Plan Overview

A Data Management Plan created using DMPonline

Title: Conversational Agents for Ethical Concerns in Software Evolution

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Template: 1 - VU DMP template 2021 (NWO & ZonMW certified) v1.3

Project abstract:

To create and maintain software that is useful, usable and ethical, user needs, expectations and concerns should be considered in the pre and post deployment phases. Users increasingly express feedback about software applications through social media and specialized user feedback platforms, which may be automatically identified and summarized to reduce manual workload.

In this project we will address two challenges connected to this automated extraction of user feedback:
The first is to ensure the actionability of user feedback. We will do this by detecting whether any relevant aspects of user feedback are missing and deploying a conversational agent to ask the user for missing aspects, if any.

The second challenge is to elicit ethical concerns related to the software from end-users that give feedback on social media. We will do this by developing a conversational agent that asks users from diverse backgrounds about ethical concerns that should be addressed in the software application.

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Conversational Agents for Ethical Concerns in Software Evolution

0. General information

0.1 Document version & date

Version 1.0
Date: 26 / 01 / 2023

0.2 Project title

Conversational Agents for Ethical Concerns in Software Evolution

0.3 Project summary

To create and maintain software that is useful, usable and ethical, user needs, expectations and concerns should be considered in the pre and post deployment phases. Users increasingly express feedback about software applications through social media and specialized user feedback platforms, which may be automatically identified and summarized to reduce manual workload.
In this project we will address two challenges connected to this automated extraction of user feedback:
The first is to ensure the actionability of user feedback. We will do this by detecting whether any relevant aspects of user feedback are missing and deploying a conversational agent to ask the user for missing aspects, if any.
The second challenge is to elicit ethical concerns related to the software from end-users that give feedback on social media. We will do this by developing a conversational agent that asks users from diverse backgrounds about ethical concerns that should be addressed in the software application.

0.4 Your contact details

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0.5 List other people involved, including those at partner organisations in the project (if applicable)

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0.6 Funding organisation & grant number (if applicable)

Funding organisation:
Grant number:

0.7 Project code (if applicable)

n/a

0.8 Consulted data management expert(s)

n/a

1. Data description

1.1 Will you collect and/or process personal data in this project?

- No

1.2 Will you use existing data? If yes, what is their source?

Yes
Reddit
reddit.com

1.3 Will you collect or produce new data? If yes, please describe how.

Yes, using the Universal Reddit Scraper from Github: https://github.com/JosephLai241/URS
I ran a small script which collected a maximum of 1000 posts from 586 different subreddits relating to our target populations. This contains post, not profile data.

1.10 What kinds of outputs will you produce in this project? Please describe these data assets.

Raw data:
Data asset: Reddit post data
Description: Collected nearly 500,000 posts from 586 subreddits, information contains JSON information relating to post, including unique id, username, data posted, tags, evaluation metrics, title, and post text.
Format: json file per subreddit

Processed data:
Data asset: Platforms dataset
Description: The Reddit post data filtered for mentions of social platforms, including TikTok, Facebook, Instagram, Twitter, Skype, Quora, Reddit, YouTube, WhatsApp, Snapchat, Pinterest, LinkedIn, and Discord. Around 50,000 posts.
Format: the same json files, with posts filtered

Analyzed data:
Data asset: Manually annotated dataset
Description: The Platforms dataset but labeled for mentions of ethical concerns relating to the platforms. These ethical concerns are then categorized into types - like privacy and misinformation.
Format: csv files

Other:
Analysis software: Machine learning models which use the Manually annotated dataset to categorise whether unseen posts have ethical concerns in them so that developers and researchers can better analyse concerns and trends within the concerns.

1.11 How much digital data storage will your project require?

- 50 - 100 GB

1.12 Will you collect physical data? If yes, please describe these.

N/A

1.13 Will you take measures to ensure data quality? Please describe these, if applicable.

To ensure the highest quality of data, when manipulating the data through code, I will either use established open source code or my own code with rigorous testing, including base cases and corner cases.

2. Legal and ethical requirements, codes of conduct

2.2 What legislation applies to your research project? Please tick the relevant boxes for your project.

- General Data Protection Regulation (GDPR)/ Algemene Verordening Gegevensbescherming (AVG)

2.3 Do you require approval of an ethical committee for this project? If yes, please indicate which ethical committee and whether you have obtained approval for this project.

- No

2.4 Will you work with data for which intellectual property and/ or confidentiality are an issue? If yes, please describe.

- No

2.5 Do you plan on generating a marketable product from your research project? if yes, please describe

- No

3. Storage and back-up during the research process

3.2 What measures will you take to secure and protect data during the research process? Please describe, for each separate data asset you described for question 1.10, how you will ensure data security, where the data assets are stored & backed up, and who has authorization to access the asset.

Raw data, Processed data,
Data asset: Reddit data, Platform data
Storage: iCloud Drive
Backup: Google Drive
Access: password protected for iCloud Drive and Google Drive
Security measures: password, keep physical device on person

Analyzed data:
Data asset: Manually annotated data
Storage:iCloud Drive, Google Drive
Backup: Zenodo
Access: password protected for iCloud and Google Drive, open source for Zenodo
Security measures: password, keep physical device on person

3.6 Is it necessary to transfer the (physical or digital) data assets to other locations or research partners? If yes, please describe how you secure the file transfer.

- No

4. Data archiving and publishing

4.1 Which data assets will be archived and which will be published?

The raw and processed data will be archived. The analysed data will be published. This is the minimum amount of data needed to reproduce our scientific results.

4.2 Where will you archive your data assets?

- Other, see next question

4.3 What other archive(s) do you intend to use to archive data assets?

Name: Zenodo
Role: data hosting
Country: Switzerland

4.5 For how long will the data be available in the archive?

They have a current 20 year contract, which will likely be renewed in the future.

4.7 Where will you publish your data assets?

Analysed data will be published on Zenodo.

4.8 How will you ensure your data assets get a persistent identifier (e.g. a DOI-code)?

Zenodo does this automatically.

4.9 Will you register your datasets in an online registry other than PURE? If yes, where?

No

4.11 Are there restrictions to data publishing? If yes, please specify the reasons and list the data assets you do not wish to share publicly.

While the Reddit data does not contain profile data, it does contain information relating to societally neglected groups. Because this data could potentially be used by AI to make biased generalizations, in order to ensure the safety and privacy of these groups, we publish the necessary data to reproduce our research, but no more.

4.12 When will you share the data? If not immediately after completion of the project, please specify the reasons.

At time of publication

4.13 Please indicate the license and/ or terms of use under which you share your data.

We are publishing our data open source.

5. Documentation

5.1 What documentation and metadata will accompany the project?

A readme.md document will accompany the data with instructions on how to properly run the code as well as how the data is organized. Also, a requirements.txt file with all the necessary packages to run the code.

5.2 What metadata and documentation will accompany the data assets?

Within my python code, I use all standard style conventions (https://peps.python.org/pep-0008/) to ensure that code is readable. This includes organization and naming standards for data and variables. When web scrapers are used to collect data, typically this data is stored in a JSON file format which stores each data entry as an array of dictionaries. These dictionaries includes the datatype with a reference to the specific instance of data. These JSON files, due to their structure, are easily translatable to a CSV file format, where datatypes become the file headers and then the instances become the rows within the CSV files. This data can then easily be manipulated through python packages like pandas, which stores CSV files in data frames for manipulation. This data is then posted to Github and is thus available for other researchers to easily use.

5.3 What methods, software or hardware are needed to access and use your data?

Basic programming skills will likely be needed to run the scripts. The needed software will be contained in the requirements.txt file, but otherwise Python 3 will be needed on the machine. No specific hardware is necessary.

6. Data management responsibilities and resources

6.1 Who will be responsible for management of the data assets during the project? Please specify their name, position, role in the project, and faculty/ institution/ group.

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6.2 Who will be responsible for management of the data assets after completion of the project (e.g. the project lead/ dedicated data manager/ department head)? Please specify their name, position, role in the project, and faculty/ institution/ group.

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6.3 For data that are only available upon request, what methods will be used to handle requests for access and how will data be made available to those requesting access?

N/A, all data will be publicly available.

6.4 What resources (for example financial and time) will be dedicated to research data management? Please estimate their cost.

N/A