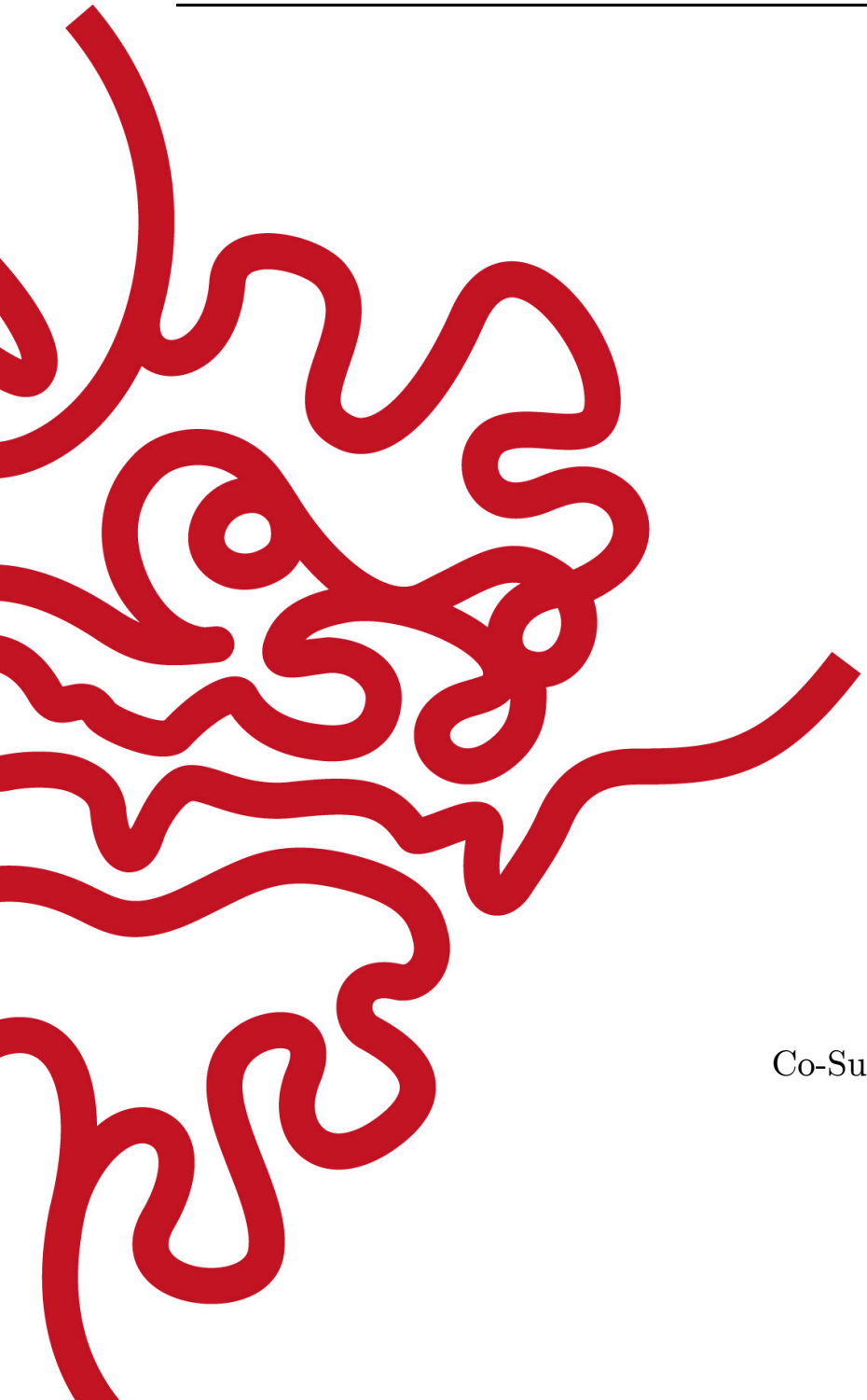
Okinawa Institute of Science And Technology
Graduate University

Thesis submitted for the degree

Doctor of Philosophy

Typst Dissertation Template



by

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Supervisor: **S. Upervisor**

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September 2025 (compile)

Declaration of Original and Sole Authorship

I, Kazuma Takada, declare that this thesis entitled *Typst Dissertation Template* and the data presented in it are original and my own work.

I confirm that:

- No part of this work has previously been submitted for a degree at this or any other university.
- References to the work of others have been clearly acknowledged. Quotations from the work of others have been clearly indicated, and attributed to them.
- In cases where others have contributed to part of this work, such contribution has been clearly acknowledged and distinguished from my own work.
- None of this work has been previously published elsewhere, with the exception of the following: (provide list of publications or presentations, or delete this part). (If the work of any co-authors appears in this thesis, authorization such as a release or signed waiver from all affected co-authors must be obtained prior to publishing the thesis. If so, attach copies of this authorization to your initial and final submitted versions, as a separate document for retention by the Graduate School, and indicate on this page that such authorization has been obtained).

Date: September 2025 (compile)

Signature:

Abstract

The abstract should fit within a page. It should be written in a way that is accessible to a general audience, summarizing the main findings and significance of the research.

Acknowledgments

Please refer to the https://groups.oist.jp/grad/academic-program-policies for specifications.

List of Abbreviations

Please refer to the https://groups.oist.jp/grad/academic-program-policies for specifications.

Here is an example of how to write a list of abbreviations using a bulleted list:

- **OIST**: Okinawa Institute of Science and Technology
- **e.g.**: For example
- **etc.**: And so on
- **PPT**: positive partial transpose
- **SRPT**: Schrödinger-Robertson partial transpose

Glossary

Please refer to the https://groups.oist.jp/grad/academic-program-policies for specifications.

Here is an example of how to write a glossary using a bulleted list:

- **Dipole Blockade**: Phenomenon in which the simultaneous excitation of two atoms is inhibited by their dipolar interaction.
- **Cavity Induced Transparency**: Phenomenon in which a cavity containing two atoms excited with light at a frequency halfway between the atomic frequencies contains the number of photons an empty cavity would contain.

Nomenclature

Please refer to the https://groups.oist.jp/grad/academic-program-policies for specifications.

Here is an example of how to write a list of nomenclature using a bulleted list:

- c: Speed of light ($2.99792458 \times 10^8 \mathrm{ms}^{-1}$)
- $\hbar$: Planck's constant ($6.62607015 \times 10^{-34}$ Js)
- k_B: Boltzmann constant ($1.380658 \times 10^{-23} \mathrm{JK}^{-1}$)
- Z_0: Impedance of free space (376.730313461Ω)
- μ_0: Permeability of free-space ($4\pi \times 10^{-7} \mathrm{Hm}^{-1}$)

Dedication

If desired, an optional and short dedication may be included here.

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Chapter 1

Introduction

This is the introduction. You might want to leave it unnumbered, as it is now. If you want to number it, treat it like any other chapter.

Chapter 2

Guidelines on the Preparation of Thesis

Please refer to https://groups.oist.jp/grad/academic-program-policies for specifications.

Many of the formatting requirements such as page size, fonts, etc are built-in into this template. Do not modify them.

Chapter 3

How to use the templates

This is a practical guide into how to use this template, by explaining the role of the different folders, and an option of `thesis(...mode)` property, which accepts either `draft` or `submission`.

3.1 Folders

The main folder contains three folders detailed here:

- **images.** This folder should contain all the images that you will use in your thesis. It can contain subfolders, for example one for each chapter. To include an image from the main text, you can use the command `#figure(image("path/to/image.jpg", width: 30%))`. The path is relative to the main folder, so if you want to include an image from the images folder, you can write:

```
#figure(
  image("../images/chap3/emblem.jpg", width: 30%),
  caption: [Full caption with all the details here.font size has
to be 10pt, and sentences has to be left side.],
) <fig-example>
```

- **chapters.** This folder contains a series of `LaTeX` files that form the main text: introduction, chapters, conclusion, appendices and published articles. The introduction and conclusion as they are now are not numbered, which creates a few difficulties with the

headers of the thesis. If you want the introduction and conclusion to be numbered, rewrite and treat them as regular chapters. These text files are included in the main text of the thesis with the command `#include "chapters/filename.typ"` in the `./main.typ`.

```
// main.typ
// Main chapters
#include "chapters/introduction.typ"
#include "chapters/chapter1.typ"
#include "chapters/chapter2.typ"
#include "chapters/chapter3.typ"
#include "chapters/conclusion.typ"
```

- **preamble.** This folder contains a series of typst files with the pages that will appear before the main text. Please write (or copy and paste) your own text in those files and delete the dummy text when appropriate. The files are:
  - `abbreviations.typ` — List of abbreviations. If the list goes over one page, continue it as a new list on the next page.
  - `abstract.typ` — Abstract. Follow directions in the file.
  - `acknowledgments.typ` — Acknowledgments. Follow directions in the file.
  - `declaration.typ` — Declaration of Original and Sole Authorship. Only modify the last item. This page needs to be signed once printed.
  - `dedication.typ` — Dedication (optional). Should only be a very few lines.
  - `glossary.typ` — Glossary (optional). If the list goes over one page, continue it as a new list on the next page.
  - `nomenclature.typ` — Nomenclature (optional). If the list goes over one page, continue it as a new list on the next page.

3.2 main.typ file

This is **the main file**, the only one that needs to be compiled to build the thesis. The thesis function is executed at the top of this file. When submitting to a graduate school, compile with the `mode` parameter set to `"draft"`.

```
#show: doc => thesis(
  title: "Typst Dissertation Template",
  author: "Kazuma takada",
  supervisor: "S. Upervisor",
  cosupervisor: "C. O'Supervisor",
  submission_date: "August 2025",
  mode: "draft",
  doc,
)
```

When you submit a temporary version to the graduate school, compile with `"submission"` parameter.

3.2.1 Page size, Margins, Spacing, Justification, and Pagination

These settings are all defined in `./oist_thesis.typ`. They should not be changed.

> ***Page size**: Theses are to be formatted to A4 page size.*
>
> ***Margins**: The left margin should be 3 cm. Top, right, and bottom margins should be 2.5 cm.*
>
> ***Spacing**: Spacing should be 1.5 line spaced for examination and single spacing for final submission.*

> ***Justification**: The main body of text left-right justified. Titles should be left-justified. Equation numbers should be right justified.*
>
> ***Pagination**: Preliminary pages, ending before the main body of text, may be numbered sequentially using roman numerals. The main body of text, beginning with the first page of the introduction, must be numbered sequentially, including figure pages and blank pages, starting at page number 1 for the first page of the introduction. Arabic numerals are to be used.*
>
> — OIST, Graduate School Policies[1]

3.2.2 Table of Contents, List of Figures, List of Tables

These settings are for displaying the outline of the chapters, tables, and figures that will appear in the paper. Basically, there is no need to change them.

3.2.3 Title Page

The title page is defined by the `#let title_page()` function in `./oist_thesis.typ`. Basically, there is no need to change it.

3.2.4 Preamble Pages

The page numbering settings are specified at the end of the `thesis()` function in `./oist_thesis.typ`. No changes are necessary.

[1] https://www.oist.jp/education/policies-regulations/gs-policies

3.2.5 Thesis Main Text

The main text is **Times New Roman 12pt**. This definition is specified as `set text(font: "Times New Roman", lang: "en", size: 12pt)` in the `thesis` function of `./oist_thesis.typ`. This is strictly defined in OIST policy as following.

> ***Font**: Times New Roman, 12-point font should be used for all main body text. For graph legends, titles, image annotations, etc., Arial, Helvetica or Calibri, 10-point font, should be used for presentation clarity. For headings, any font or size may be used for presentation and design considerations.*
>
> …
>
> ***Spelling**: American spelling.*
>
> — OIST, Graduate School Policies[2]

3.2.6 Bibliography

References should be listed in bibliography.bib. Paste them in bibtex format. Please see the example below. When referencing literature in typst, write it as shown in `@Lee98`. This template uses APA style, but if you want to use another style such as IEEE, please change it in `./oist_thesis.typ`. If you want to cite multiple references side by side, please write them as shown in `@Heald2021-el @Wen2022-ga @Takada2023-du`. result will be a single reference (Shimizu et al., 2023), multile references will be shown as (Heald et al., 2021; Takada et al., 2023; Wen & Imamizu, 2022).

[2] https://www.oist.jp/education/policies-regulations/gs-policies

```
@article{Lee98,
  Author = {Lee, Hwang and Scully, Marlan},
  Issn = {0015-9018},
  Issue = {4},
  Journal = {Found. Phys.},
  Pages = {585-600},
  Publisher = {Springer Netherlands},
  Title = {The Physics of EIT and LWI in V-Type Configurations},
  Url = {http://dx.doi.org/10.1023/A:1018709621908},
  Volume = {28},
  Year = {1998}}
```

There are various citation styles, such as APA, Chicago, and IEEE. This template uses APA. If you want to change the citation style, change the `set bibliography(style: "apa", title: "Bibliography")` style parameter in `./oist_thesis.typ`.

3.2.7 Appendices

Structures the style for the appendices and builds them. The appendices are numbered with letters but are structured like regular chapters.

3.2.8 Published Articles

This last section add the PDF files of your previously published articles (or about to be published) to the thesis. You should only include PDF files provided by the publishing journal (**including preprint**). This is strictly for the examiners' convenience in the temporary bound thesis, as for copyright reasons these files may not be published in the final version of the thesis.

3.2.9 Differences between draft and submission modes

The `thesis(...mode)` property accepts either `draft` or `submission`. The `draft` mode is used for review, while the `submission` mode is used for the final version of the thesis.

The main difference is the spacing between lines. Therefore, it is likely that the appearance will differ from draft mode, so adjustments may be necessary before submission.

> ***Spacing*** : Spacing should be 1.5 line spaced for examination and single spacing for final submission.
>
> — OIST, Graduate School Policies[3]

[3] https://www.oist.jp/education/policies-regulations/gs-policies

Chapter 4

Figures, tables and images

Here, we describe figures and tables with how to refer.

4.1 Figures

Figures are defined by the `#figure(...)` function. The caption is written in the `caption:` parameter, and the figure itself is written in the first parameter. The caption should be short for the List of Figures, but you can write a full caption in the `caption:` parameter. Refer to figure like this: `@fig-example`. It will be shown as Figure 4.1. If you want to display a shorter form, you can change the style by writing it as in `@fig-example[Fig.]`. It will be shown as Fig. 4.1.

```
#figure(
  image("../images/chap3/emblem.jpg", width: 50%),
  caption: [Full caption with all the details here.font size has
to be 10pt, and sentences has to be left side.],
) <fig-example>
```

Figure 4.1: Full caption with all the details here.font size has to be 10pt, and sentences has to be left side.

The style of figures is defined based on GS Policies.

4.1.1 Short titles for LoF/LoT

If you want to show a short headline (summary) in the List of Figures/Table, use `#custom_figure(...)` and pass a `short:` argument in addition to the full `caption:`. In the body, the caption will appear as "Figure: Short Title Full caption …", while the lists will display only the "Short Title".

```
#custom_figure(
  image("../images/chap3/emblem.jpg", width: 50%),
  short: [Logo, short caption for LoF],
  caption: [Full caption with all the details here. Font size has
to be 10pt, and sentences have to be left-aligned.],
) <fig-example-short>
```

Figure 4.2: Logo, short caption for LoF. Full caption with all the details here. Font size has to be 10pt, and sentences have to be left-aligned.

> ***Spacing*** *: Figures should appear as close as possible to the first mention of them in the text. All figures must be referred to in the text by either a parenthetical mark-up (Figure 1.2), or phrasing such as "Sequencing data, shown in Figure 1.2, shows that…". A parenthetical mention, but not an in-text mention, may be abbreviated as (Fig. 1.2). The number of the chapter should be part of the figure number.*
>
> *Figures must be accompanied by a caption that describes the material cleanly and succinctly. Figure captions may start with a brief title in bold, which can then be referenced in the list of figures.*
>
> *As a general rule, figures should not have captions that run across pages. If a figure and its caption will be larger than one page, rewriting should be considered, or a reorganization of the figure. If this cannot be avoided, the figure caption should continue on the immediate next page, with a reference comment at the start of the text to the fact that it is a continuation. No other main body text should then appear on that page.*
>
> — OIST, Graduate School Policies[4]

[4] https://www.oist.jp/education/policies-regulations/gs-policies

4.2 Tables

The table can be created as follows.

```
#figure(
  table(
    columns: (auto, auto),
    align: (center, center),
    [Parameter], [Value],
    line(length: 100%), line(length: 100%),
    $Delta$, "0, 150",
    $alpha$, "85",
    $epsilon$, "6",
    $kappa$, "6.8",
    $gamma$, "0.2",
  ),
  caption: [Short heading for the List of Tables.],
) <tab-values>
```

Table 4.1: tables Short heading for the List of Tables.

Parameter	Value
Δ	0, 150
α	85
ε	6
κ	6.8
γ	0.2

You can also supply short titles for tables using `custom_figure`:

```
#custom_figure(
  table(
    columns: (auto, auto),
    align: (center, center),
    [Parameter], [Value],
    line(length: 100%), line(length: 100%),
    $Delta$, "0, 150",
    $alpha$, "85",
    $epsilon$, "6",
    $kappa$, "6.8",
    $gamma$, "0.2",
  ),
  short: [Parameter Summary],
  caption: [Full table caption with details.],
) <tab-values-short>
```

Refer to tables like this: `@tab-values`, which will be shown as Table 4.1. Shorten form can be written as `@tab-values[Tab.]`, which will be shown as Tab. 4.1.

> ***Tables**: All tables should be referred to in the text by number (for example, "Table 3.1 describes all particles found in…"). Tables may be printed in landscape rather than portrait orientation but must be printed on a separate page with continuing and sequential pagination. Tables may extend for more than one page but should then have the table header row repeated on each page. Arial, Helvetica or Calibri, 10-point font, should be used for tables. Tables should have a heading and may have a caption. The number of the chapter should be part of the table number.*
>
> — OIST, Graduate School Policies[5]

Additional images are attached below (Fig. 4.3, Fig. 4.4).

[5] https://www.oist.jp/education/policies-regulations/gs-policies

The first figure shows a Ph.D. candidate writing a thesis by hand. To avoid suspicion of using GPT, this university seems to have reverted to handwritten submissions.

Figure 4.3: A Ph.D. candidate writing his dissertation. Holding a pen, but unable to start the first sentence. Created by Google Nano Banana.

The second figure illustrates a paradigm shift in thesis writing. It evolves from handwriting to Virtual Reality (VR).

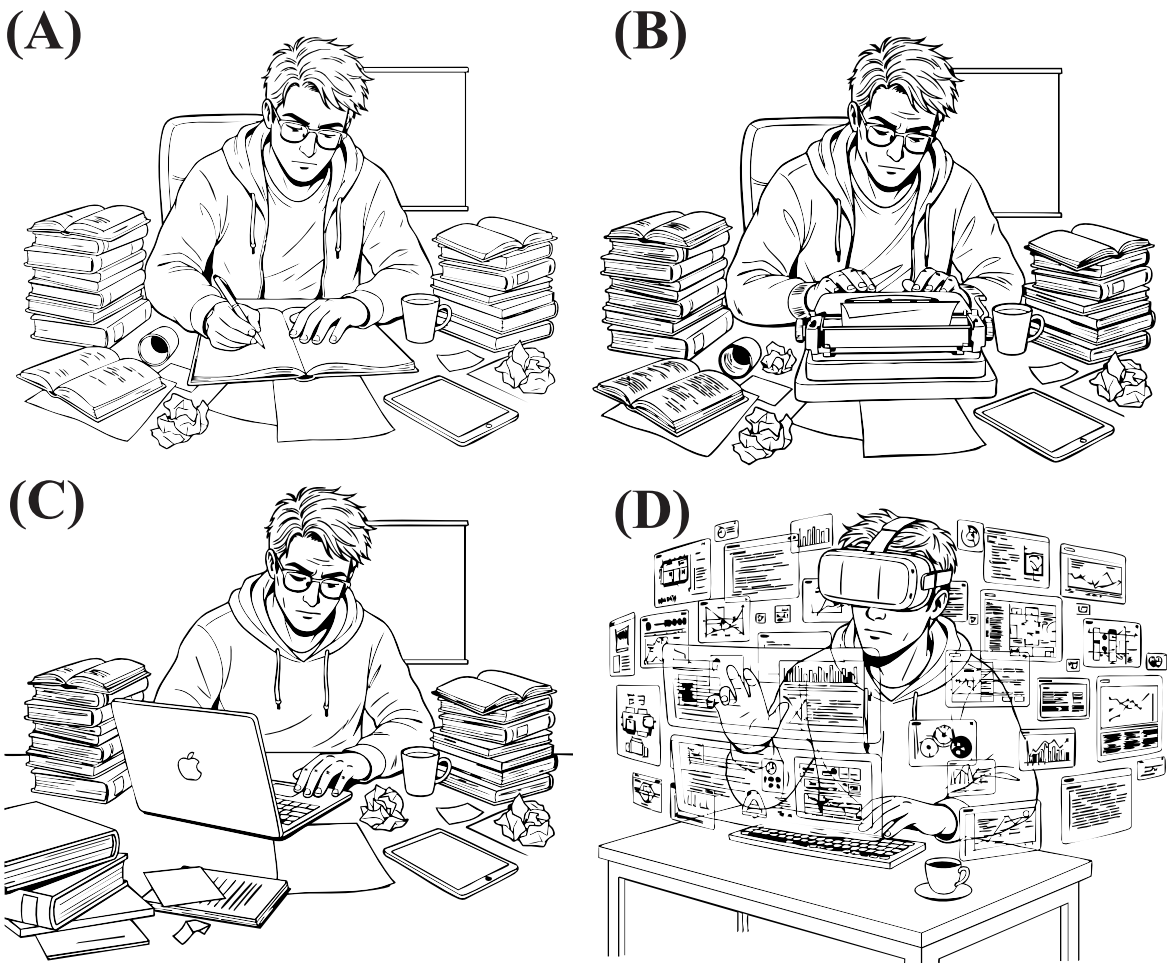

Figure 4.4: The process by which a Ph.D. candidate's tools for writing their dissertation change. (A) Handwritten, (B) Typewriter, (C) Laptop, (D) VR space. The only thing GPT seems unlikely to interfere with is the typewriter. On the other hand, if our arms were driven by Electrical Muscle Stimulation, that might be a different story.

These figures are examples of how to present data in a clear and concise manner.

Chapter 5

Conclusion

This is the conclusion.

Bibliography

Heald, J. B., Lengyel, M., & Wolpert, D. M. (2021). Contextual inference underlies the learning of sensorimotor repertoires. *Nature*, *600*(7889), 489–493.

Shimizu, K., Naruse, S., Nishida, J., & Kasahara, S. (2023). Morphing identity: Exploring self-other identity continuum through interpersonal facial morphing experience. *Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems*, *22*, 1–15.

Takada, K., Kumasaki, N., Froese, T., Shibata, K., Nishida, J., & Kasahara, S. (2023). ShadowClones: an Interface to Maintain a Multiple Sense of Body-space Coordination in Multiple Visual Perspectives. *Proceedings of the Augmented Humans International Conference 2023*, 171–178.

Wen, W., & Imamizu, H. (2022). The sense of agency in perception, behaviour and human–machine interactions. *Nature Reviews Psychology*, *1*(4), 211–222.

Appendices

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Appendix A

This is the first appendix.