Guidelines for Documents and Sources

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Contents

1 Text and Latex Documents

- There are many LaTeX-templates for documents including seminar report, internship reports, Master thesis, and PhD thesis. These templates must be used for any graduation work within our research group. Please ask a member of GroupMM which template to use.
- Use filenames that are descriptive. For example, use the following naming convention:
  `2020_LastnameFirstname_MasterThesis.tex`
  `2020_LastnameFirstname_Summary_SeminarAudioLabs.tex`
- Writing technical texts is a demanding job. Don't underestimate the time that is needed for writing! If you want to learn more about technical writing, we refer to a talk by Raymond L. Boxman that was given at FAU in 2018. A video recording and slides of the lecture are available from the FAU Learning Lab: `https://learninglab.fau.de/2018/12/14/2370/`.
- Control the size of figures. Usually, a figure should have a size of less than 1 MB.
- Use figure formats that fit specific needs (e.g., `PNG`, `JPG`, `PDF`). For example, formats for vector graphics (e.g., `PDF`) are perfect for encoding vector and text elements (resulting in slim and scalable figures). However, these formats may result in huge files when having many graphical elements. Then, it may be beneficial to use bitmap files (e.g., `PNG`, `JPG`).
- When designing figures, then (if possible) use simple and widely used software. For example, many things can be done using Powerpoint, where figures can be generated by exporting the powerpoint into a `PDF` (maintaining vector graphics) or by simply taking a screen shot and storing it as bitmap.

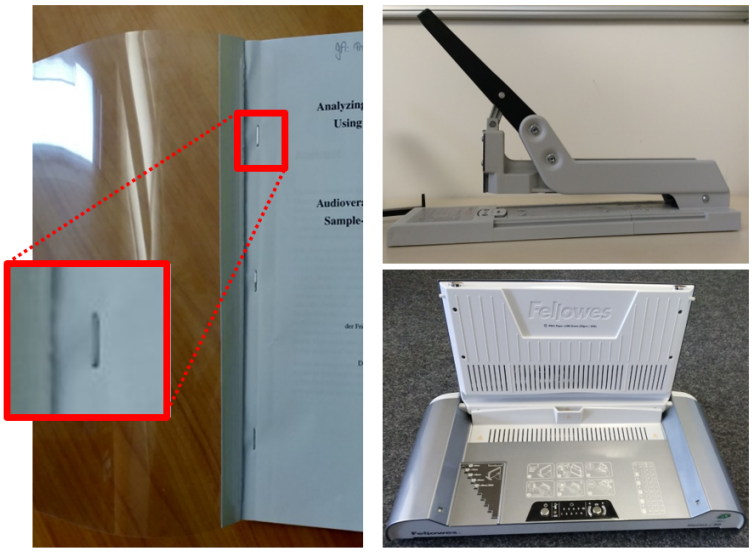

Fig. 1: Example document, stapler, and binding machine.

- When handing in LaTeX-sources for a document, please make the sources *slim* and *structured*. For example, use a subfolder named `figures` to include all figure elements. Furthermore, only include files that are necessary to compile the main document. Please, at the end, also include the final compiled document in `PDF`-format.
- When binding a print-out of a document, make sure that you do it in a way that the pages do not come loose when you open the document. One way to avoid this is to staple the document prior to binding, see Figure 1. There is a stapler with different staple sizes (even for thick documents with up to 200 sheets) in the AudioLabs secretary office. Furthermore, there are also a binding machine and binding covers for documents with different numbers of sheets (a sheet capacity guide will help you to decide which binding covers to use). Please first ask a member of GroupMM (and then a member of the secretary office) in case you want to use the binding machine.

2 References and Bibtex

- Ask our research group GroupMM for example files with clean bibtex entries.
- The file `referencesMusic.bib` contains all bibtex entries for GroupMM-publications along with further guidelines. Please follow these guidelines!
- When citing a publication, check whether a corresponding entry exists in `referencesMusic.bib`. If not, use a separate bibtex file (e.g., `referencesNew.bib`) for new bibtex entries. Please do not add or modify entries in the file `referencesMusic.bib`.
- Note that you can include multiple bibtex files in a LaTeX-documents as follows: `\bibliography{referencesMusic.bib,referencesNew.bib}`
- DBLP (`https://dblp.uni-trier.de/`) is a bibliography website that hosts citations of millions of journal articles, conference papers, and other publications on computer science. For example, it contains references for conferences (e.g., ICASSP, ISMIR, DAFx, ...), for journals (e.g., IEEE/ACM Transactions on Audio, Speech and Language Processing), and for many `arXiv` documents (listed as `CoRR`, Computing Research Repository).
- You can use DBLP for searching articles by authors, conferences, keywords, and so on

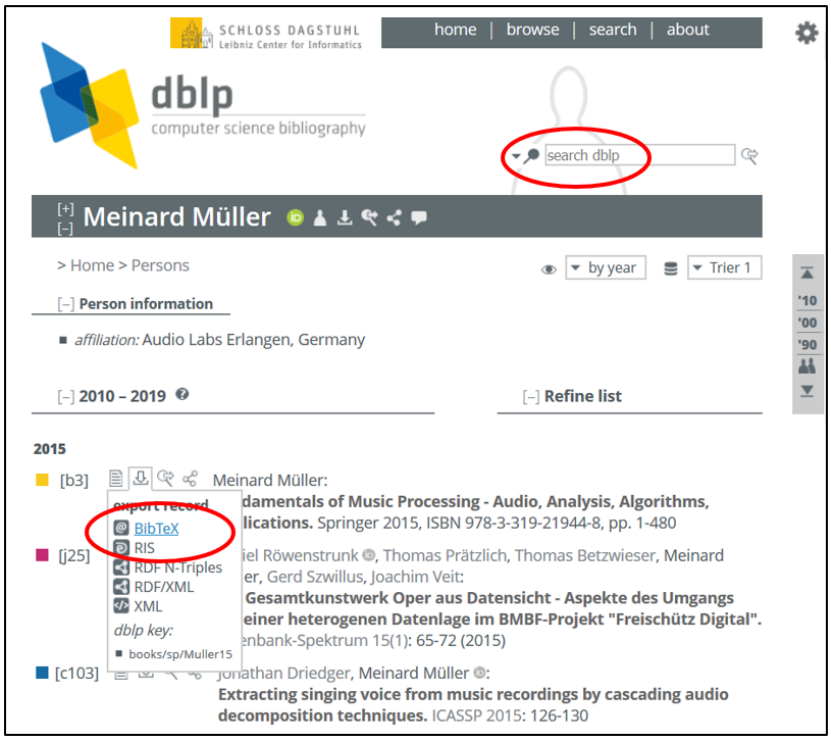

Fig. 2: DBLP (`https://dblp.uni-trier.de/`) contains a search functionality. Furthermore, DBLP allows for exporting clean bibtex entries, see also Figure 3.

```
@book{DBLP:books/sp/Muller15,
  author    = {Meinard M{\"{u}}ller},
  title     = {Fundamentals of Music Processing},
  publisher = {Springer},
  year      = {2015},
  url       = {https://doi.org/10.1007/978-3-319-21945-5},
  doi       = {10.1007/978-3-319-21945-5},
  isbn      = {978-3-319-21944-8},
  timestamp = {Mon, 22 Jul 2019 18:31:29 +0200},
  biburl    = {https://dblp.org/rec/books/sp/Muller15.bib},
  bibsource = {dblp computer science bibliography, https://dblp.org}
}
```

Fig. 3: Bibtex entry as obtained by DBLP, see also Figure 2.

(see Figure 2).

- You can also use DBLP for obtaining clean bibtex entries, see Figure 2. For example:
  `https://dblp.uni-trier.de/pers/hd/m/M=uuml=ller:Meinard`
  `https://dblp.uni-trier.de/rec/bibtex/books/sp/Muller15`
  The resulting bibtex entry is shown in Figure 3. The DBLP bibtex entries already follow some of the guidelines in `referencesMusic.bib`. Make sure to adjust them to fully conform to these guidelines before including them in your `referencesNew.bib`.
- Here are some example how to cite bibtex entries: [1], [2]

3 Powerpoint

- Ask a member of GroupMM for a powerpoint template as used in the AudioLabs. This template must be used for presentations related to seminars, research projects, internships, or Bachelor/Master presentations.
- When including multimedia content (e.g., images, videos, audio files) please make sure

that the size of the powerpoint file does not "explode" (i.e., remains in the order of 1 MB).

- When you embed audio files, then only use short audio excerpts that you want to play back (typically 10 to 20 seconds) and **not** entire tracks.
- There is free software such as `audacity`[1] for trimming and processing audio files.
- Adjust the sampling rate and the number of channels (e.g., using `22050`, `mono`)
- Balance out and adjust dynamics of the audio recording prior to embedding.
- Also, use suitably encoded files (e.g., `MP3` rather than `WAV`) for embedding.
- Overall, the powerpoint file should be as small as possible (definitely less then 5 MB).
- If you link external multimedia files to the powerpoint file (i.e., files that are not embedded into the `.pptx`-file), make sure that you export the powerpoint file such that links become *relative* links (rather than *absolute* links).

4 Python

- For setting up Python environments, we use the Python distribution `Miniconda` (`https://docs.conda.io/en/latest/miniconda.html`).
- In many projects, we will provide a Python environment for you (e.g., an environment named `FMP` or `GroupMM`). The `FMP` environment is the one used for our FMP Notebooks (`www.audiolabs-erlangen.de/FMP`). The `GroupMM` environment is an expanded and updated version of the `FMP` environment, also including packages for deep learning.
- Ask your supervisor how to install and use the environments. Do not install an environment yourself on an AudioLabs computer without consulting your supervisor.

5 Jupyter Notebooks and HTML

- Jupyter notebooks allow for keeping code, images, comments, formulas, and plots together within one framework. In our working group, we use this concept for documentation purposes and for making Python code accessible.
- Jupyter notebooks (`IPYNB`-files), including text and code cells, can be exported as simple `HTML`-files (inside Jupyter Notebook, click *File* → *Download as* → *HTML* to get such an export). Such `HTML`-exports are convenient since they allow users to read the content without running any Python script or installing a Python environment.
- When handing over Python sources, we require Jupyter notebooks (`IPYNB`) that illustrate the functionality of the Python code and indicate how to run the most important functions (also explaining parameter settings). The code should go along with *small* examples. All required data (e.g., `WAV` files, annotation files) of these small examples need to be included, thus making the notebooks a stand-alone and self-contained package.
- Additionally, for documentation purposes, the `IPYNB`-files should be *executed* and then exported as `HTML`-files.
- Embedding audio files may lead to very large `IPYNB`- and `HTML`-files. This particularly holds when embedding raw audio files encoded as `WAV` file. For example, encoding a song of five to ten minutes in CD quality (44100 Hz, stereo), may easily lead to a file size of more than 50 MB. Therefore, to reduce the size, one may consider the following:
  - Trim audio files to have short durations.

[1] `https://www.audacityteam.org/`

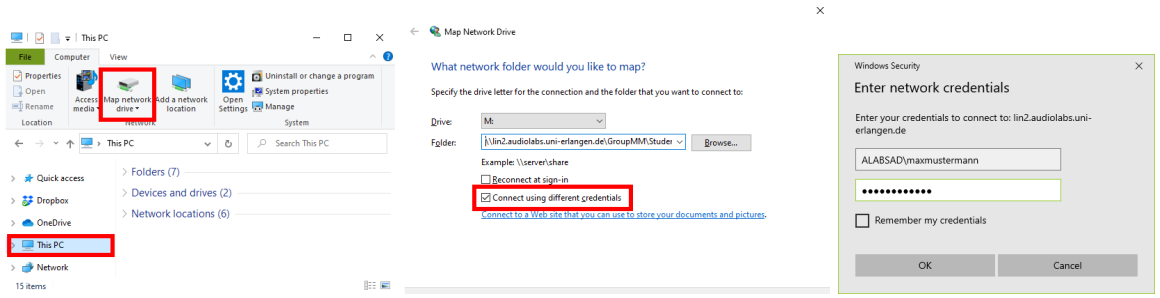

Fig. 4: Mounting the work folder with Windows.

  - Reduce the sampling rate.
  - Convert to mono.
  - Use the MP3 audio coding format (e.g., using the free `lame` encoder or `ffmpeg`).

- There are many ways for integrating multimedia objects (images, audio, video files) into notebooks. For example, one may *link* or *embed* an audio file. If possible, *link* rather than embed large multimedia files. More information and concrete examples can be found as part of the FMP notebooks [2]. **Please take a careful look at the following websites**:
  - `https://www.audiolabs-erlangen.de/FMP`
  - `https://www.audiolabs-erlangen.de/resources/MIR/FMP/B/B.html`
  - `https://www.audiolabs-erlangen.de/resources/MIR/FMP/B/B_Multimedia.html`

6 Links

- FMP notebooks: `https://www.audiolabs-erlangen.de/FMP`
- LibROSA: `https://librosa.github.io/librosa/`
- Audio processing software: `https://www.audacityteam.org/`
- Sonic Visualiser (audio annotation tool): `https://www.sonicvisualiser.org/`
- Bibliography DBLP: `https://dblp.uni-trier.de/`

7 Work Folder

You have a work folder on our server that you can use to share files with your supervisor. Furthermore, it is a good place for saving your work because the server performs regular backups automatically. If you want to access your work folder, you need to be in the FAU network. You are connected with this network when using a computer in our institute. Alternatively, you may connect with a VPN. Guidelines on how to use VPN are provided by the Erlangen Regional Computing Center (RRZE).[2]

Connection with Windows

- Map a nework drive (see Figure 4, left)
- Use the drive letter `M` (see Figure 4, middle).
- The network path is `\\lin2.audiolabs.uni-erlangen.de\GroupMM\Students`.
- You need to specify that you connect using different credentials.
- You username is `ALABSAD\<LDAP-Name>`, where `<LDAP-Name>` stands for your AudioLabs username (see Figure 4, right).

[2] `https://www.anleitungen.rrze.fau.de/internet-zugang/vpn/`

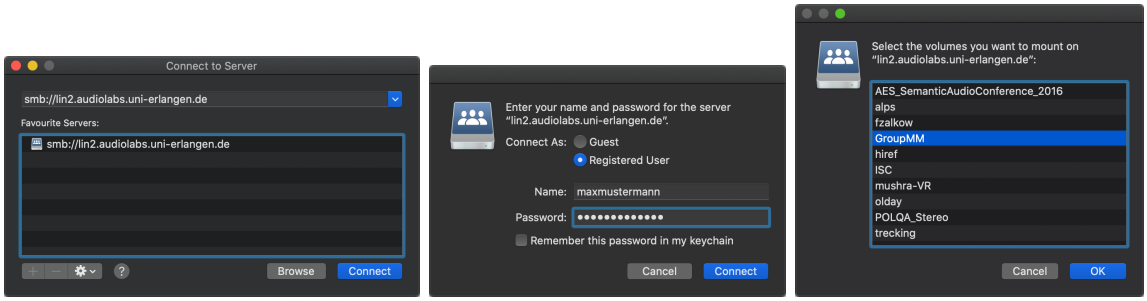

Fig. 5: Mounting the work folder with macOS.

Connection with Ubuntu

- You need to have the following package installed: `apt-get install cifs-utils`
- Create a directory where you want to access the server. In the following, we use the directory `/mnt/groupmm`.
- Add the following line in your `/etc/fstab` (in a single line!). You need to replace `<LDAP-Name>` with your AudioLabs username.

  ```
  //lin2.audiolabs.uni-erlangen.de/GroupMM/Students /mnt/groupmm cifs
  noauto,users,setuids,username=<LDAP-Name>,domain=alabsad 0 0
  ```

- Execute the command: `mount /mnt/groupmm`

Connection with macOS

- Use the Finder to connect to a server (⌘+K)
- Use the server path `smb://lin2.audiolabs.uni-erlangen.de` (see Figure 5, left)
- Use your AudioLabs credentials (see Figure 5, middle)
- Select the `Students` volume (see Figure 5, right)

References

[1] Meinard Müller. *Fundamentals of Music Processing*. Springer Verlag, 2015.

[2] Meinard Müller and Frank Zalkow. FMP notebooks: Educational material for teaching and learning fundamentals of music processing. In *Proceedings of the International Conference on Music Information Retrieval (ISMIR)*, pages 573–580, Delft, The Netherlands, November 2019.