

Swiss DBC Knife

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You hold in your hands the Swiss Knife for DBC members. The goal is to have a synthetic document that contains all the information that is difficult to gather when you arrive in a new unit. This document is intended to be improved; so if you see points that could be integrated, do not hesitate to.

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1 Software -

Anything related to software you can install on your computer.

1.1 Bibliography

There are several tools available, but Zotero stands up as open-source and community driven.

- **Zotero** - <https://www.zotero.org> - .
Open-source reference manager with browser extensions and integration with L^AT_EX and Overleaf.
UNIL provides unlimited storage with Zotero (see [this link](#)).

1.2 Tree Visualisation

Phylogenetic trees can be visualized using:




- **FigTree** - <http://tree.bio.ed.ac.uk/software/figtree> - .
Simple tree viewer for Newick files with various customization options.

2 Internet -

Anything related to internet.

2.1 Productivity websites

Essential websites:

- **Overleaf** - <https://www.overleaf.com> -   . An online LaTeX editor that's easy to use. No installation, real-time collaboration, version control, hundreds of LaTeX templates, direct submission to biorxiv. UNIL provides a professional account (see [this link](#)).







2.2 Bioinformatic websites

Essential websites:

- **Ensembl** - <https://www.ensembl.org>. Genome browser for vertebrate and model organism genomes.

2.3 Browser Extensions

Useful extensions:

- **uBlock Origin** - <https://ublockorigin.com> -   . Lightweight and efficient ad blocker that enhances privacy and speeds up browsing.
- **Zotero Connector** - <https://www.zotero.org/download/connectors> -   . Enables one-click reference collection from journal articles and web pages.













2.4 Email: Thunderbird

Mozilla Thunderbird (<https://www.thunderbird.net/>) is an open-source email client that supports IMAP and SMTP. It allows integration with calendars, encryption, and robust spam filtering.

3 Programming and Writing Code - </>

3.1 Editor - ✎

Common code editors:

- **VSCode** - <https://code.visualstudio.com> - /////.
Lightweight, highly extensible code editor with integrated Git support and debugging tools.
- **PyCharm** - <https://www.jetbrains.com/pycharm> - //.
Python IDE with built-in debugging, testing, and package management.
- **Sublime Text** - <https://www.sublimetext.com> - //.
Fast and responsive editor with powerful search and syntax highlighting.

3.2 Bash and Shell - >_

Cool shells:

- **Oh My ZSH!** - <https://ohmyz.sh>.
Open source, community-driven framework for managing your Zsh configuration.

3.3 Python - ♣

Popular libraries:

- **Biopython** - <https://biopython.org>.
Provides tools for biological computation, including sequence parsing and BLAST search.
- **Matplotlib** - <https://matplotlib.org>.
Visualization library for creating static, animated, and interactive plots.
- **Seaborn** - <https://seaborn.pydata.org>.
High-level statistical data visualization library.

4 Packaging a Software or a Piece of Code - 📦

4.1 GitHub - 🐙

Versionned repository.

4.2 Conda

Create a Conda packages

4.3 Pip - 🐍

Create a pip package.

4.4 Containers - 🚢

Create a docker container.

5 HPC Tricks and Tips

It is not to replace the DSCR information, it is about our tricks and tips that we want to share.

5.1 DSCR Links

5.2 Screen

Keep sessions running after disconnection:

```
screen -S mysession  
# To detach: Ctrl+A, then D  
screen -r mysession # Reattach session
```

5.3 Mounting remote folder


Mount remote directories using sshfs:

```
sshfs user@remote:/path/to/dir /mnt/localmount
```

6 AI/ML

6.1 Local Models

Run ML models locally with:

- **Ollama** - <https://www.ollama.com> - //.
Get up and running with large language models. Run Llama 3.3, DeepSeek-R1, Phi-4, Mistral, Gemma 2, and other models, locally.

6.2 Coding Assistant

AI coding assistants:

- **GitHub Copilot** - <https://github.com/features/copilot>.
By the company OpenAI (i.e. CloseAI), integrates with VSCode and JetBrains IDE.

7 Courses

7.1 SIB

The Swiss Institute of Bioinformatics (<https://www.sib.swiss/training>) offers workshops and courses on genomics, transcriptomics, and data science.

7.2 UNIL

UNIL (<https://www.unil.ch/>) provides courses.

7.3 Online

Available platforms:

- **Coursera**, <https://www.coursera.org/>.
Offers bioinformatics and machine learning courses from universities.