

# Writing in the Major Lab (CS 296)

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This document describes basic tools and elements of  $\text{\LaTeX}$  one needs to start working on a paper.  $\text{\LaTeX}$  fundamentals are described in [1] and [3].

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## 1 TOOLS

### 1.1 tex-live

You are going to need `tex-live` package to work with  $\text{\LaTeX}$ . It is a multi-platform  $\text{\TeX}$  document production system[2] that comes packed with various tools you may use to compile your file. You can also use GUI tools like *TeXShop* (macOS), *Kile* (multi-platform), *Texmaker* (multi-platform), or *LaTeX Workshop for VS Code*.

```
sudo apt install tex-live
```

Listing 1. Installing tex-live

### 1.2 Kile

*Kile* is an IDE for  $\text{\LaTeX}$  that allows you to compile, convert, and preview your document.

```
sudo apt install kile
```

Listing 2. Installing Kile

### 1.3 LaTeX Workshop for VS Code

If you prefer *VS Code* to write code, install the *LaTeX Workshop* extension to write your  $\text{\LaTeX}$ , build (compile) it, and generate (preview) the resulting PDF.

### 1.4 Lucid chart

While professional tools like *OmniGraffle* (macOS) or *Visio* (Windows) are usually used to create diagrams, *Lucid chart* should be sufficient for the purposes of this paper and it is free. You should not include photos in your paper but rather draw diagrams and generate charts<sup>1</sup>.

## 2 STRUCTURE

The main goal of this course is for you to write a scientific paper while using proper tools and methods. Your paper is going to be a survey/review of existing sources and should not exceed 7 pages. You should use class *article*.

The paper should include at least the following sections:

- Introduction
- History of the subject
- Prominent features
- Conclusion
- References

## 3 TIMELINE

You are expected to stick to the schedule specified on KATIE (see Table 1 in the Appendix).

## 4 ADVANCED ELEMENTS

### 4.1 Math

Your paper may include mathematical formulas. They can appear *inline* (e.g.  $i^2 = -1$  or  $E = mc^2$ ) or in *display* mode.

$$F = G \frac{m_1 m_2}{r^2} \quad (1)$$

or

$$a^2 + b^2 = c^2$$

### 4.2 Code

An easy way to include code is to use package `listings` and have your code in a separate file. Other options (e.g. package `minted`) are acceptable too but may require additional tools.

```
1 def hello():
2     print("Hello, _Panda!")
```

Listing 3. hello from file

<sup>1</sup>Use *Excel* or *Spreadsheets* for charts

You can also include code in the body of your document.

```
def hello():  
    print("Hello , Panda")
```

Listing 4. hello inline and with different options

### 4.3 Image

An image (see Figure 1) or a chart can be inserted into the document.

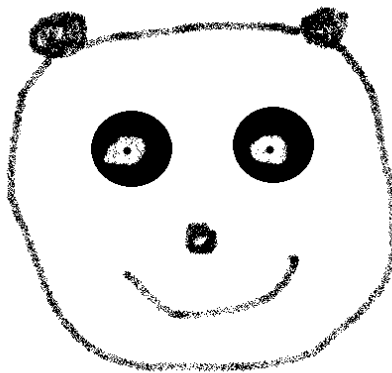


Fig. 1. Panda

### 4.4 Fancy text

Text rotated horizontally. Text rotated vertically.

### REFERENCES

- [1] [n. d.]. *Learn LaTeX in 30 minutes - Overleaf, Online LaTeX Editor*. Retrieved 10/22/2019 from [https://www.overleaf.com/learn/latex/Learn\\_LaTeX\\_in\\_30\\_minutes](https://www.overleaf.com/learn/latex/Learn_LaTeX_in_30_minutes)
- [2] [n. d.]. *TeX Live - TeX Users Group*. Retrieved 10/22/2019 from <https://www.tug.org/texlive/>
- [3] Tobias Oetiker, Hubert Partl, Irene Hyna, and Elisabeth Schlegl. 1995. The not so short introduction to L<sup>A</sup>T<sub>E</sub>X2<sub>ε</sub>. (1995).

## APPENDIX A

Table 1. Tentative schedule

Task	Week	Points
$\LaTeX$ seminar	1	5
Select a topic	1	10
Meet the librarian	2	5
Identify the sources	2	10
Outline	3	10
First draft	4	20
Meet the instructor	5	0
Final draft	7	20
Presentation	8	20