Notes During PhD

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This document is an ongoing collection of my writing during my PhD. Inspired by the Tufte-Handout Style [1], this handout is built using `tufte-latex`[2].

[1] Edward R. Tufte!

[2] `https://github.com/Tufte-LaTeX/tufte-latex`

Contents

LaTeX Project Management

The goal is to have a consistent boilerplate for LaTeXprojects, I choose AOS for regular article.[3]

[3] https://vtex-soft.github.io/texsupport.ims-aos/

- `chapters/01-*.tex`: individual files
- `fig`: figures to reproduce
  - External figures by `R` or Python, DPS $\geq$ 300, `.pdf`
  - TikZ: `.tex` and `.pdf`
  - Asymptote: `.asy` and `.pdf`

  Below is an example project hosted on Github or Overleaf:

```
├── chapters
│   ├── 01-preface.tex
│   └── 02-intro.tex
├── fig
│   ├── hilbertrecursive.tex
│   ├── hilbertrecurves.pdf
│   ├── helix.asy
│   └── helix.pdf
├── latexmkrc
├── main.bib
├── main.pdf
├── main.tex
└── tex
├── macro.tex
├── tufte-book.cls
├── tufte-common.def
├── tufte-handout.cls
└── tufte.bst
```

Mathematical Notation

It has always been a hassle to organise mathematical notation across different sources, in fact, I would go so far as to argue that it is the most annoying thing when one starts reading a book or an article.

However, there *must be* some notational conflicts beyond primary school simply due to the fact that the limited number of alphabets (**26**). For example, "$\mathbb{E}$" might be energy in physics while it could refer to expectation or scores in probability.

Another difficulty is that the authors often assume some familiarity in the topics *also* I am expected to read in some logical or chronological order. In reality, I am constantly jumping back and forth between one literature to another.

Symbol	Context	Meaning
$\mathbb{Z}$		set of integers
$\mathbb{R}$		set of real numbers $(-\infty, \infty)$

References