

Tutorials – Digital Methods Winter School 2023

What actually happened?

The use and misuse of Open Source Intelligence (OSINT)

<https://tiny.one/dmi23-ws-tutorials>

Digital Methods Winter School 2023

Tutorials

9 – 13 January 2023

#dmi23

<https://wiki.digitalmethods.net/Dmi/WinterSchool2023>

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Template

!! Instructions: Please copy-paste the template below for all tutorials.

1. Tutorial title:	<i>Please provide a title that succinctly captures the tutorial.</i>
2. Facilitator(s):	<i>Please name the facilitators.</i>
3. Short description:	<i>Summarise the contents of the tutorial, and the training aim or takeaway.</i>
4. Related project(s):	<i>List the School projects related to the tutorial (where applicable).</i>

MediaVerse Asset Annotation and Management

1. Tutorial title:	Media collection management using the MediaVerse Asset Annotation and Management (MAAM) service developed by the MeVer group .
2. Facilitator(s):	Manos Schinas, Giorgos Karantaidis, Olga Papadopoulou, Akis Papadopoulos Live online (Meeting ID: 813 6184 2401, Passcode: 502025)
3. Short description:	This tutorial will present the capabilities of a web-based application that facilitates the management and annotation of multimedia collections. It also deals with content-based image and video retrieval, in terms of similar or identical multimedia content. • A pre-recorded video playlist demonstrating in detail the <i>MAAM</i> functionalities can be found here. • A User Guide demonstrating <i>MAAM</i> modalities can be found here. In particular, the following capabilities will be presented: • Importing images and videos to a collection/project • Exploring the collection using multiple search and filtering options and taking advantage of AI-based media annotations and classifications. • Employing the “Near Duplicate Detection” (NDD) tool to perform reverse image and video search in the collection and for duplicate assets. The NDD, as an investigation/exploratory tool, is also capable of retrieving images that have undergone common alterations and edits. • Using the “Find similar” tool, which is capable of identifying images that demonstrate visual similarities. • Exporting the collection or search results into CSV files to facilitate offline analysis <i>The MAAM can be employed to derive filtered versions of a collection and export rich metadata based on automated media</i>

	<i>analysis that can facilitate a more in-depth statistical analysis of a media collection.</i> The service is developed and maintained by the MeVer group of CERTH/ITI in the context of the H2020 MediaVerse project.
4. Related project(s):	<i>MAAM functionalities could be useful for every Winter School project that deals with multimedia content, such as images and/or videos.</i> 1. Coming of age on Instagram 2. Mapping Post-truth spaces concerning the war in Ukraine 3. Modelling and Tracking Disinformation Spread 4. Analysing the content of YouTube's recommendation system 5. TikTok Thermometer 6. The World According to TikTok: Mapping Digital Boundaries and Algorithmic Proximities 7. Cross Vision-API Studies. Digital methodologies for understanding computer vision 8. Z Spaces: TikTok Tactics and Cross-Platform Circulation of Russian War Propaganda 9. Networked Media Literacy and the spread of problematic information 10. Tracing trust in a truth-less world. Comparing three scientific controversies on TikTok and Twitter

Detecting Coordinated Link Sharing Behaviour on Facebook with CooRnet

1. Tutorial title:	Detecting Coordinated Link Sharing Behaviour on Facebook with CooRnet
2. Facilitator(s):	Fabio Giglietto, Giada Marino, Roberto Mincigrucci
3. Short description:	Coordinated Inauthentic behavior is among the most dangerous and effective ways to propagate problematic information online. This tutorial will present CooRnet, an R package developed in 2020 to detect a specific type of online coordinated behavior: coordinated link sharing on Facebook. The tutorial will be organised in two parts: the first part will introduce the participants to the concept of Coordinated Link Sharing behavior (CLSB) and will explain the main functionalities of the Coornet package. The second part will support the participants in their own CLSB detection starting from CrowdTangle data. The tutorial will introduce the participant to the study and the detection of CIB and more precisely of Coordinated Link Sharing Behavior (CLSB). The tutorial will be based on the CooRnet R package developed by Giglietto et al. (2020). CooRnet is an open-source R package that, leveraging the Crowdtangle API, detects CLSB behavior performed by public groups, public pages or verified public profiles on Facebook. This is done through a 4 steps methodology that includes: 1. URLs identification & collection; 2. Collection of sharing activity ; 3. Detection of coordinated behavior; 4. Identification of coordinated accounts and clusters. The tutorial will cover the following topics: - Online Coordinated Inauthentic Behavior, what is it and why is it a problem? - Leveraging CrowdTangle data to detect CLSB on Facebook - CooRnet functions, implementation of CIB concepts

	- Analysis and interpretation of CooRnet's output - Open problems and current challenges of CIB
4. Related project(s):	The tutorial is related to the vera.ai project. Giglietto, F. (2022). Coordinated inauthentic behavior. In Elgar Encyclopedia of Technology and Politics (Vol. 53, p. 280). Edward Elgar Publishing. https://books.google.it/books?hl=en&lr=&id=f2-VEAAQBAJ&oi=fnd&pg=PA280&dq=%22Coordinated+inauthentic+behavior%22+Giglietto&ots=wrlQoQfYFj&sig=LGICRzu6UkL6G039Q4PvjR655Cs Giglietto, F., Farci, M., Marino, G., Mottola, S., Radicioni, T., & Terenzi, M. (2022). Mapping Nefarious Social Media Actors to Speed-up Covid-19 Fact-checking. https://doi.org/10.31235/osf.io/6umqs Giglietto, F., Marino, G., Terenzi, M., Righetti, N., & Rossi, L. (2021). Coordinated Hateful Disinformation on Italian Politics and Social Issues, since 2017. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3777263 Giglietto, F., Righetti, N., & Marino, G. (2019). Understanding Coordinated and Inauthentic Link Sharing Behavior on Facebook in the Run-up to 2018 General Election and 2019 European Election in Italy. https://doi.org/10.31235/osf.io/3jteh Giglietto, F., Righetti, N., & Rossi, L. (2020). CooRnet. Detect coordinated link sharing behavior on social media (Version 1.0.0) [#rstat]. Github. https://github.com/fabiogiglietto/CooRnet Giglietto, F., Righetti, N., Rossi, L., & Marino, G. (2020a). It takes a village to manipulate the media: coordinated link sharing behavior during 2018 and 2019 Italian elections. Information, Communication and Society, 1–25. Giglietto, F., Righetti, N., Rossi, L., & Marino, G. (2020b). Coordinated Link Sharing Behavior as a Signal to Surface

Sources of Problematic Information on Facebook. International Conference on Social Media and Society, 85–91.

Giglietto, F., Terenzi, M., Marino, G., Righetti, N., & Rossi, L. (2020a). An Italian Network of Memes, News, Spam Pages, and Dietary Supplements.
<https://papers.ssrn.com/abstract=3743531>

Giglietto, F., Terenzi, M., Marino, G., Righetti, N., & Rossi, L. (2020b). Adapting to Mitigation Efforts: Evolving Strategies of Coordinated Link Sharing on Facebook.
<https://papers.ssrn.com/abstract=3775469>

Righetti, N., Giglietto, F., Kakavand, A. E., Kulichkina, A., Marino, G., & Terenzi, M. (2022). Political advertisement and coordinated behavior on social media in the lead-up to the 2021 German federal elections. medienanstalt-nrw.de.
https://www.medienanstalt-nrw.de/fileadmin/user_upload/NeueWebsite_0120/Zum_Nachlesen/BTW22_Political_Advertisements.PDF

InVID-WeVerify verification plugin tutorial

1. Tutorial title:	Mastering the InVID-WeVerify browser plugin for verification and debunking
2. Facilitator(s):	Denis Teyssou, Bertrand Goupil
3. Short description:	The InVID-WeVerify plugin is a toolbox designed as a “verification Swiss army knife” to help journalists, fact-checkers and researchers to verify information and debunk disinformation. It is “one of the most powerful tools for spotting misinformation online”, according to the Poynter Institute. Launched during the InVID (2016-2018) EU-funded project, enhanced during the following WeVerify (2018-2021) project, it is now part of the vera.ai (2022-2025) project aiming to use artificial intelligence to tackle disinformation. In five years, the toolbox has attracted more than 80k active weekly users in 224 countries around the World. The tutorial will provide insights on the main features for video, photo and websites verification as well as social network analysis on Twitter. The plugin provides also access to a CrowdTangle csv reader which permits to map and extract automatically useful information from the data with reusable and downloadable. Most of tools are freely available for all. A few of them are upon registration to prevent misuse and are reserved to journalists, fact-checkers and researchers. All participants in the Winter School will be granted access and will be able to use the plugin afterwards.
4. Related project(s):	Any School projects related to information verification, disinformation debunking and/or social network analysis

Multi- and cross-platform data analysis with 4CAT

1. Tutorial title:	Multi- and cross-platform data analysis with 4CAT
2. Facilitator(s):	Sal Hagen Stijn Peeters Prerecorded tutorials: • Creating a dataset with 4CAT • Analysing a dataset using processors Exercises: • 4CAT exercises
3. Short description:	In this tutorial we discuss and demonstrate how to create and analyse datasets with 4CAT, the 4CAT Capture & Analysis Toolkit. We use the 4CAT tool to build datasets according to a specific query and run subsequent textual and statistical analysis on them. Data from the following platforms is available through 4CAT (some more complete than others): • 4chan • 8kun • BitChute • Parler • Reddit • Telegram • Douban • Tumblr • Instagram, via CrowdTangle (no capture, analysis only) • TikTok and Instagram (see the 'Capturing TikTok with Zeeschuimer' tutorial) • Twitter API (Academic Track, full-archive search) Examples of analyses that we discuss are the generation of image walls; frequency diagrams of post behaviour or characteristics for specific publics; identification of neologisms and domain-specific vocabulary; extracting YouTube metadata and thumbnails from videos linked in the dataset; scanning the dataset for hateful language; and more generally the generation of issue-specific data sets and visualisations sourced from these platforms.

	No specific preparation is required, as 4CAT is a web-based tool, which we will provide access to. It helps to be somewhat familiar with the platforms at hand (particularly 4chan and Reddit); if you would like to follow this tutorial, we recommend that you browse the platforms you would like to query beforehand. Note that especially 4chan and 8chan may contain shocking content.
4. Related project(s):	Useful for probably most Winter School projects

Capturing TikTok (and Instagram) data with Zeeschuimer and 4CAT

1. Tutorial title:	Capturing TikTok (and Instagram) data with Zeeschuimer and 4CAT (Presentation slides here).
2. Facilitator(s):	Stijn Peeters Lucia Bainotti
3. Short description:	In this tutorial we discuss and demonstrate how to capture data from TikTok using the browser extension Zeeschuimer, and then analyse it with the 4CAT Capture and Analysis Toolkit. Capturing TikTok data with Zeeschuimer allows one to capture the metadata and video/thumbnail URLs of TikTok posts seen while browsing the TikTok website. It is a way to study TikTok data as it is seen by a user, enabling analysis of e.g. its recommendation algorithm or affording a TikTok-based walkthrough analysis. This can be contrasted with specialised scraping tools, which capture TikTok data outside its own interface and are arguably less suitable for exploratory, critical analyses. Zeeschuimer can also be used to capture data from Instagram. While this is not the primary focus of the tutorial, instructions should allow participants to additionally study that platform too. Participants are recommended (but not required) to either have familiarity with 4CAT or to additionally follow the tutorial about that tool (see above). There is also another tutorial on further analysis of TikTok data - after it has been captured - with ImageJ and Memespector (see further down). As Zeeschuimer is a Firefox extension, participants need to install that browser to use it.

	A worksheet outlining the protocol discussed in this tutorial is available here: https://tinyurl.com/nmrw-zeeschuimer-tiktok .
4. Related project(s):	Particularly useful for TikTok and Instagram analyses

Enriching image data with AI

1. Tutorial title:	Enriching image data with AI (Cross-vision API studies)
2. Facilitator(s):	Jason Chao & Janna Joceli Omena Pre-recorded video
3. Short description:	Participants will learn how to exploit AI technologies to enrich image datasets. Participants will be introduced to the affordances of computer vision APIs supported by Memespector-GUI: • Google Vision (proprietary) • Microsoft Azure Cognitive Services (proprietary) • Clarifai (proprietary) • Image classifier based on Keras (open source) <u>Memespector-GUI</u> is a tool with graphical user interface which helps researchers invoke proprietary and open source computer vision APIs to analyse images with ease. Preparation: In this tutorial, we recommend that the participants try invoking at least one proprietary API to process an image dataset. Participants are advised to register with one of the APIs beforehand by following the instructions for Google Cloud, Microsoft Azure or Clarifai. (Google Cloud and Microsoft Azure may ask for bank card details. They will check whether the card is active but will not charge on the card in the process of registration.) In case any participant has difficulty opening an account with the API services, the facilitators will make temporary access tokens for the APIs, which will be valid in the course of the tutorial, available to the participants.

	Note on proprietary APIs: Proprietary APIs are commercial services and using them is not necessarily free of charge. Google Cloud, Microsoft Azure and Clarifai provide each account with monthly quotas of free API requests. Moreover, new accounts usually receive free credits from Google Vision and Microsoft Azure which are adequate for processing tens of thousands of images. Slides https://bit.ly/DML-tutorial_MemespectorGUI Preparation: Download Memespector-GUI at https://github.com/jason-chao/memespector-gui/releases Download a test image dataset at https://drive.google.com/drive/folders/1fve2kS_kG3lXebr2B8qu-AnavXlXGLPI?usp=sharing Download temporarily access keys for Google Vision API, Microsoft Azure Cognitive Services and Clarifai at https://drive.google.com/file/d/1bmasFdtNkm5a1xpILN4AWT1UWL7SfPMv/view?usp=sharing (🕒 note: these keys have become invalid on/after 12 July 2022)
4. Related project(s):	‘What should climate change look like? Mapping climate imaginaries across platforms and eco-fiction genres’ → 2022 What is a meme, technically speaking? → 2021 Mapping deepfakes with digital methods and visual analytics • This tutorial can assist projects aiming at: ◦ Making sense of large collections of images with literal and contextual descriptions ◦ Tracing the circulation of visual content across the web ◦ Content moderation and NSFW analysis
5. References / use cases:	• Computer Vision Networks. Developing digital visual methods for social and media research. https://www.cais.nrw/en/fellow_omena_2021_en/ https://www.researchgate.net/publication/350153591_Computer_Vision_Networks_a_research_proposal • Publications using computer vision for research purposes:

D'Andréa, C., & Mintz, A. (2019). Studying the live cross-platform circulation of images with computer vision API: An experiment based on a sports media event. *International Journal of Communication*, 13, 1825–1845.

Geboers, M. A., & Van De Wiele, C. T. (2020). Machine Vision and Social Media Images: Why Hashtags Matter. *Social Media and Society*, 6(2).
<https://doi.org/10.1177/2056305120928485>

Mintz, A., Silva, T., Gobbo, B., Pilipets, E., Azhar, H., Takamitsu, H., ... Oliveira, T. (2019). Interrogating Vision APIs. Lisbon. Retrieved from
<https://smart.inovamedialab.org/smart-2019/project-reports/interrogating-vision-apis/>

Omena, J. J., Rabello, E. T., & Mintz, A. G. (2020). Digital Methods for Hashtag Engagement Research. *Social Media + Society*, (July-September), 1–18.
<https://doi.org/10.1177/2056305120940697>

Omena, J. J., Elena, P., Gobbo, B., & Jason, C. (2021). The Potentials of Google Vision API-based Networks to Study Natively Digital Images. *Diseña*, (19), Article.1.
<https://doi.org/10.7764/disen.19.Article.1>

Browsing and visualizing collections of images

1. Tutorial title:	Browsing and visualising collections of images
2. Facilitator(s):	Andrea Benedetti + Elena Aversa Recorded tutorial here: https://youtu.be/bprSgiqZj00
3. Short description:	This tutorial will introduce tools for doing research with digital images. Specifically we will present techniques for the observation of a collection of images based on the spatial arrangement of its elements: grids, clusters and stacks. The tutorial introduces software suited to build grids and clusters to both browse and visualize collections of images. Requirements: - Bring your own laptop - Install the following softwares: - ImageSorter (macOS, Win) - PicArrange (macOS) - Anaconda (macOS, Win) Slides available here:  [DMISS22] Browsing and visualizing collections of images
4. Related project(s):	What is a meme, technically speaking? Tracing the genealogy and change of TikTok audio memes

YouTube Data Tools

Tutorial title:	YouTube Data Tools
Facilitators:	<i>Marc Tuters & Daniel Jurg</i> Pre-recorded video (2021)
Short description:	This tutorial will show how to use the YouTube Data Tools (and hint at other useful tools and browser extension) to extract and analyze various datasets from YouTube channels, videos, comments, and recommendations. There is an extensive 'YouTube cookbook' with detailed descriptions here (bit.ly/3WSAEWf).
Related Projects:	

Network analysis with Gephi

Tutorial title:	Network analysis with Gephi
Facilitators:	<i>Carlo De Gaetano</i> Pre-recorded tutorial
Short description:	Gephi is an open-source software for visualizing and analysing large networks graphs. This tutorial covers how to generate and analyze network visualisations from generic datasets. We will discuss when and why it is interesting to visualise networks, and we will learn how to do so by exploring the basics of Gephi, an open-source network analysis and visualization software. We will learn how to format a dataset for Gephi, and how to use different visual features and layout algorithms to visualise the dataset as a network. We will discuss principles on how to read a network visualisation and make sense out of it. <u>This is a link</u> to a Drive folder with the presentation, a sample dataset and some readings.
Related projects	For Winter School projects undertaking network analysis and visualisation

Query Design for Social Media Research

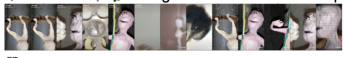
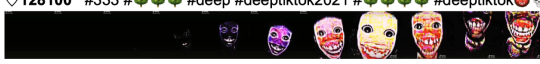
Tutorial title:	Query Design for Social Media Research
Facilitators:	<i>Richard Rogers</i> Pre-recorded video
Short description:	The question of what constitutes a keyword is the starting point for query design, for that is what makes querying (and search as research) practically part of a research strategy. When formulating a query, one often begins with keywords so as to ascertain who is using them, in which contexts and with which spread or distribution over time. In the tutorial a particular keyword query strategy or design is put forward, whereby one queries competing keywords, asking whether a particular term is winning favour and amongst whom. But where to make the queries? The tutorial also provides heuristics for curating as well as deriving source sets. Such source sets may be social media collections from Twitter, Facebook, Instagram or elsewhere. They may be from the web. Ultimately, queries are designed so as to answer a research question, which is where the tutorial both begins and concludes. See R. Rogers (2017) Foundations of Digital Methods: Query Design. In: Mirko Tobias Schäfer, Karin van Es (Eds.): The Datafied Society: Studying Culture through Data. Amsterdam: Amsterdam University Press, pp. 75–94. DOI: https://doi.org/10.25969/mediarep/12536.

Studying 'Fake News'

Tutorial title:	Studying 'Fake News'
Facilitators:	<i>Richard Rogers</i> Pre-recorded video
Short description:	Studying 'fake news' walks the researcher through a three-step process whereby one first demarcates political spaces on a variety of platforms through query design, receives lists of sources ranked by interactions (or engagement) and finally uses media bias classification schemes to label the sources. Ultimately one is able to measure the extent to which problematic sources are presented in political spaces on social media platforms. In the video, I also discuss changing the classifications, showing for example that if one uses a narrow definition of 'fake news' the problem shrinks. See R. Rogers (2020). The scale of Facebook's problem depends on how 'fake news' is classified, <i>Harvard Misinformation Review</i>.

Video Analysis with AI and TikTok Data

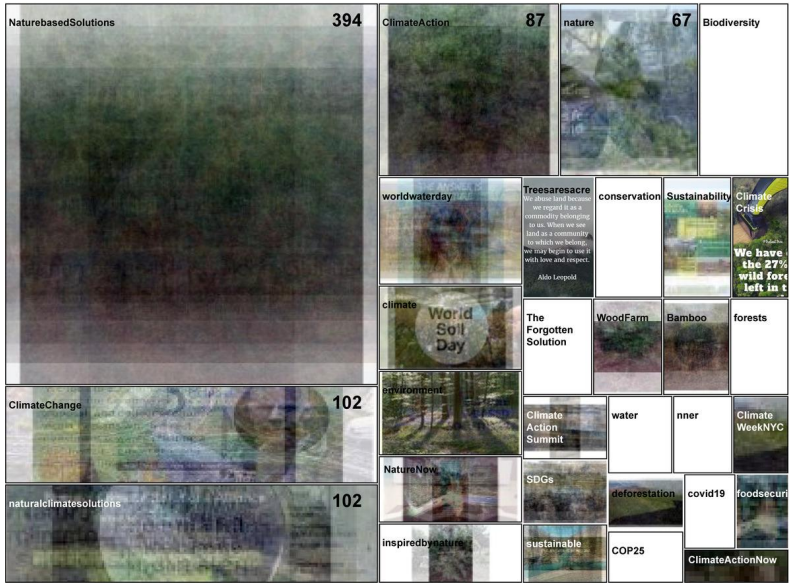
1. Tutorial title:	Video Analysis with AI and TikTok Data (Presentation folder)
2. Facilitator(s):	Jason Chao & Elena Pilipets
3. Short description:	This tutorial will introduce two new tools for video analysis: 1. Ffmpeg-based Video Frame and Audio Extractor and 2. Google Cloud AI-based Speech-To-Text Converter. We will use these tools for interpreting a collection of TikTok videos through combinations of platform metadata (e.g., sounds, effects, stickers, hashtags) and AI-driven visual and audio analysis. The tutorial will first address the specificity of TikTok videos as dynamic media objects and engaging networked content. It will then briefly discuss the affordances of analyzing video frames through Google Vision API web detection VS using Google Video AI content detection and discuss the problem of “original sound” used in many TikToks. In the practical part*** of the tutorial we will show 1. How to extract video frames from TikTok videos 2. How to convert speech to text and (at least partially) work around the problem of “original sound” 3. How to combine Google Vision data extracted from video frames with Tiktok metadata using Google Spreadsheets formulas Finally, we will introduce some analytical visualization techniques for making sense of this ‘augmented’ data based on the relations of TikTok effects and video content, speech and co-hashtags, and other features (see e.g, a fragment of video montage below displaying co-hashtags for popular #deeptiktok videos containing faces and using the 🌳 emoji).

	♥175400 #🌱#foringer#forinher#tré#tre#deeptiktok#elitetikto#beans  ♥159100 #диптиктот #дип #deeptiktok #альттиктот #альт #🌱  ♥128100 #333 #🌱#deep #deeptiktok2021 #🌱#deeptiktok👁️  In addition, participants will receive a link to a ‘walkthrough’ document with a step-by-step guide for scraping, structuring, analyzing, and visualizing TikTok video data with different visualization and analysis tools. Relevant materials: • A test folder with 10 TikTok videos can be found here. • A test spreadsheet with formulas for combining Google Vision data and TikTok metadata can be found here. • A folder containing presentation slides and all relevant materials can be found here. ***During this 1h tutorial, we will not be able to cover the process of TikTok data extraction and computer vision analysis of visual content. We therefore also recommend attending #Capturing TikTok (and Instagram) data with Zeeschuimer and 4CAT and #Enriching Image Data with AI. For learning how to use Memespector GUI and obtain Google Vision API credential key file see this step-by-step guide.
4. Related project(s):	Any project interested in working with social video content in general and TikTok data in particular.

Natural language processing for digital methods research using 4CAT

1. Tutorial title:	Natural language processing for digital methods research using 4CAT
2. Facilitator(s):	Emillie de Keulenaar
3. Short description:	This tutorial will show you how you can use 4CAT to analyse various datasets with natural language processing techniques, including: n-grams; named entity recognition; word collocations; word embeddings; and more simple procedures, like using word lists for detecting hate speech. I will give you a brief overview of what each of these techniques do and what they have been used for in digital methods research. In a 30 to 20-minute exercise, I then invite you to formulate a simple research question and pick a NLP technique to help you answer it. Tutorial slides
4. Related project(s):	Any project intending to process large quantities of textual corpora.

RAWGraphs 2.0: from spreadsheet to visualization

1. Tutorial title:	RAWGraphs 2.0: from spreadsheet to visualization https://bit.ly/RAWGraphsDMI23
2. Facilitator(s):	Ángeles Briones, Emanuele Ghebaur
3. Short description:	This tutorial will introduce RAWGraphs 2.0 as a free, open source, and easy-to-use tool to produce data visualizations from a variety of data formats. In this tutorial you will learn how to use RAW2.0's user interface and which visual models suit which kind of data structures. Additionally, we will introduce a prototype to produce a treemap with images like this one: Top 30 Hashtags Size = Occurrences  Recording of the tutorial: https://youtu.be/suQY9jk7QFI
4. Related project(s):	Previous DMI School projects are:

	- <i>Understanding Normification: A Cross-Platform Analysis of the QAnon Conspiracy</i> (Winter School 2019) - <i>Image Circulation of Russian State-Controlled and Independent Media on Google.com and Yandex.ru</i> (Summer School 2022) - <i>Slicing Bread-tube: Leftist Discourse Networks</i> (Summer School 2019)
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Generative AI and journalism.

1. Tutorial title:	Generative AI and journalism.
2. Facilitator(s):	Erik Borra
3. Short description:	This tutorial will provide an overview of generative AI and its relation to journalism. It will briefly explain the concept and capabilities of generative AI, including its potential use for creative generation of texts and images, and its limitations such as answering fact-based queries. The tutorial will also cover topics such as prompt engineering, alignment, bias, hallucination, and tuning, and provide examples to help you get started with your own projects.
4. Related project(s):	This tutorial is intended for the participants of the project “Exploring the use of generative AI in journalism”

Analysing the content of YouTube’s recommendation system

1. Tutorial title:	Analysing the content of YouTube’s recommendation system
2. Facilitator(s):	Amaury Lesplingart (CheckFirst) Francesco Poldi (CheckFirst)

3. Short description:	This tutorial will provide knowledge about the challenge, specifically how the dataset that will be provided is formatted and composed. Moreover, you will see a full example described in a total of five steps, starting from crafting the outcome and ending on how to deliver the outcome.
4. Related project(s):	Similar projects monitoring recommendation algorithms include: - Tracking*Exposed - Algotransparency

Tab 2

