How to use open-source software to publish journal papers

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CEE seminar, 09-Sep-2019
Introduction

Questions
Why is writing much more important than you think?

How-Tos of SEAClear Writing

Speedily
Efficiently
Accurately
Clearly

Software Tools Recommended

Primary Typesetting
Third-parties

Concluding Remarks
Questions

Let’s answer to

1. How do you finish your day?
2. What is your career goal?
3. What is your daily work to achieve the career goal?
4. Why do you make money?
5. Why should everybody in the world need to learn English?
6. Who did make English as a global language?
7. How do you increase your salary or get better promoted?
Let’s WReSTLE for SUCCESS!

Which activity/capability is the most important?

1. Write
2. Read
3. Speak
4. Think
5. Listen
6. Evolve(?)
SUCCESS

... is for your success

- Simple
- Unexpectedness
- Concreteness
- Credibility
- Emotion (→ Empathy)
- Story telling
- Self
How to write SEA-Clearly?

1. **Software**: use professional software programs **professionally**

2. **Efficiently**:
   1. draft **outline**
   2. detailed **outline**
   3. dynamic **outline**

3. **Accurately**: Seek **help** and help others
   1. writing group: forced writing vs. occasional writing
   2. autobiography (dictating) style
   3. write **the thing** only!

4. **Clearly**: **DIY**
   1. copy and revise sentences from famous scholars, e.g., engineering Shakespeare in your fields.
   2. write short sentences **only** with core information: no long and redundant sentences
   3. revise, forget, and revise
You have to be an advanced user of several professional software programs!

Before that, there is one critical thing for you to consider.

That is . . .
Ergonomic keyboard

- Buy two (not one) for home and office.

**Microsoft Sculpt**

*Figure: [link] http://amazon.com (~ 65 USD + a keypad.)*

**X-Bows**

*Figure: [link] https://x-bows.com/ (about ~ 200 USD).*
De Quervain syndrome

Gamer’s thumb

Tendon Injury

How to avoid it?

- Maybe change QWERTY to DVORAK, but not practical
Text Editor (not MS Word)

- The following editing software programs are mostly *open-sourced* for Linux, but installable on Windows.
- Embedded editing utilities are as good as an integrated developer environment (IDE), e.g., MS Visual Studio.

### Major
1. Sublime Text
2. Vim (Vi Improved) or gvim (graphic)
3. Emacs (Editor’s Macros)
4. Notepad++ (Windows)
5. Atom

### Minor
- gedit
- nano (from pico)
- micro (better than nano)
- Kate
- TexMate
- TextEdit
Vim: excellent but difficult-to-learn editor

- **Vim** can be used as more than an editor as much as an IDE\(^1\)
- [https://dev.to/bezirganyan/who-said-that-vim-cannot-compete-with-ides-51k4](https://dev.to/bezirganyan/who-said-that-vim-cannot-compete-with-ides-51k4)

\(^1\)IDE = Integrated Development Environment (such as Visual Studio)
Emacs: almost mini-OS w/o excellent editing capability

- Emacs stands for Editors’ Macros, the oldest rival of vi.
- written in eLISP, a version LISP (LIST Processor, MIT, 1950s)
- Emacs has org-mode to organize everything including all documentation, programming, and even your schedules.

Figure: An Emacs snapshot.
Programmer’s Humor

Figure: Text editor learning curves: $x = \text{(time or experience)}$ and $y = \text{(skill or performance)}$. 
What kind of software is good software?

1. **OS independent**
   - Linux: A vast sea of open-source programs
   - Windows: Linux has free clones of Windows software programs.
   - Mac: Only a few software programs were developed for engineers/scientists.

2. **Open-sourced (free) or inexpensive**
   - open-source: Almost all the software that Albert is using. Any students can use them whenever and wherever.
   - inexpensive: PDF studio and magicplot
   - computer languages: all of GNU compilers (C/C++/f90/java) python for general programming and R for statistical computing plus beautiful plotting.

3. **Social compatibility and the number of users for online support**
Top 10 Programming Languages – 2019 to begin with


1. JavaScript
2. Python
3. Java
4. C/C++
5. PHP
6. Swift
7. C#
8. Ruby
9. Objective – C
10. SQL
11. (besides, for engineers) Matlab, Go, Julia, and R?
Basic Word Processor

1. **MS Word**: do NOT update/upgrade in your last semester
2. **Open Office Suite**, e.g., **Libre Office**: not recommended, low compatibility
3. **LaTeX** and its GUI: worth investing your time
   1. **Basic text editors** for LaTeX typesetting
      - Kile, TexnicCenter with MikTex (Windows), ...
      - LaTeX provides professional documents of the highest quality.
      - All Elsevier journals love to accept LaTeX-manuscripts.
      - Initially difficult to learn up to the regular user level
   2. **Lyx**, WYSWYM semi-graphical user interface. (Thumbs up!)
   3. **Overleaf** ([http://overleaf.com](http://overleaf.com)):
      - online LaTeX interface (many templates available, easy multi-author collaboration, and direct submission to major journals)
      - including UH thesis template
Add-on Programs – much more important

Automatic numbering and re-formatting (Windows examples)

1. references: EndNote
2. equations: MathType
3. table of contents: default (in MS word, not often used)
4. figures: default
5. tables: default
6. appendix: default

Potential Problems in Writing Thesis

1. MS Office is not text-based, but a memory-intensive software.
2. When many, large-sized files are edited, it often crashes.
3. Various versions mean a reduced compatibility.
# Reference Managers: bibliography software

## Software list

- **Mendeley**: web-import, easy and basic, sharing PDFs
- **Zotero**: web-import + note function, but slow if $N > 1000$
- **Jabref**: excellent, well customized, but no web-import
- **Docear** ([http://www.docear.org/](http://www.docear.org/)): bib + mind-map (new)
- **EndNote**: commercial, customized
- **Other**: Papers (Mac), scrivener, bibtex, bibdesk, and etc.

## Key functionality

- **note/memo** functions
- **bibkey** generation function: basic/auto to advanced
- **regex** functionality: REGular EXpression
How does a bibtex file look like?

mybibtex.bib

A bibkey (i.e., `mauter-2018-role-nanot`) is used to generate a reference list in your paper.

```bibtex
@article{mauter-2018-role-nanot,
  author = {Meagan S. Mauter and Ines Zucker and François Perreault and Jay R. Werber and Jae-Hong Kim and Menachem Elimelech},
  title = {The Role of Nanotechnology in Tackling Global Water Challenges},
  journal = {Nature Sustainability},
  volume = 1,
  number = 4,
  pages = {166-175},
  year = 2018,
  doi = {10.1038/s41893-018-0046-8},
  url = {https://doi.org/10.1038/s41893-018-0046-8},
  DATE_ADDED = {Thu Aug 1 08:56:32 2019},
}
```

**Figure:** A bib-record consists of all the information of the paper.
### Plotting Software

#### For publication including thesis

1. Use Excel (or even Matlab) only for internal drafts or reports.
2. For publication, use better ones.

#### Use professional plotting software even for 2D

1. **Commercial:** OriginLab, SigmaPlot, TecPlot and IgorPro
2. **Open or inexpensive:**
   1. MagicPlot,
   2. Gnuplot used for Octave (a clone of Matlab)
   3. Paraview (for 3D)
   4. VTK (identical to paraview) (for modelers)
   5. Python scripts – a must
   6. R scripts – optional
   7. others available in Linux: Scilab, openDX, Maxima, MayaVi
Plotting Software

Comments

1. You need to train yourself to generate plots of journal styles.
2. You can use two separate programs for 2D and 3D plots.
3. You need to be an expert in 2D plotting.
   1. Keep using it for better and better plotting
   2. Write manuals and share them with colleagues
   3. Don’t make scripts from scratch. Use github!
Don’t be naively creative.

1. Don’t steal, but take it legally.
2. Start your writing by copying someone else’s wonderful manuscript.
   * Take some papers of your interest in Nature and Science.
   * Read loudly more than 20 times.
   * Write/type the whole paper multiple times.
   * Memorize title, authors, abstract, and the first two paragraphs of introduction and conclusions.
3. Rewrite with your own words! You are free from plagiarism.

[Ecclesiastes 1:9] "What has been will be again, what has been done will be done again; there is nothing new under the sun."

Don’t be naively creative.
"Successful people have great daily habits!" "Habits win talents."

### Develop a your own work-flow

1. Do not wait until you get meaningful research outputs. That is too late! Write Right Now!
2. Make a small, simple writing tasks and finish them every day.
3. Make a routine, loop structure of your working flow.

### Software for grammar check

- Google spell check for email
- Grammarly ([https://app.grammarly.com/](https://app.grammarly.com/))
Help others and yourself

1. Success does not come forward! Do it reverse!
2. Write in Group – at specific time and location, like a class
3. Review, proofread, and edit group member’s writing — if you have four members, you get three friendly and honest reviews.
Software for professional publication

**Lyx**

*Figure:* UH Manoa thesis template will be available soon at Albert’s github. ([https://www.lyx.org/](https://www.lyx.org/))

**Mendeley**

*Figure:* Mendeley is a free reference manager ... ([https://guides.library.manoa.hawaii.edu/mendeley](https://guides.library.manoa.hawaii.edu/mendeley))
2D and 3D plots

Magicplot

Figure: Lightweight app for data analysis, plotting ... (https://magicplot.com/)

Python

Figure: https://matplotlib.org/mpl_toolkits/mplot3d/tutorial.html
Conclusions

"Practice, Practice, and Practice!"

1. In the 21st century, one who write better and more will have fame, money and power.

2. Better writing will bring you more salary and faster promotion.

3. Speaking is volatile but publications are permanent records.

4. Academic successes are not fully depending on talents or smartness, but grits and patience. Stay there until all others give up. You win.

5. Your habit determines everything in 10 years. Develop a writing habit today and keep doing it.