



cy. center for
algorithmic
transparency

Document Title	Datasets
Project Title and acronym	Cyprus Center for Algorithmic Transparency (CyCAT)
H2020-WIDESPREAD-05-2017-Twinning	Grant Agreement number: 810105 — CyCAT
Deliverable No.	D2.10
Work package No.	WP2
Work package title	Dissemination and outreach
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Status (D: draft; RD: revised draft; F: final)	F
File Name	D2.10_Datasets.docx
Date	21 December 2021



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 810105.

Draft Versions - History of Document				
Version	Date	Authors / contributors	e-mail address	Notes / changes
v1.0	7/12/21	K. Orphanou	kalia.orphanou@ouc.ac.cy	Initial version
v2.0	20/12/21	K. Orphanou	kalia.orphanou@ouc.ac.cy	For review
v3.0	21/12/21	J. Otterbacher	jahna.otterbacher@ouc.ac.cy	Final version

Abstract	
This deliverable provides the description of data collected in the CyCAT Twinning Project.	
Keyword(s):	Datasets, FAIR data, Open science, Scientific reproducibility

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1. Executive Summary

As described in the CyCAT DoA, this deliverable constitutes an archive of datasets developed during CyCAT research activities. Specifically, this document provides the description of the data produced in each work package and also the description of the data produced from research publications. Importantly, it also describes how each dataset has been made FAIR (findable, accessible, interoperable, and reusable).

2. Data Summary

This section specifies the purpose of the data, the formats and origin, the size and to whom it will be useful.

The following sections describe the data produced in each work package. The main data collected and/or generated in CyCAT were in WP5 (Designing and evaluating interventions) in which human participants were involved in three activities: (i) participation in and evaluation of the teacher trainings, (ii) the user-centered evaluation of the tool-based intervention, and (iii) participation in and evaluation of the developer seminars. Valuable data that are archived and shared openly such as the ones generated in the CyCAT Seminar Series (WP2 - Dissemination), and its management are also described in this deliverable.

The last section describes the data produced from research publications. All of these datasets and their metadata are openly accessed via the [Harvard Dataverse](#) repository.

The data management provided in this deliverable follows the guidelines described in D1.2: Data Management Plan.

Dataset reference and name	Unique identifier for the dataset and name.
Dataset description	Descriptions of the data that will be generated or collected, purpose of the dataset, whether it relates to scientific publication, origin, nature and scale (size of data).
Standards and metadata	Reference to existing suitable standards or outline on what metadata will be created.
Data sharing	Description of how the data will be shared, including access procedures, embargo periods, software necessary for sharing/accessing the data and indication of repository of where the data will be stored.

Archiving and presentation (including storage and backup)	Description of procedures that will be put in place for long-term preservation of the data. Indication of how long the data should be preserved, approximate end volume, associated costs are and how will be covered.
Responsibility	Person (and partner) responsible for producing and managing the dataset.

2.1. Datasets collected within WP2

WP2 Dissemination and outreach	
Dataset reference and name	Seminar Videos
Dataset description	WP2 did not collect or generate research data. However, it includes an archive of the scientific presentations given at the CyCAT online seminar.
Standards and metadata	Videos of the seminars were recorded and archived as MP4 to facilitate public access and reuse.
Data sharing	With speakers consent the videos are available using Creative Commons CC BY licensing.
Archiving and presentation (including storage and backup)	The videos are stored on the OUC video platform/archiving service and with consent from speakers uploaded to the CyCAT YouTube channel .
Responsibility	Open University Cyprus (OUC)

2.2. Datasets collected within WP3

WP3 Understanding social and cultural consequences of algorithms	
Dataset reference and name	Literature Review
Dataset description	A collection of scientific articles related to algorithmic transparency and meta-analysis of the literature.

Data sharing	The collection of articles is available via the Zotero repository and it is a public resource for the study of social and cultural biases in algorithmic systems, with a focus on information access systems.
Archiving and presentation (including storage and backup)	Pre-prints of the articles are available in the Zotero repository.
Responsibility	University of Trento (UNITN)

Dataset reference and name	Collection of Case Studies
Dataset description	A collection of case studies (e.g., popular incidents reported in the news about algorithmic biases, teaching examples) and meta-analysis of the case studies.
Standards and metadata	Case studies are stored as a Google Sheet, to allow easy updating as well as downloading in a variety of formats. More details on the dataset can be found on the deliverable report: D3.2: Case Studies .
Data sharing	The dataset has been published as an educational resource on the CyCAT website: http://www.cycat.io/case-studies/ and also shared in the Dataverse repository.
Responsibility	University of Trento (UNITN)

2.3. Datasets collected within WP4

WP4 Promoting algorithmic transparency	
Dataset reference and name	WP4 will not collect or generate research data: deliverables are reports rather than research data.
Data sharing	The reports are openly available on the project website.
Responsibility	University of Haifa (UH)

2.4. Datasets collected within WP5

WP5 Designing and evaluating interventions	
Dataset reference and name	User Evaluation
Dataset description	This dataset contains the results of a user evaluation of the “tool-based intervention”. It captures aspects such as: i) the task user was asked to perform, ii) objective user behavior (e.g., time taken on task, what information was accessed), iii) subjective user feedback (e.g., perceived ease of use, awareness of social biases in information accessed), iv) overall user evaluation of the tool’s effectiveness (e.g., post-task assessment).
Data sharing	The deliverable report (D5.6: Evaluation of tool-based intervention) which is openly available in the CyCAT website, includes the description of the dataset and the analysis of users’ responses on the evaluation of the tool.
Responsibility	University of Sheffield (USFD)

Dataset reference and name	Teacher’s training Evaluation
Dataset description	This dataset contains the details and the results of the teacher's training evaluation.
Data sharing	The deliverable report (D5.2 – Evaluation of teacher training) which is openly available in the CyCAT website, includes the description of the dataset and the users’ responses.
Responsibility	Open University Cyprus (OUC)

Dataset reference and name	Developers’ seminars evaluation
Dataset description	The dataset contains the details and the results of the evaluation of the developers’ seminars.

Data sharing	The deliverable report (D5.4 – Evaluation of developer seminar) and materials from developers seminar are openly available on the CyCAT website. The deliverable report includes the description of the dataset for evaluating the seminars and the users' responses.
Responsibility	Open University Cyprus (OUC)

2.5. Datasets collected within WP6

WP6 Inter-institutional networking	
Dataset reference and name	WP6 will not collect or generate research data, deliverables are reports rather than research data.
Data sharing	The reports are openly available on the CyCAT website.
Responsibility	University of Edinburgh

Other Research Datasets collected within CyCAT

Dataset reference and name	Social B(eye)as Dataset
Dataset description	Image analysis algorithms have become an indispensable tool in our information ecosystem, facilitating new forms of visual communication and information sharing. At the same time, they enable large-scale socio-technical research which would otherwise be difficult to carry out. However, their outputs may exhibit social bias, especially when analyzing people images. Since most algorithms are proprietary and opaque, we propose a method of auditing their outputs for social biases. To be able to

	<p>compare how algorithms interpret a controlled set of people images, we collected descriptions across six image tagging APIs. In order to compare these results to human behavior, we also collected descriptions on the same images from crowdworkers in two anglophone regions. While the APIs do not output explicitly offensive descriptions, as humans do, future work should consider if and how they reinforce social inequalities in implicit ways. Beyond computer vision auditing, the dataset of human- and machine-produced tags, and the typology of tags, can be used to explore a range of research questions related to both algorithmic and human behaviors. (15-01-2019)</p>
Data sharing	<p>The dataset is available in our Dataverse repository including all the metadata. Its description and the results of its analysis are given in ¹ and ².</p>

Dataset reference and name	Social B(eye)as Dataset v2
Dataset description	<p>Researchers of Web and social media rely extensively on image analysis tools to understand users' sharing behaviors and engagement with content on the large scale. However, it has been made clear over the past years that there are disparities in the way that these tools treat images depicting people from different social groups. Previously, we released the Social B(eye)as Dataset, consisting of machine- and human-generated descriptions on a controlled set of people images without context. This resource allows</p>

¹ Kyriakou, K., Barlas, P., Kleanthous, S., & Otterbacher, J. (2019). Fairness in Proprietary Image Tagging Algorithms: A Cross-Platform Audit on People Images. Proceedings of the International AAAI Conference on Web and Social Media, 13(01), 313-322

² Barlas, P., Kyriakou, K., Kleanthous, S., & Otterbacher, J. (2019). Social B(eye)as: Human and Machine Descriptions of People Images. Proceedings of the International AAAI Conference on Web and Social Media, 13(01), 583-591.

	<p>researchers to compare the behaviors of taggers and humans systematically. We now update this, with a process that imposes the people-images onto backgrounds. The current release uses four stereotypically "feminine" and four "masculine" contexts. Thus, it enables us to consider the possible influences upon the gender inferences that are made by tagging algorithms. We also provide an updated typology of tags used by the six proprietary taggers as well as initial analyses. Our methodology for imposing semi-transparent images onto background images is publicly available, allowing others to repeat the process with other combinations of images for various research topics (15-01-2020).</p>
Data sharing	<p>The dataset is available in our Dataverse repository including all the metadata. Its description and the results of its analysis are given in ³.</p>

Dataset reference and name	COVID-19 Image Search Queries
Dataset description	<p>The unprecedented events of the COVID-19 pandemic have generated an enormous amount of information and populated the Web with new content relevant to the pandemic and its implications. Images are often interpreted as being closer to the truth as compared to other forms of communication, because of their physical representation of an event such as the COVID-19 pandemic. This dataset includes the image search queries related to the first wave of pandemic, provided by crowdworkers across four regions of Europe that were severely affected by the first wave of pandemic (UK, Germany, Italy, Spain). To collect the queries, we run two crowdsourcing tasks as also described in the paper. The</p>

³ Pinar Barlas, Kyriakos Kyriakou, Olivia Guest, Styliani Kleanthous, and Jahna Otterbacher. 2021. To "See" is to Stereotype: Image Tagging Algorithms, Gender Recognition, and the Accuracy-Fairness Trade-off. Proc. ACM Hum.-Comput. Interact. 4, CSCW3, Article 232 (December 2020), 31 pages. DOI:https://doi.org/10.1145/3432931

	dataset includes the merging of the queries from both tasks for each of the four countries. We identified all the unique queries collected from the participants in each country and computed the number of appearances for each unique query without considering any duplicates of the same user, i.e. frequency.
Data sharing	The dataset is available in Dataverse repository . Its description and the results from its analysis are published in two research papers ⁴ and ⁵ .

Dataset reference and name	TED and Youtube Video Dataset
Dataset description	When modelling for the social we need to consider more than one medium. Little is known as to how platform community characteristics shape the discussion and how communicators could best engage each community, taking into consideration these characteristics. In this dataset, we consider comments on TED videos featuring roboticists, shared at TED.com and YouTube. The textual comments were then subjected to analysis via the Linguistic Inquiry and Word Count tool (LIWC).
Data sharing	The dataset is available in Dataverse repository . Its description and the results from its analysis are published in ⁶ .

⁴ Monica Lestari Paramita, Kalia Orphanou, Evgenia Christoforou, Jahna Otterbacher, Frank Hopfgartner, Do you see what I see? Images of the COVID-19 pandemic through the lens of Google, Information Processing & Management, Volume 58, Issue 5, 2021, 102654, ISSN 0306-4573, <https://doi.org/10.1016/j.ipm.2021.102654>.

⁵ Orphanou, Kalia, et al. "Preserving the memory of the first wave of COVID-19 pandemic: Crowdsourcing a collection of image search queries." Proceedings of the Third symposium on Biases in Human Computation and Crowdsourcing. CEUR Workshop Proceedings, 2021.

⁶ Styliani Kleanthous and Jahna Otterbacher. 2019. Shaping the Reaction: Community Characteristics and Emotional Tone of Citizen Responses to Robotics Videos at TED versus YouTube. In Adjunct Publication of the 27th Conference on User Modeling, Adaptation and Personalization (UMAP'19 Adjunct). Association for Computing Machinery, New York, NY, USA, 325–330. DOI:<https://doi.org/10.1145/3314183.3323673>

Dataset reference and name	Emotion Bias Dataset (EBD)
Dataset description	<p>Vision-based cognitive services (CogS) have become crucial in a wide range of applications, from real-time security and social networks to smartphone applications. Many services focus on analyzing people images. When it comes to facial analysis, these services can be misleading or even inaccurate, raising ethical concerns such as the amplification of social stereotypes. We analyzed popular Image Tagging CogS that infer emotion from a person’s face, considering whether they perpetuate racial and gender stereotypes concerning emotion. By comparing both CogS and Human-generated descriptions on a set of controlled images, we highlight the need for transparency and fairness in CogS. In particular, we document evidence that CogS may actually be more likely than crowdworkers to perpetuate the stereotype of the “angry black man” and often attribute black race individuals with “emotions of hostility”. This dataset consists of the raw data collected for this work, both from Emotion Analysis Services (EAS) and Crowdsourcing (Crowdworkers from the Appen (formerly known as FigureEight) Platform targeting US and India participants. We’ve used the Chicago Face Database (CFD) as our primary dataset for testing the behavior of the target EAS.</p>
Data sharing	<p>The dataset is available in Dataverse repository. Its description and the results from its analysis are published in ⁷.</p>

⁷ Kyriakou, K., Kleanthous, S., Otterbacher, J., & Papadopoulos, G. A. (2020, July). Emotion-based stereotypes in image analysis services. In Adjunct Publication of the 28th ACM Conference on User Modeling, Adaptation and Personalization(pp. 252-259).

Dataset reference and name	Crowdsourced Temporal Data
Dataset description	Data attained through crowdsourcing have an essential role in the development of computer vision algorithms. Crowdsourced data might include reporting biases, since crowdworkers usually describe what is “worth saying” in addition to images’ content. We explore how the unprecedented events of 2020, including the unrest surrounding racial discrimination, and the COVID-19 pandemic, might be reflected in responses to an open-ended annotation task on people images, originally executed in 2018 and replicated in 2020. Analyzing themes of Identity and Health conveyed in workers’ tags, we found evidence that supports the potential for temporal sensitivity in crowdsourced data. The 2020 data exhibit more race-marking of images depicting non-Whites, as well as an increase in tags describing Weight. We relate our findings to the emerging research on crowdworkers’ moods. This dataset includes all the tags, provided by crowdworkers, relevant to the topics of Health and Identity, providing aggregated counts of the occurrences of each tag in 2018 and 2020. Additionally, separate counts of the occurrences of each tag in 2018 and 2020 are provided for each depicted race (a.k.a., White, Latino, Black and Asian).
Data sharing	The dataset is available in Dataverse repository . Its description and the results from its analysis are published in ⁸

⁸ Christoforou, Evgenia, Pinar Barlas, and Jahna Otterbacher. "It's About Time: A View of Crowdsourced Data Before and During the Pandemic." In *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems*, pp. 1-14. 2021.