Study Notes

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List of Theorems

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List of Definitions

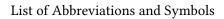
A.1 Definition (Gaussian distribution) . . 33

LIST OF DEFINITIONS LIST OF DEFINITIONS

List of Abbreviations and Symbols

```
\mathbb{R} Real number 12
```

 \vec{v} a vector 12



List of Abbreviations and Symbols

Acronyms

MLE Maximum Likelihood Estimation 17

SVM Support Vector Machine 12

Acronyms Acronyms

Preface

0.1 Features of this template

TeX, stylized within the system as LTeX, is a typesetting system which was designed and written by Donald Knuth and first released in 1978. TeX is a popular means of typesetting complex mathematical formulae; it has been noted as one of the most sophisticated digital typographical systems.

- Wikipedia

0.1.1 crossref

different styles of clickable definitions and theorems

• nameref: Gaussian distribution

• autoref: Definition A.1, ??

• cref: Definition A.1,

· hyperref: Gaussian,

0.1.2 ToC (Table of Content)

- · mini toc of sections at the beginning of each chapter
- list of theorems, definitions, figures
- the chapter titles are bi-directional linked

0.1.3 header and footer

fancyhdr

- right header: section name and link to the beginning of the section
- left header: chapter title and link to the beginning of the chapter
- footer: page number linked to ToC of the whole document

Acronyms 0.2 Related Tools

0.1.4 bib

- titles of reference is linked to the publisher webpage e.g., [Kit+02]
- backref (go to the page where the reference is cited) e.g., [Chi09]
- customized video entry in reference like in [Bab16]

0.1.5 preface, index, quote (epigraph) and appendix

index page at the end of this document...

0.1.6 symbol and glossary (abbreviation)

```
examples: \mathbb{R}, Support Vector Machine (SVM), \vec{v}
```

usage

glossary package

```
pdflatex scinote.tex
makeglossaries scinote
pdflatex scinote.tex
```

• glossary-extra package and bib2gls

```
pdflatex scinote.tex
bib2gls scinote
pdflatex scinote.tex
```

0.2 Related Tools

0.2.1 VSCode

Extension: Latex Workshop by James Yu

settings

To explain

0.2.2 lualatex and latexmk

.latexmkrc configuration file

```
# Also delete the *.glstex files from package glossaries-extra. Problem is,
# that that package generates files of the form "basename-digit.glstex" if
# multiple glossaries are present. Latexmk looks for "basename.glstex" and so
# does not find those. For that purpose, use wildcard.
$clean_ext = "%R-*.glstex";
push @generated_exts, 'glstex', 'glg';
add_cus_dep('aux', 'glstex', 0, 'run_bib2gls');
# PERL subroutine. $ [0] is the argument (filename in this case).
# File from author from here: https://tex.stackexchange.com/a/401979/120853
sub run_bib2gls {
    if ( $silent ) {
         my $ret = system "bib2gls --silent --group '$_[0]'"; # Original version
        my $ret = system "bib2gls --silent --group $_[0]"; # Runs in PowerShell
         my $ret = system "bib2gls --group '$_[0]'"; # Original version
        my $ret = system "bib2gls --group $_[0]"; # Runs in PowerShell
    };
    my ($base, $path) = fileparse( $_[0] );
    if ($path && -e "$base.glstex") {
        rename "$base.glstex", "$path$base.glstex";
    }
    # Analyze log file.
    local *LOG;
    LOG = "_[0].glg";
    if (!$ret && -e $LOG) {
        open LOG, "<$LOG";
    while (<LOG>) {
            if (/^Reading (.*\.bib)\s$/) {
        rdb_ensure_file( $rule, $1 );
        }
    }
    close LOG;
    }
    return $ret;
}
```

0.2.3 Zotero and Better-bibtex

[todo] https://retorque.re/zotero-better-bibtex/ customized entry, e.g., Online Video

0.3 Copyright and License

• GitHub Repo: https://github.com/cauliyang/Latex-Template-for-Scientific-Style-Book

• Overleaf template: https://www.overleaf.com/latex/templates/latex-template-for-scientific-stylentprxjksmqxx

Part I Machine Learning

Chapter 1

Probability

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1.1 Maximum Likelihood Estimation

Maximum Likelihood Estimation (MLE) is.

1.2 Maximum A Posteriori Estimation

1.3 Gussian Distribution

Part II Algorithm and Data Structure

Chapter 2

Algorithm

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2.1 Graph

Part III Programming

Chapter 3 C++

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Chapter 3 C++

Chapter 4

Rust

Chapter 4 Rust

Part IV Research

Chapter 5

Paper Reading

Chapter 5 Paper Reading

Appendix A

Formulas

A.1 Gaussian distribution

Definition A.1 (Gaussian distribution). Gaussian distribution

Theorem A.1 (Central limit theorem).

Bibliography

- [Bab16] László Babai. "Graph Isomorphism in Quasipolynomial Time". Jan. 19, 2016. arXiv: 1512.03547 [cs, math] (cit. on p. 12). Online video
- [Chi09] Andrew M. Childs. *Universal Computation by Quantum Walk*. Physical Review Letters 102.18 (May 4, 2009), p. 180501. arXiv: 0806.1972 (cit. on p. 12).
- [Kit+02] Alexei Yu Kitaev et al. *Classical and quantum computation*. 47. American Mathematical Soc., 2002 (cit. on p. 12).

BIBLIOGRAPHY BIBLIOGRAPHY

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