Workshop material:
<https://tinyurl.com/lrz-dli-nlp>



Overview



- This workshop is co-organised by LRZ and NVIDIA Deep Learning Institute (DLI).
- NVIDIA Deep Learning Institute (DLI) offers hands-on training for developers, data scientists, and researchers looking to solve challenging problems with deep learning.
- In this course, you'll learn how to use Transformer-based natural language processing models for text classification tasks, such as categorizing documents.
- You'll also learn how to leverage Transformer-based models for named-entity recognition (NER) tasks and how to analyse various model features, constraints, and characteristics to determine which model is best suited for a particular use case based on metrics, domain specificity, and available resources.
- The lectures are interleaved with many hands-on sessions using Jupyter Notebooks. The exercises will be done on a fully configured GPU-accelerated workstation in the cloud.



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DLI Mission: Help the world to solve the most challenging problems using AI and deep learning

We help developers, data scientists and engineers to get started in architecting, optimizing, and deploying neural networks to solve real-world problems in diverse industries such as autonomous vehicles, healthcare, robotics, media & entertainment and game development.

Lecturers



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- **Lecturer:**

- PD Dr. Juan Durillo Barrionuevo (LRZ)

- **Technical Assistants:**

- Dr. Momme Allalen (LRZ)
- Dr. Volker Weinberg (LRZ)

All instructors and assistants are NVIDIA certified University Ambassadors.



Tentative Agenda



- 10:00 - 10:20 Welcome and presentation
- 10:00 - 12:00 Part 1. Machine Learning and Natural Language Processing
- **12:00 - 13:00 Lunch break**
- 13:00 - 14:45 Part 2. Transformer based models for Natural Language Processing
- **14:45 - 15:00 Coffee break**
- 15:00 - 16:00 Part 3. The afterparty: Transformer based models in Production



Workshop Webpage



- All slides will be made available during the workshop under:

- <https://tinyurl.com/lrz-dli-nlp>



- Further information on:

- Agenda
- Training Setup
- Slides
- Documentation

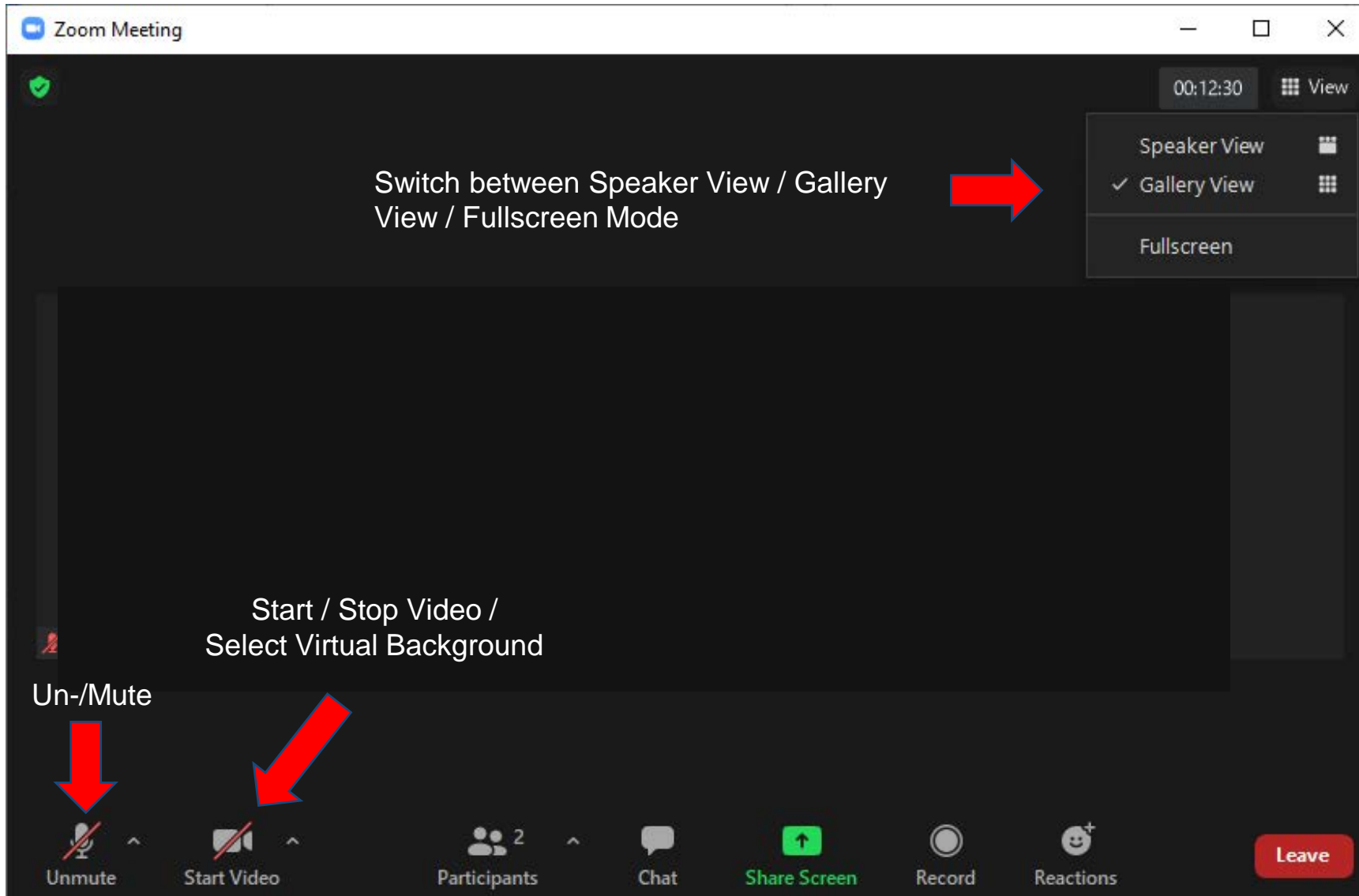


Training Setup

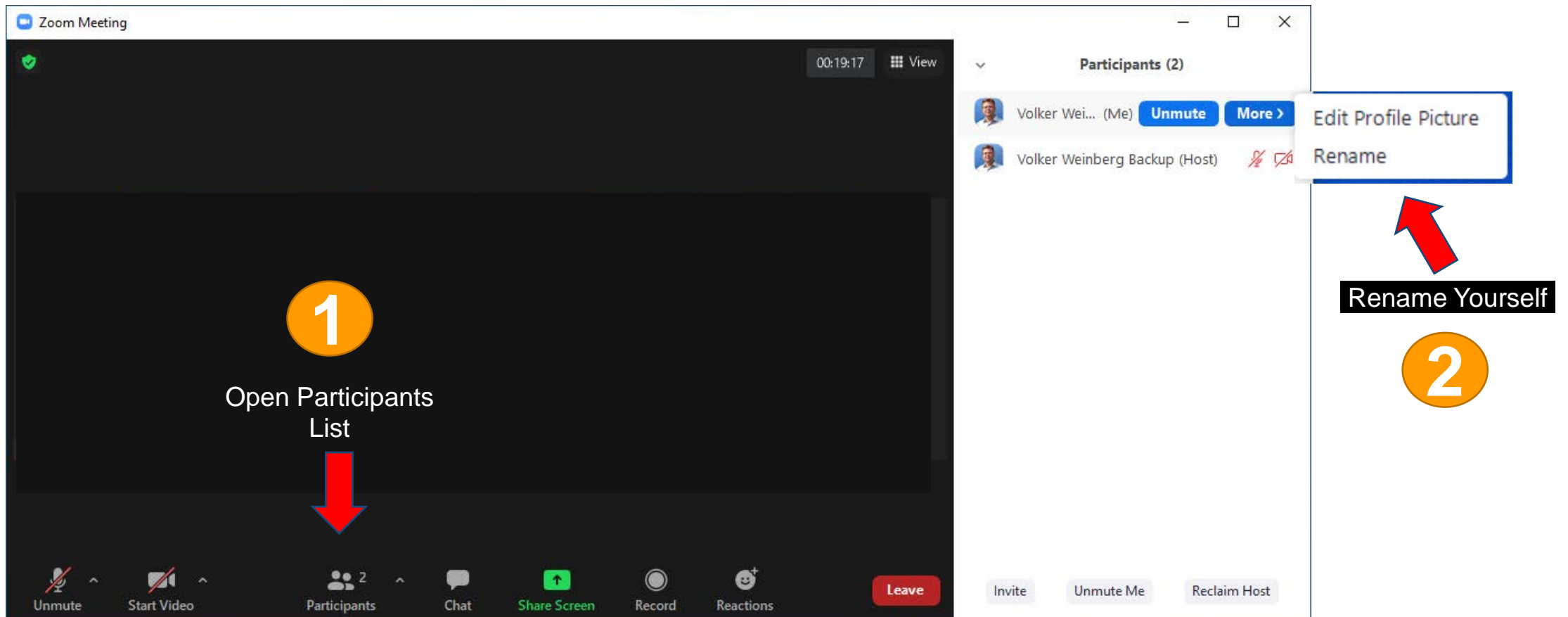


- To get started, follow these steps:
- Create an NVIDIA Developer account at <http://courses.nvidia.com/join> Select "Log in with my NVIDIA Account" and then "Create Account".
- If you use your own laptop, make sure that WebSockets works for you:
Test your Laptop at <http://websocketstest.com>
 - Under ENVIRONMENT, confirm that "WebSockets" is checked yes.
 - Under WEBSOCKETS (PORT 80]. confirm that "Data Receive", "Send", and "Echo Test" are checked yes.
 - If there are issues with WebSockets, try updating your browser.
We recommend Chrome, Firefox, or Safari for an optimal performance.
- Visit <http://courses.nvidia.com/dli-event> and enter the event code provided by the instructor.
- You're ready to get started.

- To ensure a pleasant experience with Zoom Meeting, we encourage participants to **download and install the latest Zoom application** via <https://zoom.us/download>.
- If you have problems with your computer audio, you can also **join by phone**.
Find your local number: <https://lrz-de.zoom.us/j/aeaPLRITtm>



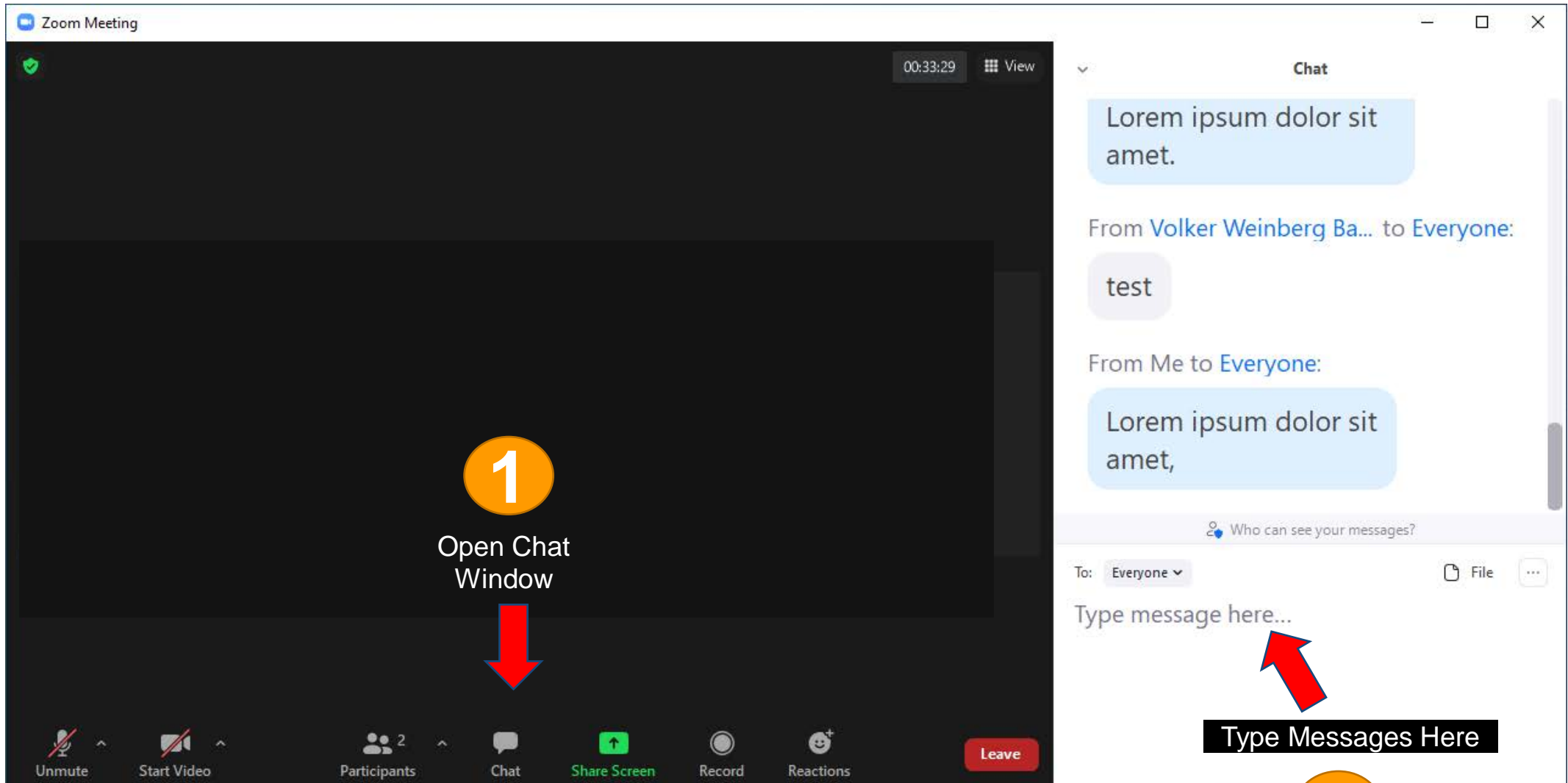
Kindly use “first-name family-name (institute)” as your screenname.



The screenshot shows a Zoom Meeting window with a dark theme. The main area is a video feed, currently black. The bottom toolbar includes icons for Unmute, Start Video, Participants (with a '2' next to it), Chat, Share Screen, Record, Reactions, and a red Leave button. A red arrow points from the Participants icon to the Participants List panel on the right. The list shows two participants: 'Volker Wei... (Me)' and 'Volker Weinberg Backup (Host)'. A context menu is open over the 'Me' participant, with 'Rename' highlighted. A red arrow points from the 'Rename Yourself' text to the 'Rename' option. A large orange circle with the number '1' is overlaid on the main video area, with the text 'Open Participants List' and a red arrow pointing to the Participants icon. A second large orange circle with the number '2' is overlaid on the right side, with the text 'Rename Yourself' and a red arrow pointing to the 'Rename' option.

1
Open Participants List

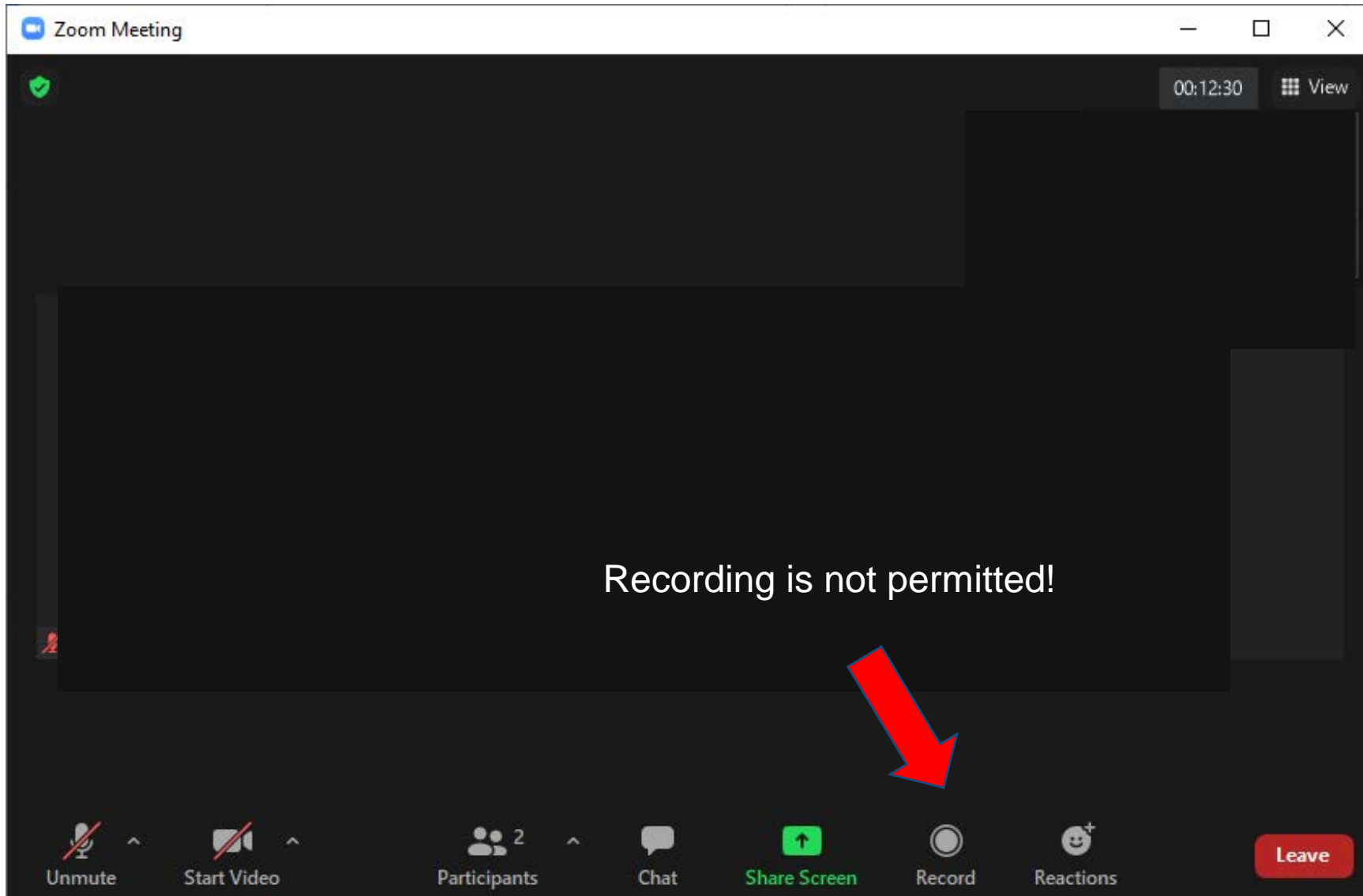
2
Rename Yourself



The image shows a Zoom Meeting window with a chat window open on the right. The Zoom Meeting window has a dark background and a toolbar at the bottom with icons for Unmute, Start Video, Participants (2), Chat, Share Screen, Record, Reactions, and Leave. A red arrow points from the Chat icon in the toolbar to the chat window. The chat window is titled 'Chat' and contains several messages: 'Lorem ipsum dolor sit amet.', 'From Volker Weinberg Ba... to Everyone: test', and 'From Me to Everyone: Lorem ipsum dolor sit amet,'. Below the messages is a text input field with the placeholder 'Type message here...'. A red arrow points to this input field. The chat window also shows a dropdown menu for 'Who can see your messages?' set to 'Everyone' and a 'File' button.

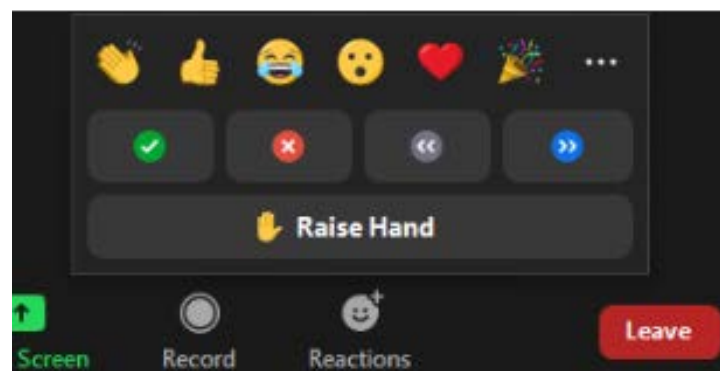
1
Open Chat Window

2
Type Messages Here



- Use **chat window** to ask questions **during the presentations**.
- In **Q&A sessions**:
 - You can also **raise your hand** if you have questions.
 - If you do not mind, please **show your video when asking questions** to make this workshop as interactive as possible.
- **Push to Talk**: The Push to Talk feature allows you to remain muted throughout the Zoom meeting and only if you hold down the spacebar you will be unmuted.

- **Instant Feedback:**



And now ...



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Enjoy the workshop!