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Why Science Needs an Alternative to YouTube: Exploring the TIB AV-Portal for the Needs of the International GreyNet Community

Margret Plank and Matti Stöhr
Leibniz Information Center for Science and Technology

Introduction

The exponential growth of digital scientific content has transformed how scientific knowledge is disseminated, exchanged, and consumed. Videos have the potential to communicate scientific findings to a broad audience that would otherwise be unlikely to learn about the valuable research findings (e.g., Boy et al., 2020). Similarly, scholarly videos can be helpful in keeping up with the growing body of interdisciplinary research and providing an overview of research inside and outside one's discipline (van Noorden, 2015).

Today, video is at the heart of digital communication—over 80% of global data traffic now flows through streaming video, with short explainer videos seeing rapid adoption across disciplines. (Cisco, 2020) For scientists and researchers, YouTube often serves as the entry point for sharing and consuming science videos, delivering global reach and diverse content with just a few clicks. TikTok is also rising, engaging audiences with interactive features. Yet, these commercial platforms come with significant drawbacks for scientific communication: disruptive advertisements, privacy concerns, removal or instability of content as well as a lack of reliable citation and long-term access. True scientific work depends on referencing, persistent links, and trustworthy archiving, none of which is guaranteed by commercial video platforms.

The TIB AV-Portal - An Alternative from and for Science

The TIB AV-Portal (https://av.tib.eu/) developed and run by TIB – Leibniz Information Centre for Science and Technology addresses these shortcomings. The portal, which celebrated its tenth anniversary in April 2024, was developed specifically for the scientific community. It complies with the principles of open science and hosts nearly 50,000 videos (as of August 2025), focusing on high-quality academic content. What sets it apart from commercial platforms is its robust infrastructure for scientific communication (Strobel 2024a, 2024b): each video receives a Digital Object Identifier (DOI) and a Media Fragment Identifier, ensuring persistent citation at both video and segment levels. Long-term archiving makes sure that content is not removed or links rot. OpenAI's speech recognition software, Whisper, transcribes the original language of the videos and translates all non-english videos to english. The transcripts are used for both subtitling and content-based searches.

In detail, the AV-Portal contains various automated analysis processes that make the available videos accessible in a fine-grained and time-based manner (see Figure 1). It includes approaches for (1) shot boundary detection for temporal video segmentation; (2) Optical Character Recognition (OCR) for keyframes; (3) speech recognition for the creation of audio transcripts;

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(4) Video Concept Detection (VCD) for a predefined set of visual concepts (Springstein & Ewerth 2016); (5) Named Entity Labeling (NEL) for semantic analysis and indexing of the video content with keywords from the Common Authority File (GND). With the help of these analysis methods, information and content can be more precisely localized using semantic and explorative search functionalities ("faceted search") for content and relevant video sections. A cross-lingual mapping (German-English) of the semantic knowledge base allows the videos in the portal to be searched across languages. All bibliographic metadata as well as the automated metadata are publicly available as Resource Description Framework (RDF) data (https://av.tib.eu/opendata) to enable third parties to reuse the extensive Creative Commons Zero (CC0)-licensed metadata holdings of the portal.

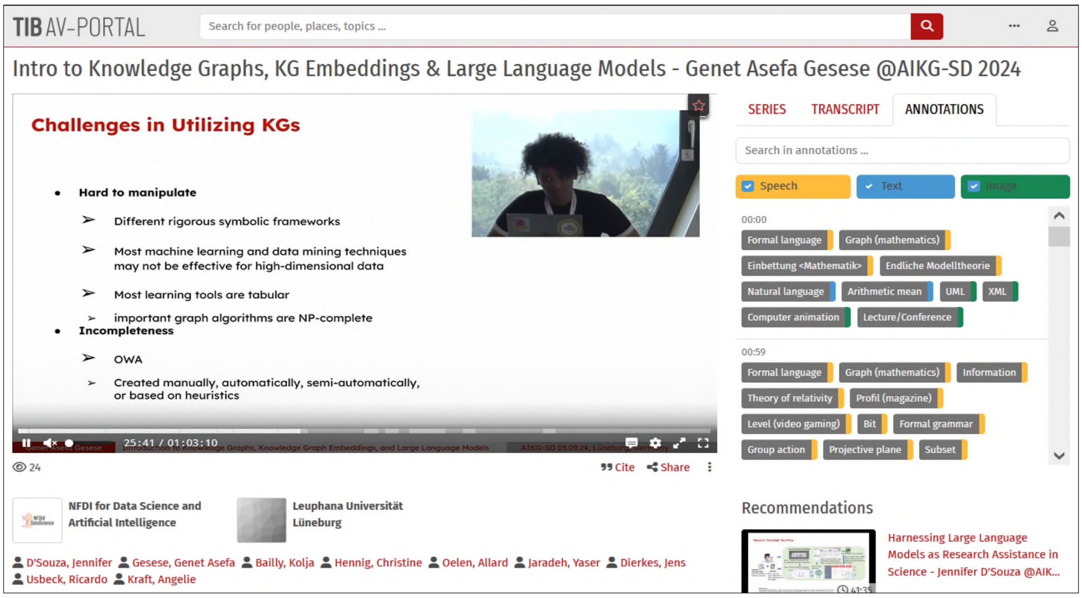

Figure 1: Screenshot of TIB AV-Portal with automatically detected scientific concepts from speech (yellow), text (blue), and image (green).

AV-Portal Content

The AV-Portal covers twenty four subjects, targeting the fields of science, technology, and engineering, economics, social sciences, life sciences, ethnology, earth science, medicine, and more (for the exact distribution by domain, see https://av.tib.eu/subjects). Contributors include among others Research Foundations, Research Institutions, various Universities, Collaborative Research Centers, Science Conferences and Societies. The videos are sourced from exclusive content from reputable authors, institutions, or conferences, as well as from secondary, open publications from well-known YouTube or Vimeo science channels. Genres include Conference recordings (talks, presentations, keynote lectures), Lectures (university courses, workshops, crash courses), Research presentations (project results, demonstrators), Documentary & Explainer videos (explaining scientific concepts or experiments), Interviews with experts and researchers, Experimental & Lab footage (visualization of processes, setups), Webinars & Panel discussions. Most videos are in English and German. Moreover, we provide videos in Ukrainian, Spanish, French, Portuguese, Chinese, Dutch etc. with transcripts translated to English. Most

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videos are licensed under CC BY 3.0 Unported followed by CC BY 3.0 DE, CC BY 2.0 BE, CC BY-NC-ND 4.0 International and CC BY 4.0 International.

Networking - Visibility - Partnerships

The TIB AV-Portal ensures broad reach and high visibility for its content through a big network of national and international partnerships and distribution channels: we distribute metadata to catalogues such as the TIB Portal, K10plus, Deutsche Digitale Bibliothek, and Europeana; our records are indexed by Google, harvested by OERSI.org, and shared via social media like Mastodon. We collaborate with communities, funding agencies, and publishers,including Wikipedia, Copernicus Publications, the Deutsche Physikalische Gesellschaft, and the German Research Foundation, to connect audiovisual research outputs with the broader scholarly ecosystem. Beyond aggregation, we produce high-quality recordings through our Conference Recording Service ConRec (https://www.tib.eu/de/services/tib-conrec) and serve as a video hub for Open Educational Resources (OER) portals such as twillo.de and ORCA.nrw. Our data supports comparisons in ORKG.org, and we interlink videos with the TIB Open Publishing Service to ensure persistent, citable connections between publications and their associated media. Together, these linked networks maximize the discoverability, reuse, and impact of the AV-Portal's content.

TIB AV-Portal Featuring GreyNet International

The TIB AV-Portal has become a central platform for specialized communities such as GreyNet International, which promotes the accessibility and preservation of grey literature. Our portal serves the international GreyNet community by providing a platform to host, share, and access their conference recordings reaching back to 2005 with a total of 142 videos. GreyNet has its own publisher page with a short description, logo, and statistical information on video and view counts.

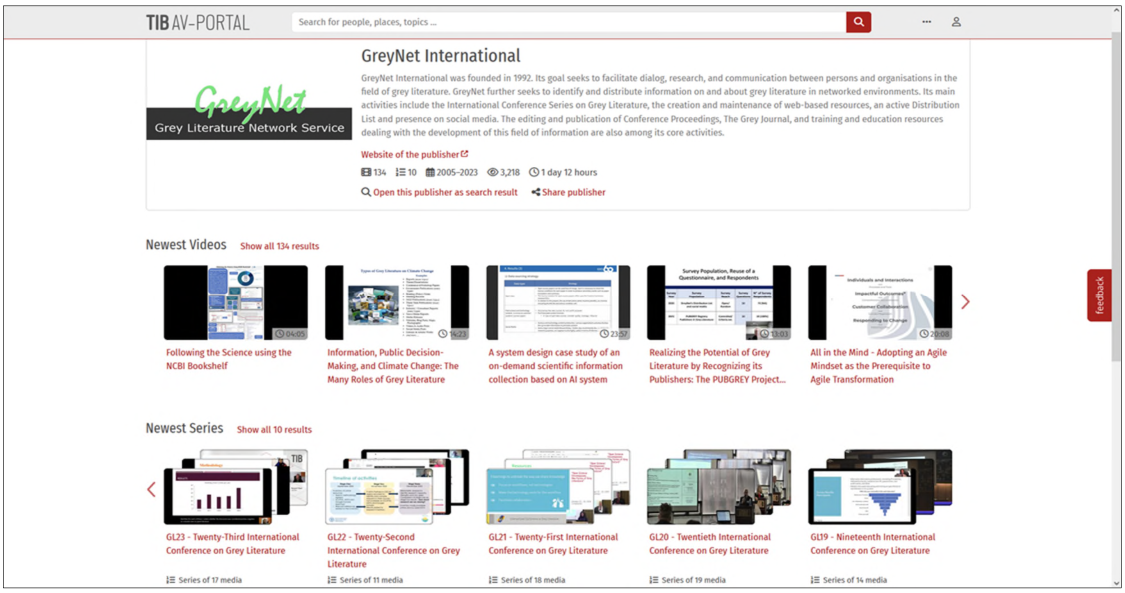

Figure 2: Screenshot of the Greynet Publisher Page on the TIB AV-Portal

This partnership allows the GreyNet community to benefit from features tailored for academic and research purposes, including:

- Permanent Hosting and Long-Term Archiving in order to protect content loss or broken links
- Metadata Enrichment and AI-Based Content Indexing which serves detailed descriptions and semantic search
- DOI Assignment for Permanent Citation to ensure videos can be easily referenced in future research.
- Integration with Scholarly Identity and Data Systems e.g. by linking video content with articles, datasets, and researcher IDs (ORCID, ROR).
- Bilingual Semantic Search in order to make resources discoverable for international audiences.
- Legally Compliant and Open Access Publishing - fFree from advertising, with a focus on Creative Commons licensing.
- Visibility through Library and Subject-Specific Databases, which enhances the discoverability beyond the platform itself.
- Systematic Editorial Curation ensures quality and relevance.

Through these specialized services, the TIB AV-Portal supports the International GreyNet community in disseminating and preserving its unique collections, enhancing its integration into the broader landscape of academic and scientific communication in a way that commercial platforms cannot.

Platform Synergies

Instead of competing with YouTube or TikTok, the TIB AV-Portal serves as a complementary tool for non-commercial, scholarly communication. Researchers can benefit from the reach found on commercial platforms while relying on the TIB AV-Portal for stable archiving, citation integrity, and discoverability. By combining the strengths of both worlds, institutions and communities such as GreyNet can implement an effective dissemination strategy that reaches a wide audience while maintaining the rigorous standards that are essential for academic publishing.

Conclusion

In a world flooded with video content, science needs dedicated, reliable, and open platforms to ensure sustainable impact and integrity. The TIB AV-Portal addresses this challenge and offers an alternative specifically designed for academic communities. Its collaboration with GreyNet International is an example of how a specialized infrastructure can preserve, curate, and disseminate gray literature to ensure it is available to future generations of researchers and becomes a fully integrated part of the scientific ecosystem. By providing such platforms, we are strengthening open science and trustworthy research.

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