

Research Resources Repository

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1 Introduction

As a person who loves to keep everything organized, I sometimes find it insufficient to keep relevant resources in bookmark bar since I, with high probability, will end up forgetting they are there and wasting time discover them repeatedly. Therefore, I decide to set up this repository to stash the gems I find during daily learning and research.

The organization of this repository follows five topics I listed in prologue plus two additional non-technical topics

1. General articles on research, career and life I find beneficial. Note even for non-English articles, I will generally use their (probably inaccurate) English translation since Emacs does not support efficient non-English (especially Chinese) input.
2. Research tools/software not listed in Awesome Research Tools created by Lei Ma, whose notes on his/her statistical physics courses motivated me to create this whole set of notes.

2 Linear Algebra

- Derivations for Linear Algebra and Optimization by John Duchi

3 Convex Optimization

- Derivations for Linear Algebra and Optimization by John Duchi

4 Machine Learning

5 Deep Learning

- Deep Learning Papers Reading Roadmap
 - A comprehensive collection of papers includeing basics, methods and applications.
 - Paper repository of the papers listed on this roadmap.
- Awesome - Most Cited Deep Learning Papers

- A collection of papers **by topic** from 2012 to 2016 selected according to their number of citations. This list could be used in companion with the previous one, especially when reading papers from the methods and applications section.
- A Python script that could download all the papers in the list.
- Awesome Deep Vision
 - A list of papers (by topic), courses, books and many other resources of computer vision using deep learning methods.
- Awesome Computer Vision
 - A pretty extensive list that includes resources not only in computer vision, but also resources for students, like writing and presenting.
- Academic Genealogy in Computer Vision
- Awesome Recurrent Neural Networks

6 My Current Research

7 General Articles

7.1 Uncategorized

- A Doctorate and Beyond: Building a Career in Engineering and the Physical Sciences

7.2 Writing and Presenting

7.2.1 Techniques

- Email Writing Tips by Philip Guo
- Some Remarks on Writing Mathematical Proofs by John M. Lee
Some concensus and conventions of writing proofs in mathematical community.
- *Air & Light & Time & Space - How Successful Academics Write* by Helen Sword

- Interviews of one hundred scholars around world with different backgrounds who thrive in the publish-or-perish environment.

7.2.2 Tools

- 5 Classic Presentation Fonts
 - Five fonts (**Helvetica**, **Garamond** and others) and their history well-suited for presentation. To use the fonts mentioned, go to [here](#) (for Helvetica) or [here](#) (for Garamond).

7.3 PhD Application

- A Five-Minute Guide to Ph.D. Program Applications by Philip Guo
 - Some templates of SOPs could be found [here](#).

7.4 PhD Life

- My eight years of doing PhD - Academics by Dr. Yun Wang (in Chinese)
- My eight years of doing PhD - Fun by Dr. Yun Wang (in Chinese)
- How to be a happy and productive writer by Dr. Qian Yue (in Chinese)
 - Note: This is a verbatim of a workshop mainly discussing reading-writing cycle for PhD research in sociology. Even though the voices come from a different discipline than engineering, the methodology, to my opinion, is largely the same and feels relatable to my personal experiences.
 - Her weibo post on the same topic, but in more details (in Chinese).
- How to manage your time, emotion, research progress as re-tenure faculty members? by Dr. Qian Yue (in Chinese)
 - Note: This is an article talking about the author's first year as an assistant professor in sociology. Although I am currently still a student, the time/emotion management part is pretty useful. At the same time, since we are both abroad, the feelings about life in a different country somehow synchronize.

7.5 Career

8 Research Tools

8.1 Commenting LaTeX Articles

- latexdiff

It is a Perl script that compares the differences of two `.tex` source files and marks the significant differences between them, which could be used for commenting manuscripts.

- Using Git

See this post (in Chinese), which utilizes git to do version control on manuscripts. But this seems to be useful for individual person who is working on notes rather than collaboration on papers.

- Direct conversion to MSWord readable format

- latex2rtf: convert to `.rtf` file.
- pandoc: convert to `.odt` file.
- More solutions could be found here.

- Using Overleaf

8.2 Visualizing Data

- *Handbook of Data Visualization* by Dr. Chun-Houh Chen

A good starting point to choose the appropriate format to present complex relations among variables using graph. An example to visualize 20 variables done by author's group could be found here (in Chinese).

9 Coding