

DIY video production with Opencast Studio

Web-/browser-based dual-stream screencast recorder for the Opencast video management system

PARIS
04. Feb. 2020
#esupdays29
#apereoparis20

Opencast in a nutshell



Opencast is...

- a lecture capture software
- a video management system for academic institutions
- open source
- developed by a community of academic institutions
- driven by academic requirements

Comparison POD vs Opencast

POD

Support upload by ftp or rest from capture device, use plugin to import different kind of type

Upload

Video management like a **youtube for university**

Video completion (add contributors, subtitle, additional resources and overlay)

Encoding in HLS and MP4

Enrichment synchronise with RichText, image, website, PDF etc.

Opencast

Supported capture devices

Schedule capture devices

Upload, Opencast Studio

Video management for admins

Manage Metadata, Upload Captions, **Edit Video**

Encoding

- multiple simultaneous video tracks for screen-recording, presenter, document-camera, etc.
- Automated slide detection in screen recording.
- OCR in screen-recording

Capture

Process

Comparison POD vs Opencast

POD

Transcription with deepspeech in production

Captions/subtitle in VTT

Integration LMS use embed or moodle plugin

Live with RichText (feed twitter, chat)

Portail individuel

Process

Distribute

Opencast

Transcription: Watson, Google, Amberscript, Nibity.
DeepSpeech integration under development

Captions/subtitle

LMS integration: LTI; native plugins for Moodle, Ilias, Stud.IP

Scheduled live streaming (video)

Player(s), media module, Annotation Tool

Comparison POD vs Opencast: technology stack

POD

Opencast

Modular – Saas in development

Modular (Micro Services); cloud ready; multi-tenancy

Front-end / Back-end

Admin UI (Backend), Multiple Frontends

Scalable (Admin UI/Encoding/Live/Search/Database)

Scalable (Admin UI/Encoding/Live/Search/Database)

VideoJs player / file management

Two Players / Media Module

Bootstrap 4, VideoJS 6, JQuery

Angular 1, React, Backbone, JQuery, Bootstrap

Python 3, Django

Java, Javascript

FFmpeg

FFmpeg

Elasticsearch

Elasticsearch

REST-API, Dublin Core, LTI

REST-API, OAI-PMH, Dublin Core, LTI

Multilingual

>15 language (incl. French)

Accessible

Accessible (player)

Open source

Open Source (ECL 2.0)

Opencast capture agents (CA): Commercial Systems

Teltek



NCast



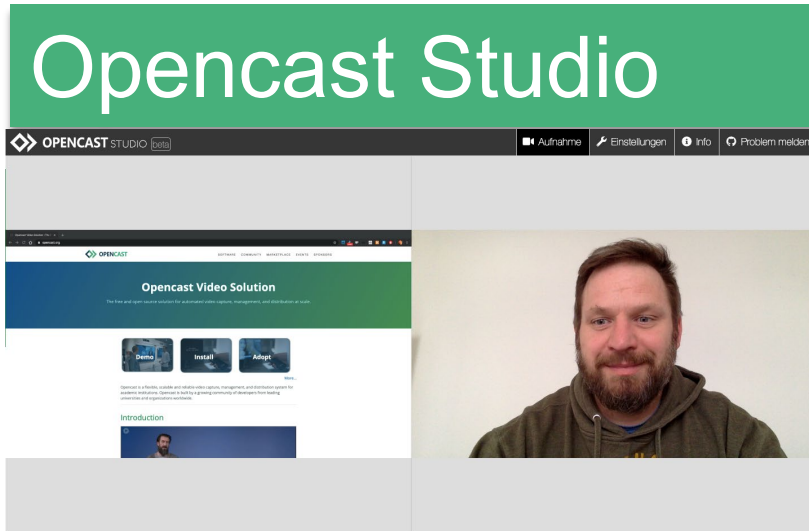
Extron



AREC



Capture: Open source options



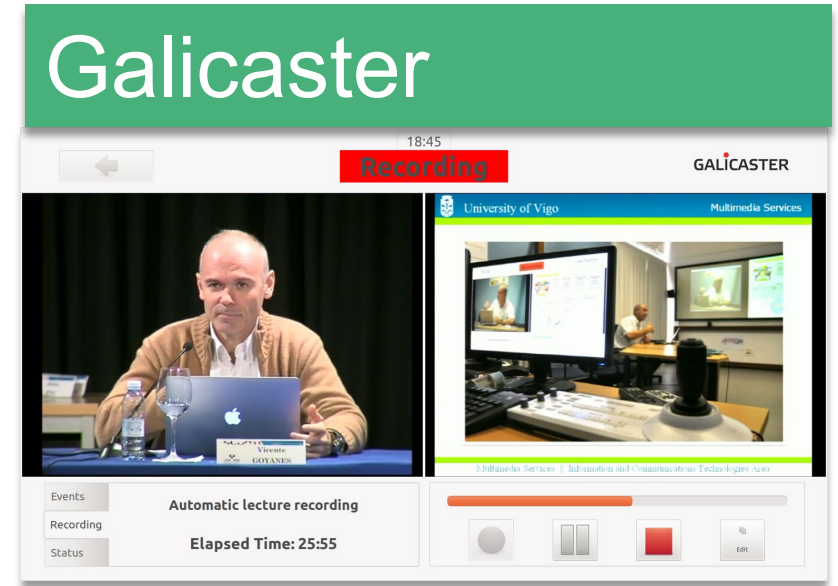
ELAN e. V., ETH Zürich

MIT License



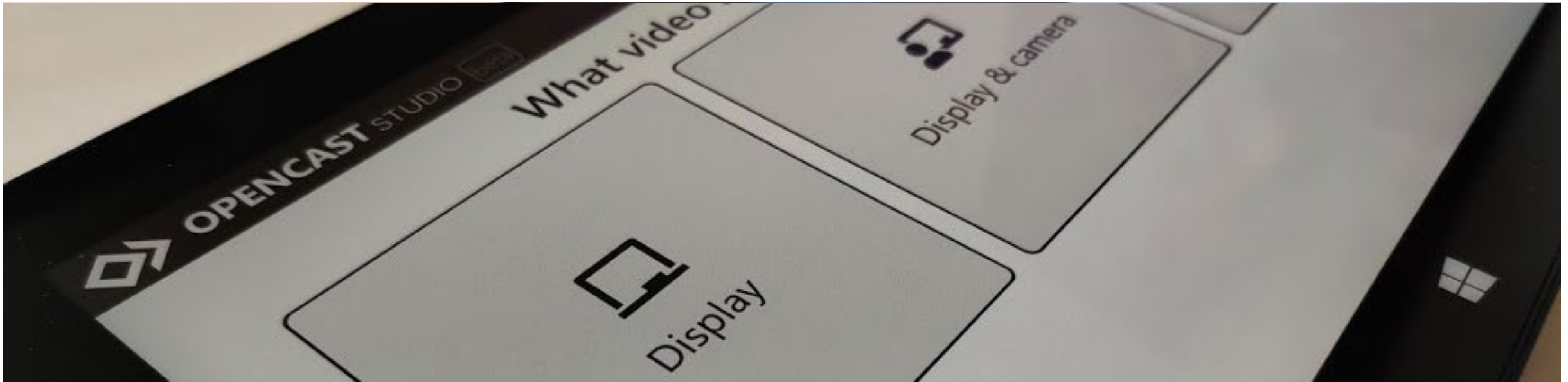
Lars Kiesow

LGPL-3.0



Teltek

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Live Demo

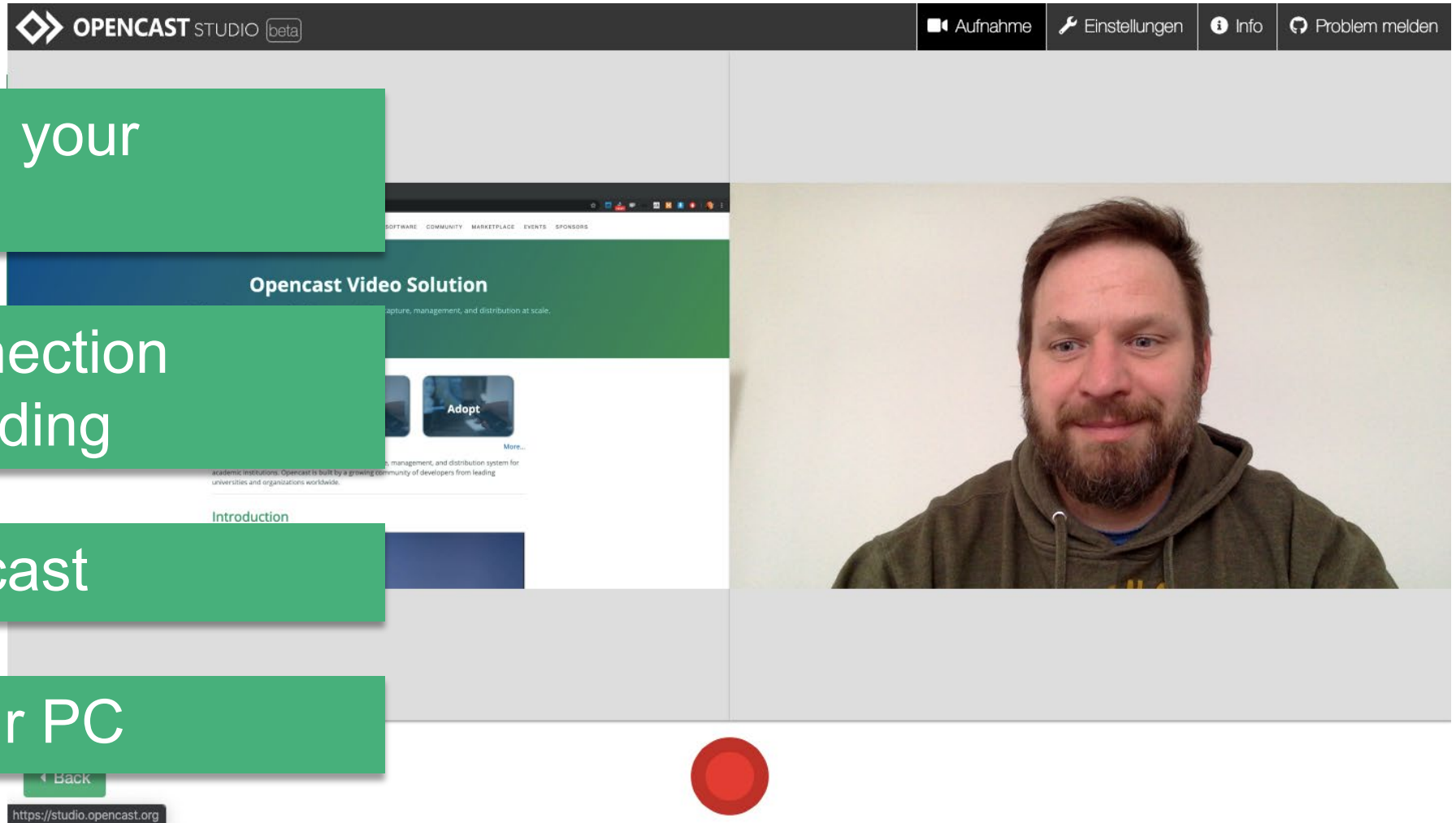
<https://studio.opencast.org>

<https://develop.opencast.org>

<https://lernfunk.de>

the following slides are only a backup, if the live demo does not work

Record with Opencast Studio



Record videos in your browser

No network connection needed for recording

Upload to Opencast

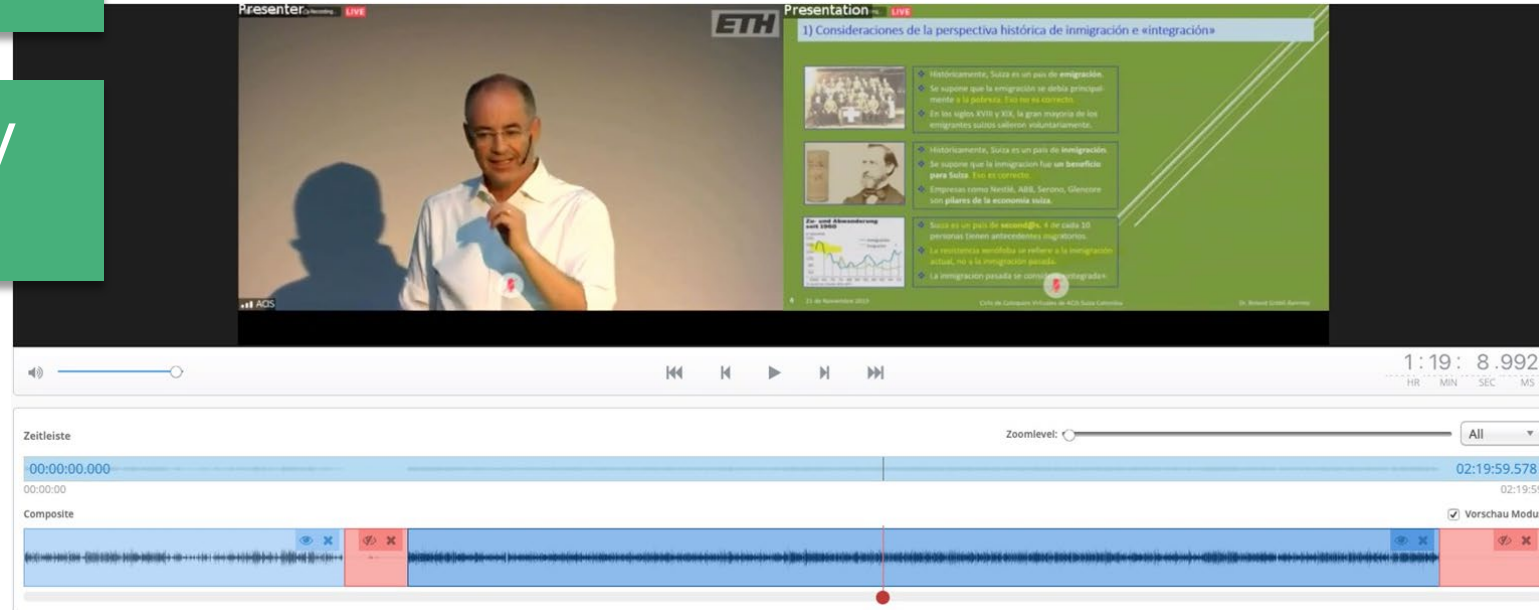
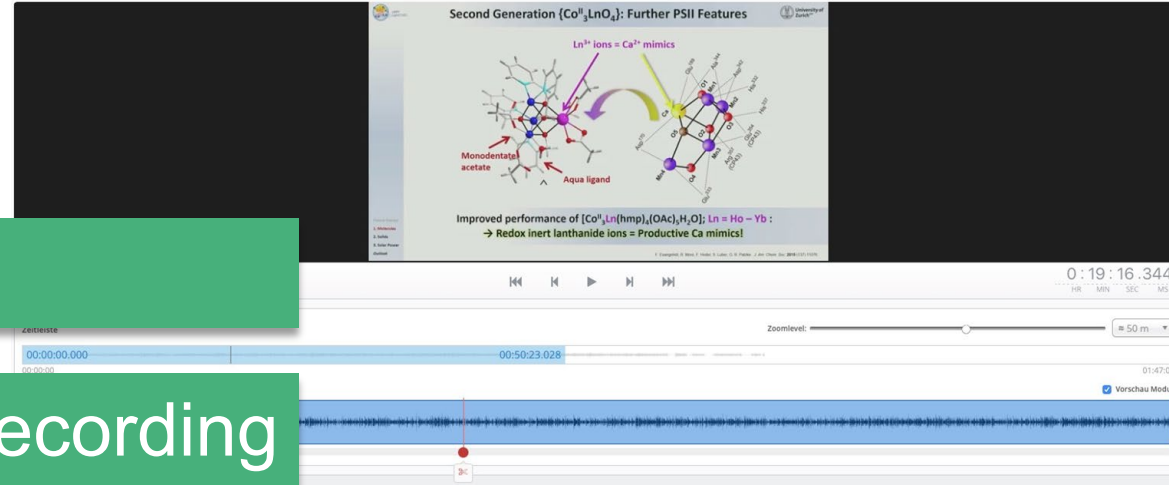
Download to your PC

Video editor

Trim video(s)

Remove parts of the recording

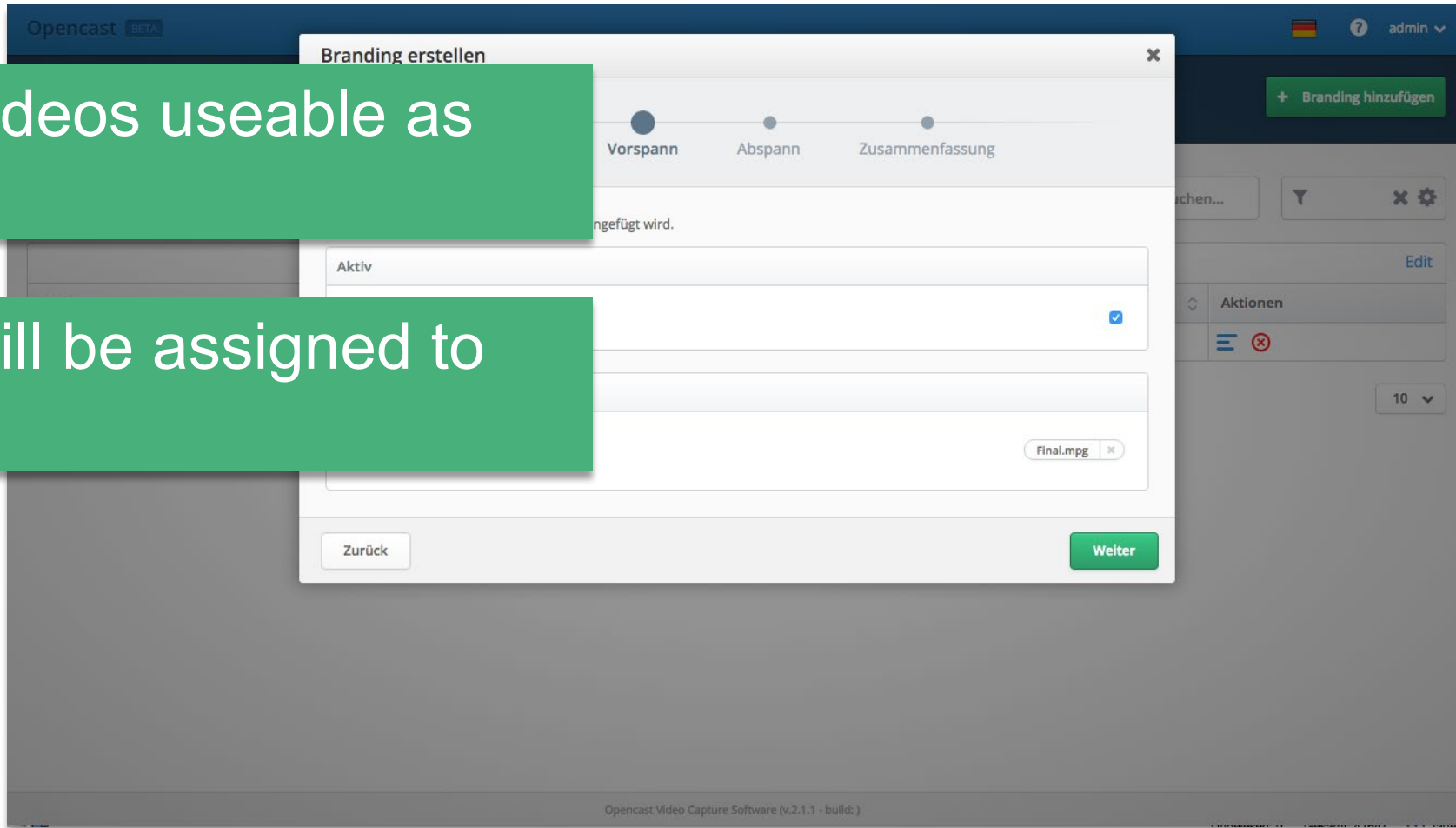
Remove Parts Automatically with Silence Detection



Processing: Themes

Custom Videos useable as Trailer

Themes will be assigned to Series'

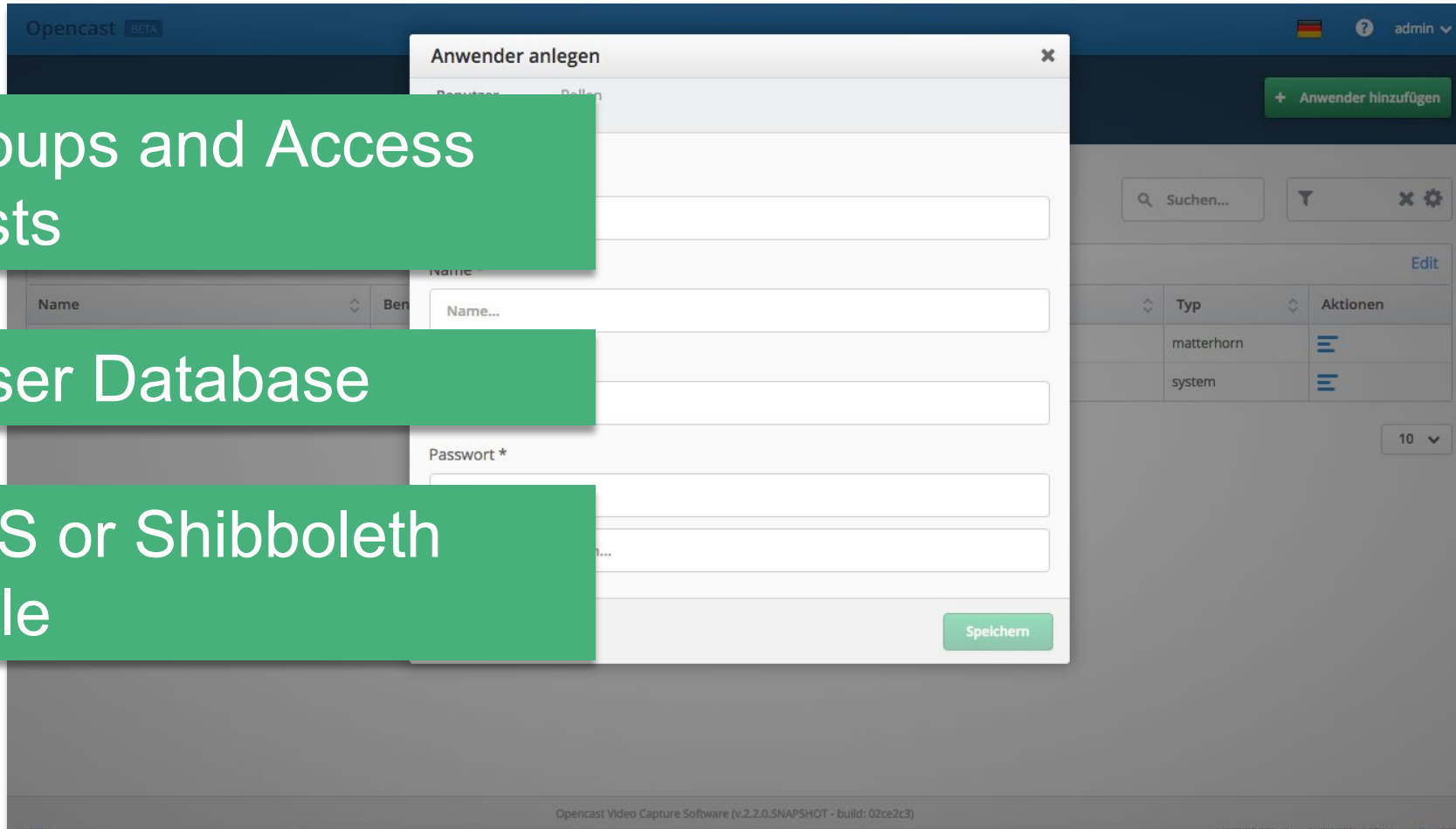


Users and Groups

Users, Groups and Access Control Lists

Internal User Database

LDAP, CAS or Shibboleth connectable



Distribution

Media Module

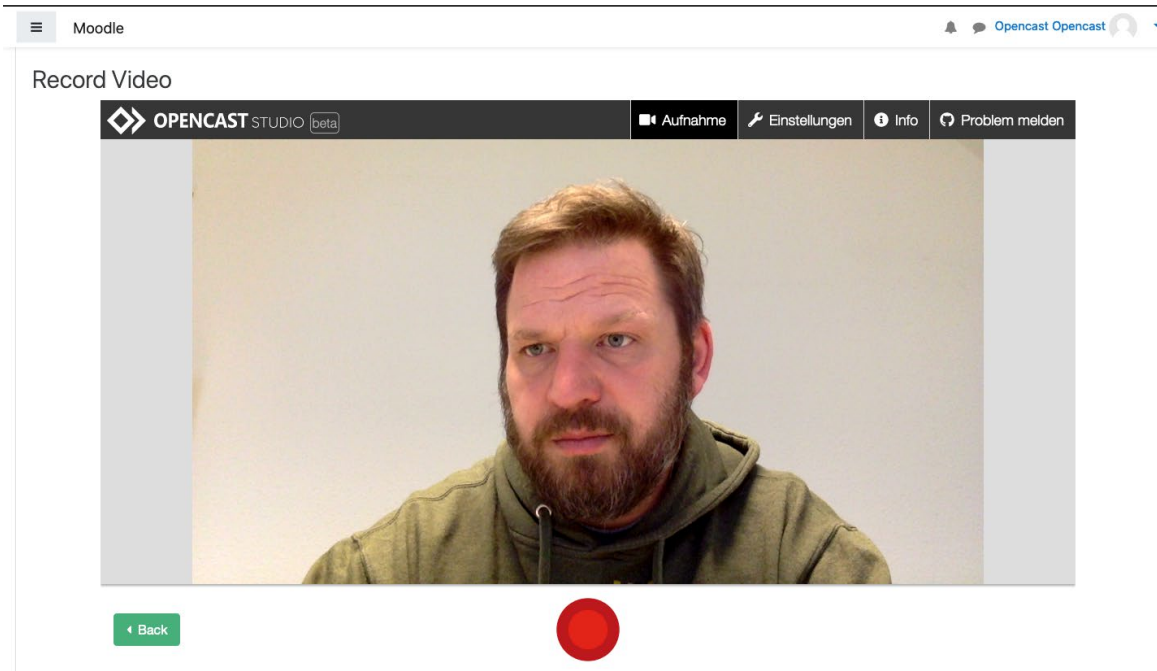
The screenshot shows the OpenCast Media Module interface. At the top, there are navigation tabs for 'Media Module', 'Episoden', and 'Serien'. A search bar and a user profile 'admin' are also visible. The main content area displays a grid of six video thumbnails, each with a title, author, date, and duration. The thumbnails are: 'Just a demo' (Rüdiger, 31.1.2020, 00:00:14), 'Sintel Trailer' (Durian Open Movie T..., Blender Foundation ..., 31.1.2020, 00:00:52), 'OCPR Demo' (Lars Kiesow, 31.1.2020, 00:01:15), 'Tears of Steel' (Blender Foundation, Blender Foundation ..., 31.1.2020, 00:12:14), 'About Opencast' (Olaf Schulte, 31.1.2020, 00:04:58), and 'Tears of Steel (Dualstream)' (Blender Foundation, Blender Foundation ..., 31.1.2020, 00:12:15). At the bottom, there are navigation buttons for 'Erste', 'Zurück', 'Vor', and 'Letzte'.

Video Gallery

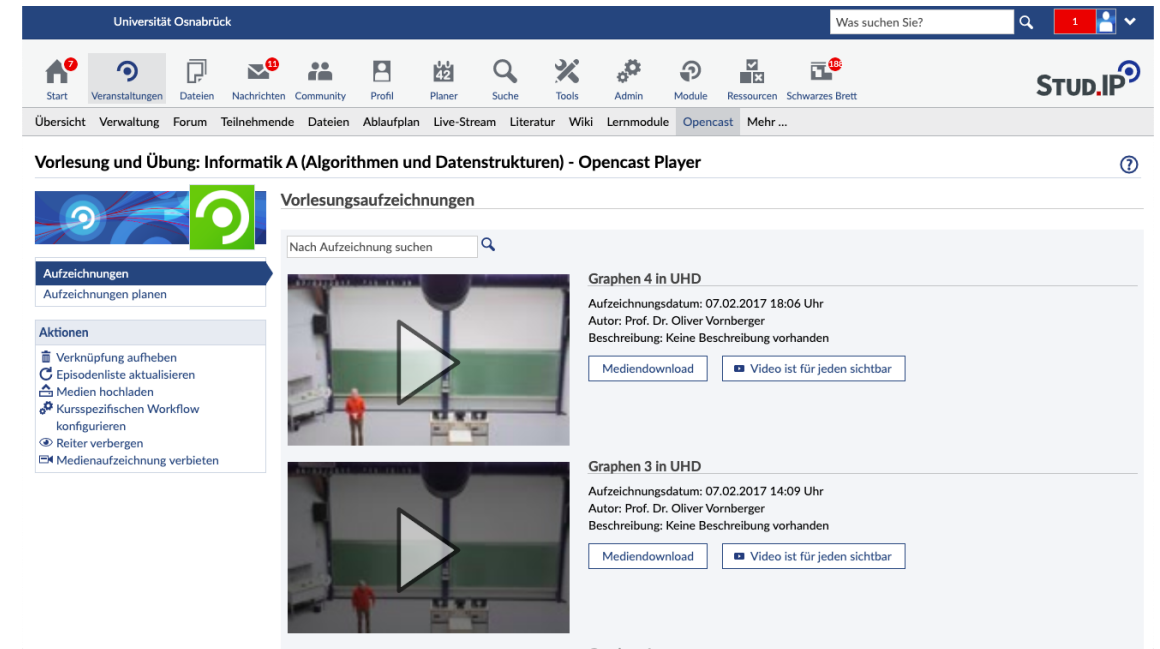
The screenshot shows the OpenCast Video Gallery interface. At the top, there is a search bar and a user profile 'admin'. The main content area features a video player for 'Erstrecken - Grundkompetenzen (KCL) (Di, 07.01.2020...)' by Prof. Dr. Hedwig Gasteiger. Below the video player, there is a 'WATCH NOW' button. The interface also includes a sidebar with navigation options: 'Home', 'Courses', and 'Recordings'. At the bottom, there is a 'New Recordings' section with a list of recordings, including 'Erstrecken - Grundkompetenzen (KCL) (Di, 07.01.2020 14:00 - 16:00, bearbeitet)' and 'Symposium 2 Final-1'.

Distribution: Learning Management Systems

Moodle




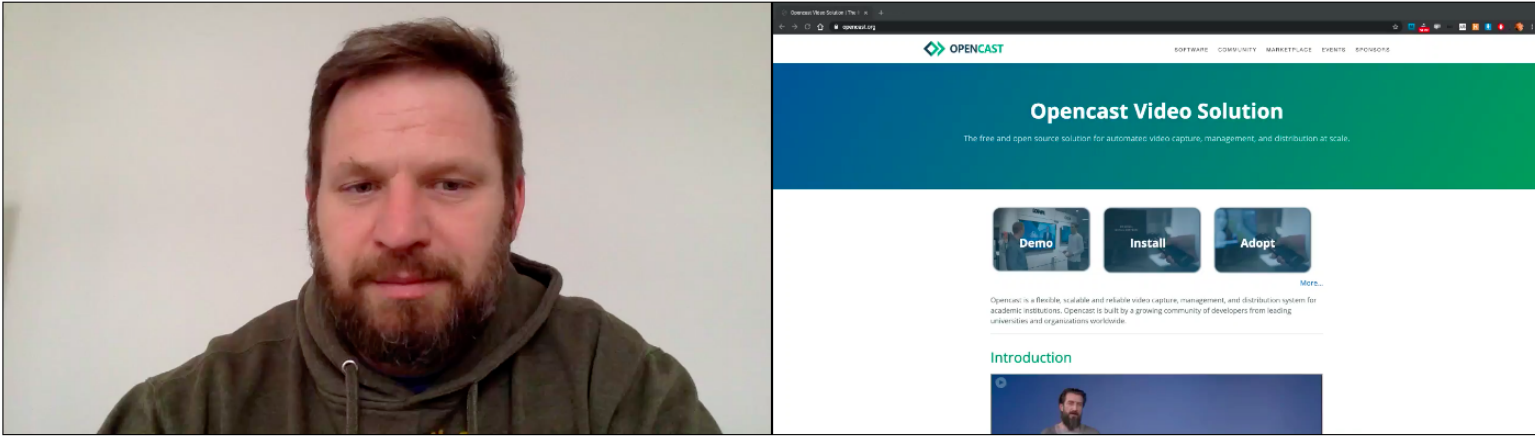
Stud.IP



- Ilias
- LTI for generic integration

Distribution: Theodul Player

admin ▾ 



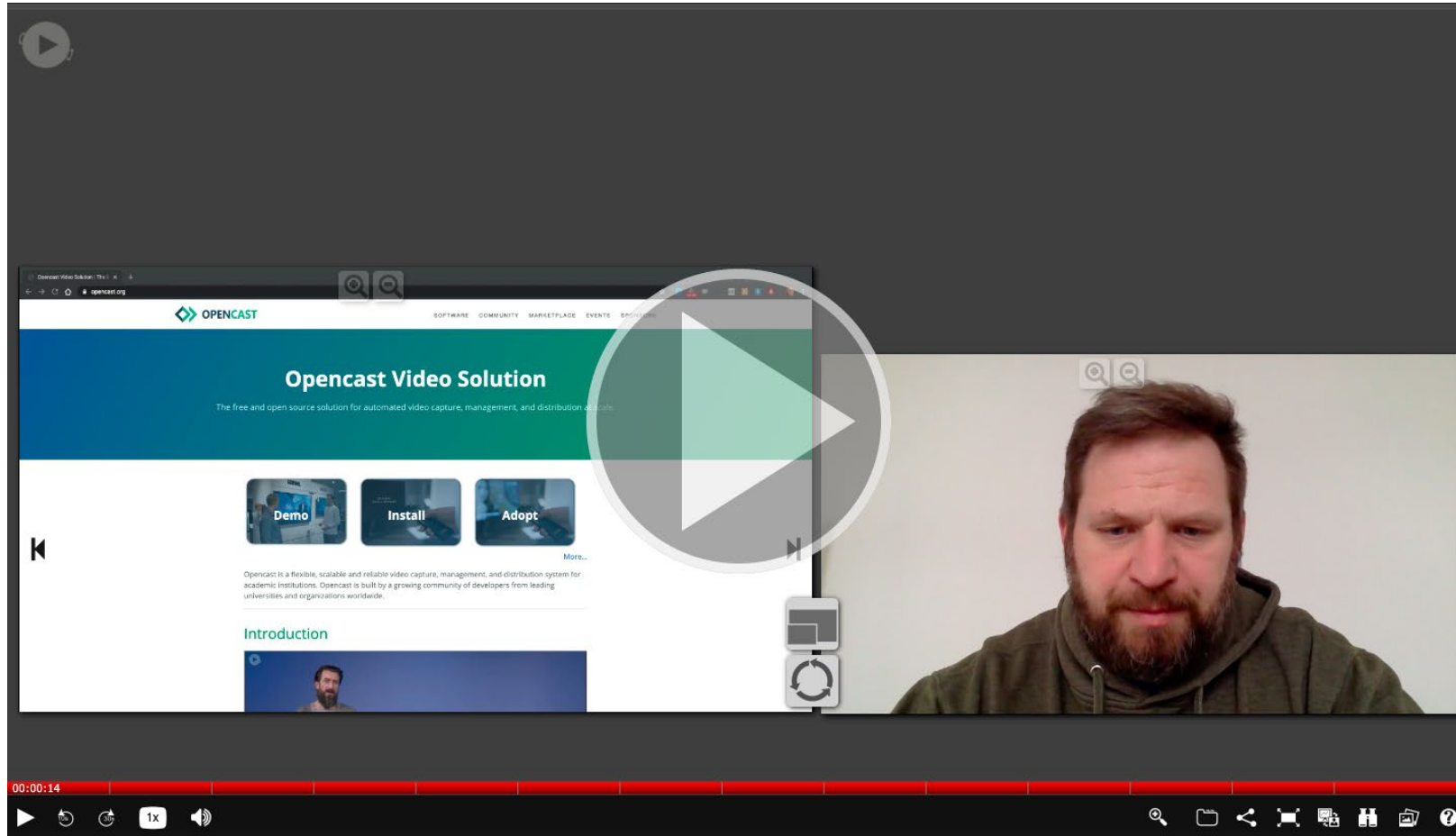
00:00:00 / 00:00:14

Just a demo
Rüdiger, 31 January 2020, 14:40

Beschreibung [Tastenkürzel](#) [Folientext](#)

Titel Just a demo	Aufnahmedatum 31 January 2020, 14:40
Autor Rüdiger	

Distribution: Paella Player



End of Live Demo

Questions

Distribution: Player comparison

Feature	Paella	Theodul
Video Zoom with 4K support	✓	✓
Variable Playback Speed	✓	✓
Playback 2+ synchronized videos	✓	✓
Playback 2+ synch. videos on mobile devices	✓	
Captions	✓	✓
Navigation by segments	✓	✓
Live streaming support	✓	

Video players for Opencast

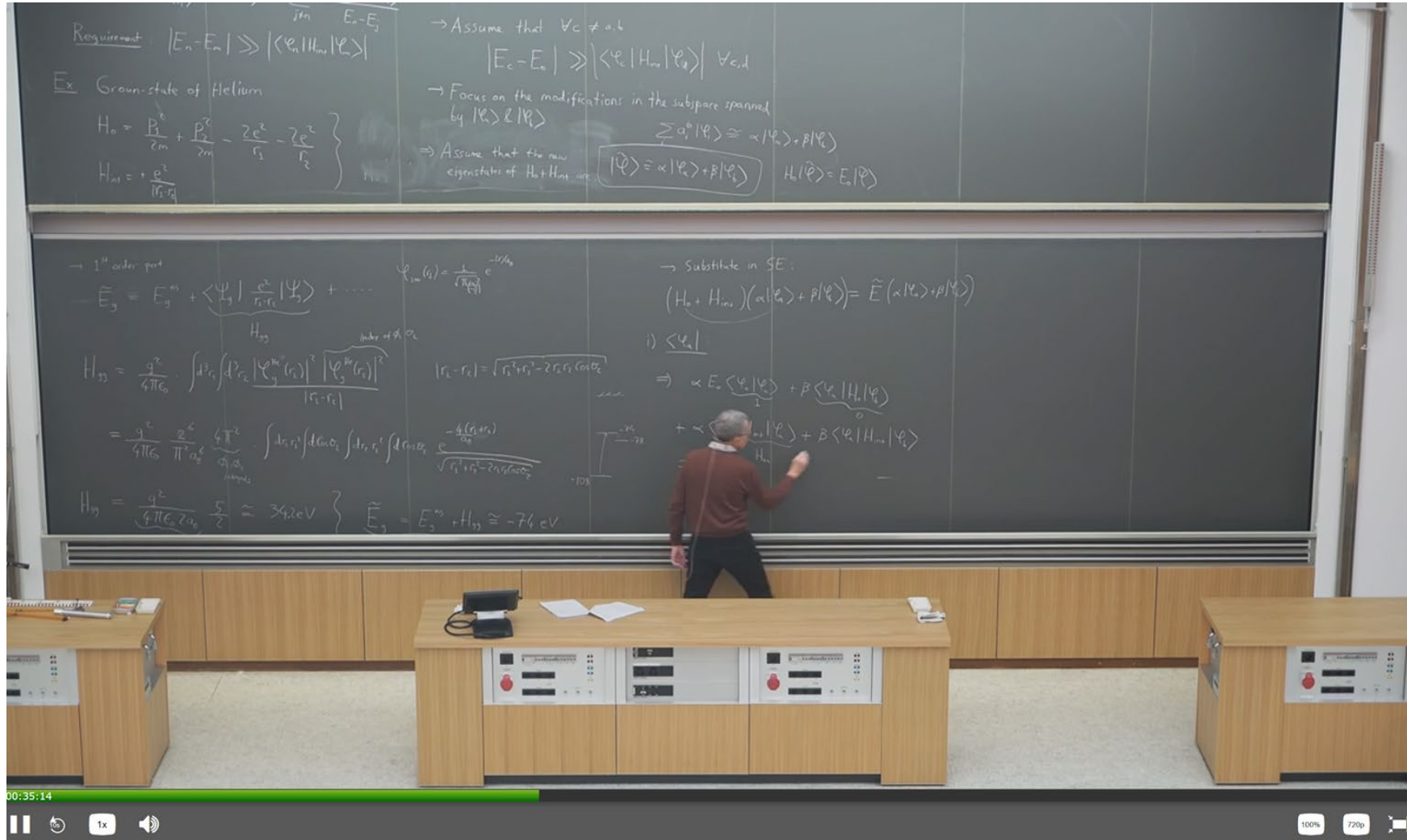
Paella player (Opencast default)

- HTML5
- HLS, DASH
- iOS, Android
- 4K / zoom
- Multiple sources
- Transcripts/captions
- Customizable

Any other player

- HTML5
- HLS, DASH
- iOS, Android

4K Video: Blackboard recordings with user-end zoom



4K Video: Blackboard recordings with user-end zoom

$$|r_1 - r_2| = \sqrt{r_1^2 + r_2^2 - 2r_1r_2 \cos \theta_2}$$

$$V(r) = -\frac{4e^2}{a_0 \sqrt{r_1^2 + r_2^2 - 2r_1r_2 \cos \theta_2}}$$

$$E_0^{ns} + H_{0,gg} \cong -74 \text{ eV}$$

result is within 4% of the actual result

$$(H_0 + H_{int})(\alpha|\psi_a\rangle + \beta|\psi_b\rangle) = \tilde{E}(\alpha|\psi_a\rangle + \beta|\psi_b\rangle)$$

i) $\langle \psi_a |$:

$$\Rightarrow \alpha E_0 \underbrace{\langle \psi_a | \psi_a \rangle}_1 + \beta \underbrace{\langle \psi_a | H_0 | \psi_b \rangle}_0$$

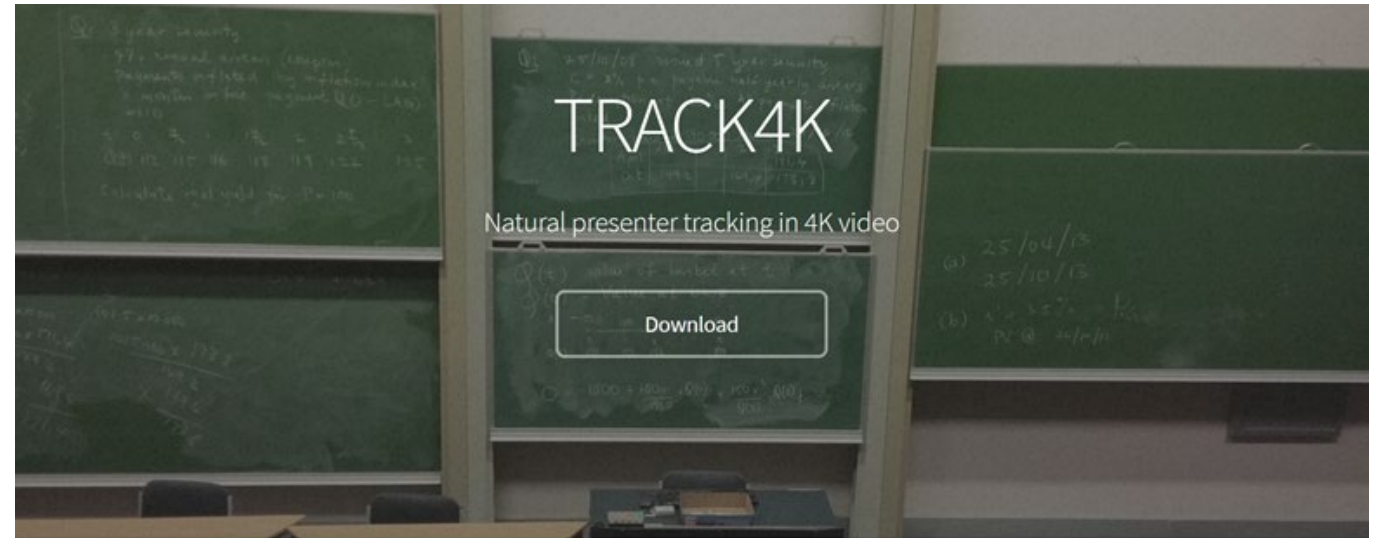
$$+ \alpha \underbrace{\langle \psi_a | H_{int} | \psi_a \rangle}_{H_{aa}} + \beta \underbrace{\langle \psi_a | H_{int} | \psi_b \rangle}_{H_{ab}}$$

$$= \tilde{E} \alpha$$

$$\Rightarrow \alpha(\tilde{E} - E_a) = \beta H_{ab}$$

Automated Video Tracking

- Track4K is an OpenSource project to find a teacher in a video window
- Opencast uses Track4K and 4K video to focus zoom on the teacher
- Students can enable or disable this function

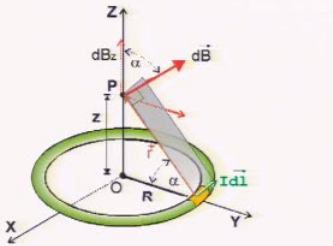


An open-source, automated, lecture recording system that tracks the presenter in 4K video streams


Automated Slide index

LECCIÓN 3: CAMPOS MAGNÉTICOS INDEPENDIENTES DEL TIEMPO

B) CAMPO MAGNÉTICO CREADO POR UNA ESPIRA CIRCULAR



$$d\vec{B} = \frac{\mu_0 I}{4\pi r^3} d\vec{l} \times \vec{r}$$

$$dB = \frac{\mu_0 I dl}{4\pi r^2}$$


00:00:28

00:00:00 / 01:07:14

Medium 100% 100% nebeneinander rroff

UNIVERSITÄT DUISBURG ESSEN

Segment 8
00:14:58
Violating Federal Law How do we know if states are violating federal law The facts make it clear states engage in racial segregation of schools in violation of Supreme Court decision Preemption State law is deemed to conflict with or create an obstacle to federal law

Segment 9
00:17:23
New York v United States Facts Federal law requires states to create regulatory scheme for safe disposal of nuclear waste Held 10 Amendment prohibits federal government from compelling to states to create law Rationale Political accountability Congress required but states might be held politically accountable That violated 10 Amendment

Segment 10
00:20:16
Printz v United States Facts Federal law required background checks for gun purchases to be undertaken by local law enforcement officials HELD Congress could not commandeer abbeordern the state and local officials to help the federal government enforce federal law

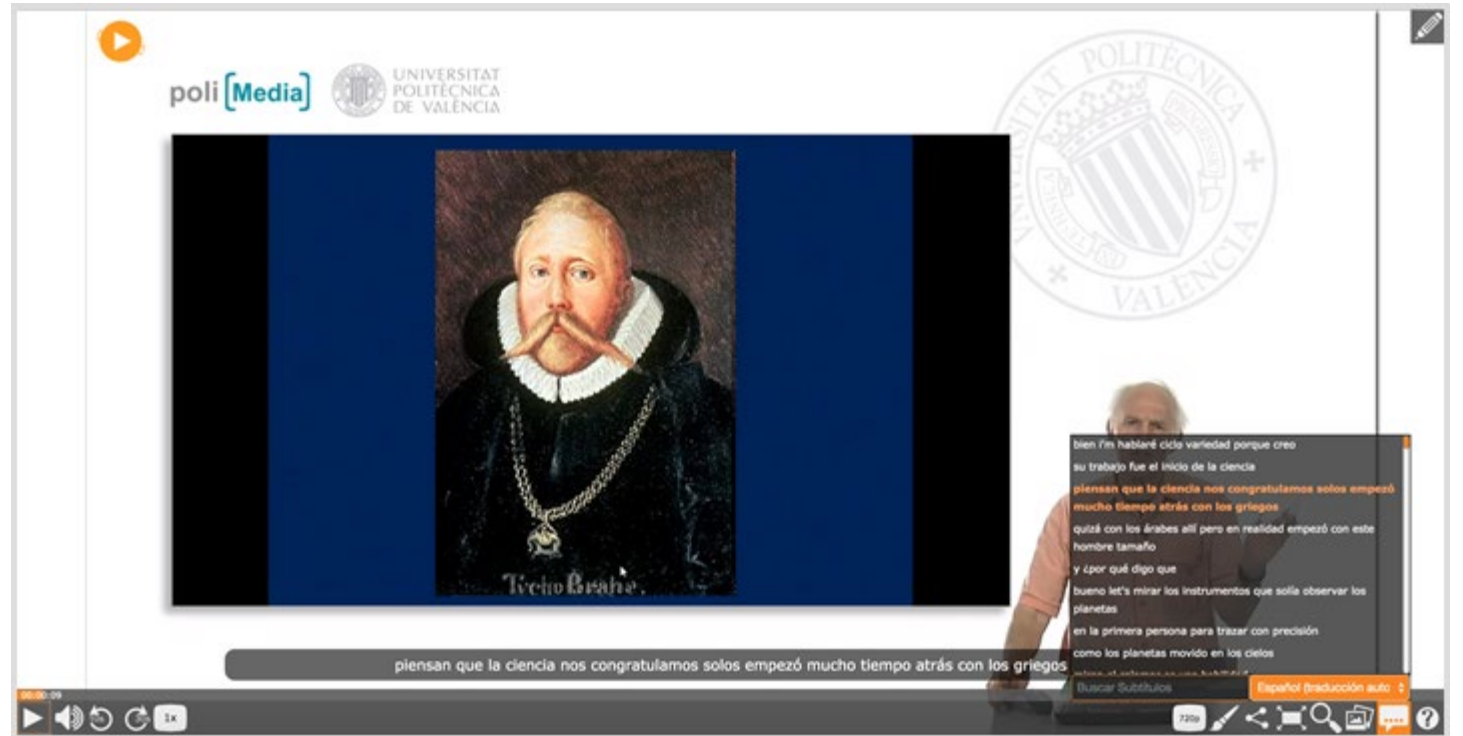
Segment 11
00:21:52
Reno v Condon Facts Federal Driver s Privacy Protection Act prohibited states from giving out personal information of drivers HELD this did not amount to commandeering Law applied to states and private individuals and fell in area Congress could regulate

Segment 12
00:24:36
Murphy v NCAA FACTS Federal law prohibits states to authorize gambling on sports BUT it does not make sports gambling a federal crime Instead allows sports organizations to bring lawsuits against states to enforce the federal law Procedural History Lower courts refused to find federal law unconstitutional because it did not order states to take any action

Segment 13
00:26:47
Murphy v NCAA Reasons for the anti commandeering rule Liberty proper balance between states and federal government means neither will become too powerful Political accountability blurring lines of responsibility between state and Feds makes it difficult for voters to hold them accountable Prevents Shifting Costs to the States Congress must supply funding for enforcement cannot pass costs onto the states

Automated translation / transcription

- Multiple language support
- Multiple audio tracks
- Multiple captions
- Search endpoints



Opencast Annotation Tool

A tool for scientific coding/analysis of videos

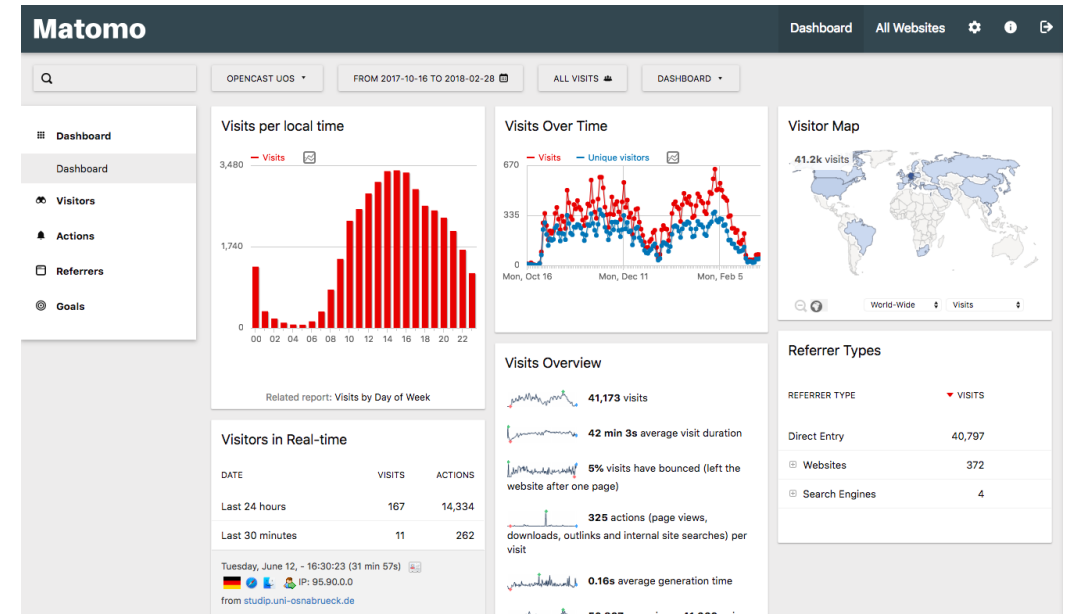
The screenshot displays the Opencast Annotation Tool interface, which is divided into several functional areas:

- Player:** A video player showing a man standing at a podium. The video is paused at 00:32, with a total duration of 04:58.
- Timeline:** A horizontal timeline below the video player, marked from 0 to 30 seconds. It shows various annotations as colored blocks: OLA Olaf (green), POW (yellow), OL (red), PCW Pov (blue), and VID Video (purple).
- Annotation List:** A list of annotations on the right side, including:
 - 00:00:01 - 00:00:16 by OLA Olaf
 - 00:00:18 - 00:00:30 by POW Powerpoint
 - 00:00:32 - 00:00:39 by OLA Olaf
 - 00:00:41 - 00:01:00 by POW Powerpoint
 - 00:00:54 - 00:01:28 by ++ YOU You Should Listen ++ (2)
- Annotation Editor:** A window titled "Create new annotations" with a text input field for "Write a free text annotation. Use" and an "Insert" button. It also includes a "Pause video during writing" checkbox and a "Public" radio button.
- Annotation List Details:** A detailed view of the "YOU You Should Listen ++ (2)" annotation, showing its text and a "Comments" section with two entries:
 - Comment by admin on 12.06.2018: "This is important!"
 - Comment by on 12.06.2018: "Why do you think so?"

Learning Analytics - Matomo

External Open-Source Tool for Website Analytics

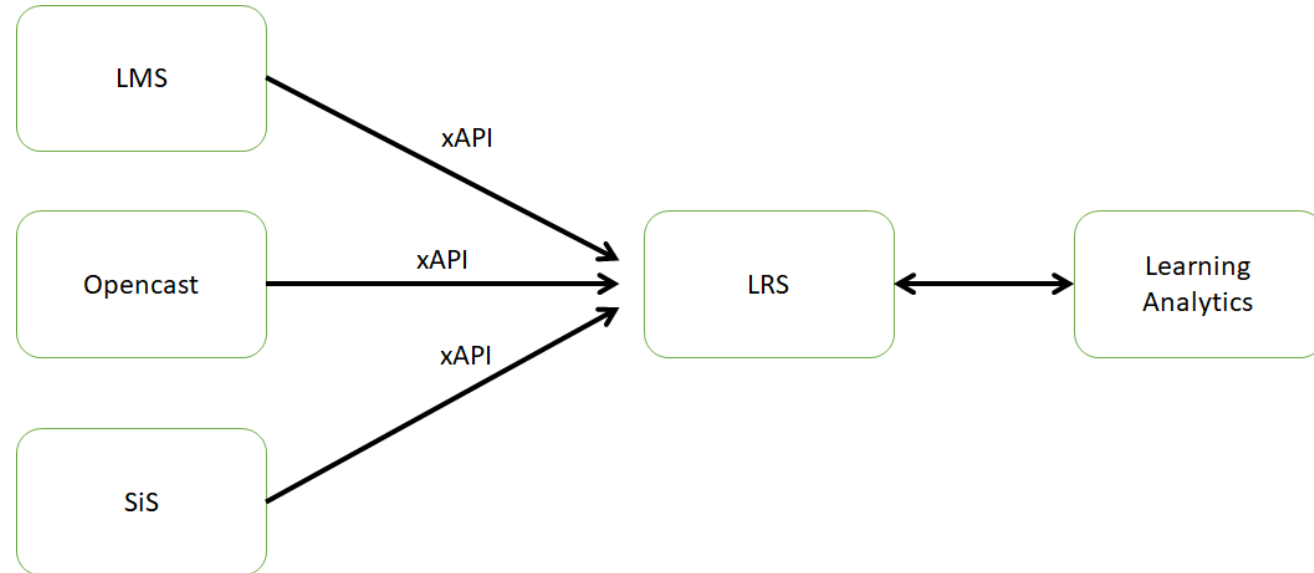
- Gather Usage Data
 - Anonymous data collection if needed
 - Checklist available for GDPR compliance
- Create Reports
 - Viewers per Series
 - Average Viewing Time
- Additional (commercial) plugins allow an improved video usage analysis.



Learning Analytics - XAPI

Leverage Institution-wide Learning Analytics

- Correlate data between systems
 - Requires xAPI support in all systems
 - Standard protocol
- Create Advanced Reports
 - Big data analysis
 - Predictive analytics



The OC community according to <https://map.opencast.org/>



The European OC community

