Memory Card Processing (R Script)

- Interactive RScript to:
  - Move files from SD card to Hardrive/Drobo
  - Checks EXIF data with lookup table (local CSV) to ensure userlabel is valid
  - Checks that the time is valid
  - Checks the Project, Type, Year, Site and Service with a lookup table (local CSV) to check that it is valid.
  - Create file directory structure
  - Renames files based on EXIF data

Tagging Image Data

- Hardrive/Drobo (or the data is moved to another device by senior technical staff) is given to a 'tagger' to tag the images with EXIF Pro.

Data Cleaning

- Hardrive/Drobo with tagged data (or the data is moved to another device by senior technical staff) is returned to project leader.
- RScript to clean data is run to:
  - List of images without tags (if applicable)
  - List of priority species events without abundance (if applicable)
  - List of cameras where userlabel does not match folder name (if applicable)
  - List of cameras that are missing from the data (if applicable)
  - Create a cleaned .csv file
  - Create an operation table for camera trap nights
- Data is manually fixed.
- Process is repeated until data passes checks

Metadata Extraction Process

- From the image data stored on Hardrive/Drobo, an R Script is used to extract the metadata from the files into .csv file for analysis

Analysis and Storage of Metadata

- Metadata from .csv data is used for analysis in research
- .csv files are accumulated into a SQLITE database for long-term storage

Manual File Upload/BackUp

- Files are manually uploaded to two backup locations (e.g. UNE's OwnCloud and Tower Storage on campus).

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Author(s):	Abby Hine and Glen Charlton		
Version:	v1.0	Date Modifed:	2023/10/04

Memory Card Processing (R Script)

- Interactive RScript to:
  - Move files from SD card to temporary local files on local drive.
  - Checks EXIF data with lookup table (cloud database) to ensure userlabel is valid
  - Checks that the time is valid
  - Checks the Project, Type, Year, Site and Service with a lookup table (cloud database) to check that it is valid.
  - Create file directory structure
  - Renames files based on EXIF data
  - Upload to cloud (Space) storage.

Automated Cleaning Process

- Detect new data automatically (or triggered from previous process)
- AI Algorithim used to tag NULLs, vehicles, humans and potentially some species.
- Create database of image location, tagged status, AI confidence score and other meta data.

Tagging Image Data

- RShiny App (or similar) to down data requiring tagging is downloaded to local drive.
- Data is tagged using local EXIFPro

Data Cleaning

- Hardrive/Drobo with tagged data (or the data is moved to another device by senior technical staff) is returned to project leader.
- RScript to clean data is run to:
  - List of images without tags (if applicable)
  - List of priority species events without abundance (if applicable)
  - List of cameras where userlabel does not match folder name (if applicable)
  - List of cameras that are missing from the data (if applicable)
  - Create a cleaned .csv file
  - Create an operation table for camera trap nights
  - Once confirmed, metadata for images in cloud and the database are updated.
- Data is manually fixed.
- Process is repeated until data passes checks

Analysis and Storage of Metadata

- Basic R-Shiny interface to access metadata from cloud database and either analyse within the app or download csv of required data for further analysis.

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Memory Card Processing (Local App)

- Interactive app to:
  - move files from SD card to temporary local files on local drive.
  - Checks EXIF data with lookup table (cloud database) to ensure userlabel is valid
  - Checks that the time is valid
  - Checks the Project, Type, Year, Site and Service with a lookup table (cloud database) to check that it is valid.
  - Create file directory structure
  - Renames files based on EXIF data
  - Upload to cloud (Space) storage.

Automated Cleaning Process

- AI Algorithim used to tag NULLs, vehicles, humans and potentially some species.
- Create database of image location, tagged status, AI confidence score and other meta data.

Tagging Image Data

- Data requiring manual tagging is tagged using hosted version of EXIFPro (or custom tagging software).

Data Cleaning

- Triggered by updated tags, tagged data is checked for:
  - List of images without tags (if applicable)
  - List of priority species events without abundance (if applicable)
  - List of cameras where userlabel does not match folder name (if applicable)
  - List of cameras that are missing from the data (if applicable)
  - Update operation database table for camera trap nights
- Data is either returned to needing tagging or metadata for images in cloud and the database are updated

Analysis and Storage of Metadata

- More advanced R-Shiny interface to access metadata from cloud database and either analyse within the app or download csv of required data for further analysis.
- Interface for viewing data, camera status, service status, etc.

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Version:	v1.0	Date Modifed:	2023/10/04