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Faculty of Engineering  
Tel Aviv University

הפקולטה להנדסה  
ע"ש איבי ואלדור פליישימן  
אוניברסיטת תל אביב



# COMMUNITY DETECTION WITH APPLICATIONS TO MULTIREFERENCE ALIGNMENT

Project Number: 20.1.1.2135

Final report

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Presented to the

School of Electrical Engineering

within the Tel-Aviv University

The Iby and Aladar Fleischman Faculty of Engineering

in partial fulfillment of

the requirements for the degree of

B.Sc Electrical Engineering

Project was done from home

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## **ABSTRACT**

This section should briefly summarize the important elements of the thesis or dissertation. It should include a statement of the problem, a brief description of the work performed and a summary of the results and conclusions. It should not exceed 500 words.

## List of Figures

- 1     **The best thesis defense is a good thesis offense.** A conceptual illustration of the celebrated thesis *offense*, an ambitious but often effective tactical maneuver. . . . . 10

**List of Tables**

1    Your first table. . . . . 9

## **List of Abbreviations**

### **F**

**FTQC** Fault Tolerant Quantum Computer. 9

### **N**

**NISQ** Noisy Intermediate-Scale Quantum. 9

### **Q**

**QIP** Quantum Information Processing. 9

**QML** Quantum Machine Learning. 9

# 1 Introduction

The purpose of the introduction is to elucidate the nature of the problem addressed by the thesis or dissertation research. The problem should be clearly presented, and its history discussed through a survey of the literature. The author should explain the rationale behind the scientific approach to the problem. This section typically opens with a high level introduction of the topic and closes with the statement of the project aims (e.g. 3 specific aims) and their associated hypotheses.

There maybe be several citations. To reference a citation, call the citation key. For example, [Cor21]. See the references.bib for help inferring how this works (the referenced citation key needs to match the citation key in references.bib *exactly*). Multiple citations can be stringed together by simply separating them with commas (see the comment below).

## 1.1 Some subsection

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## 2 Theoretical background

This section should include a comprehensive review of prior work across the stated aims. It also provides a summary of the gaps in the current literature and is will be substantially longer than a background section in a manuscript.

### 2.1 Referencing Citations

Citations are straight forward and will be automatically sorted on rendering. Include your citations in the *references.bib* file. For examples, see this *handy citation guide*. Here’s an example usage where I cite this project [Cor21]. Boom!

### 2.2 Including figures

You might include a figure here...

...and reference it like so: **Figure 1**.

### 2.3 Making tables

Or maybe you’ll make a table...

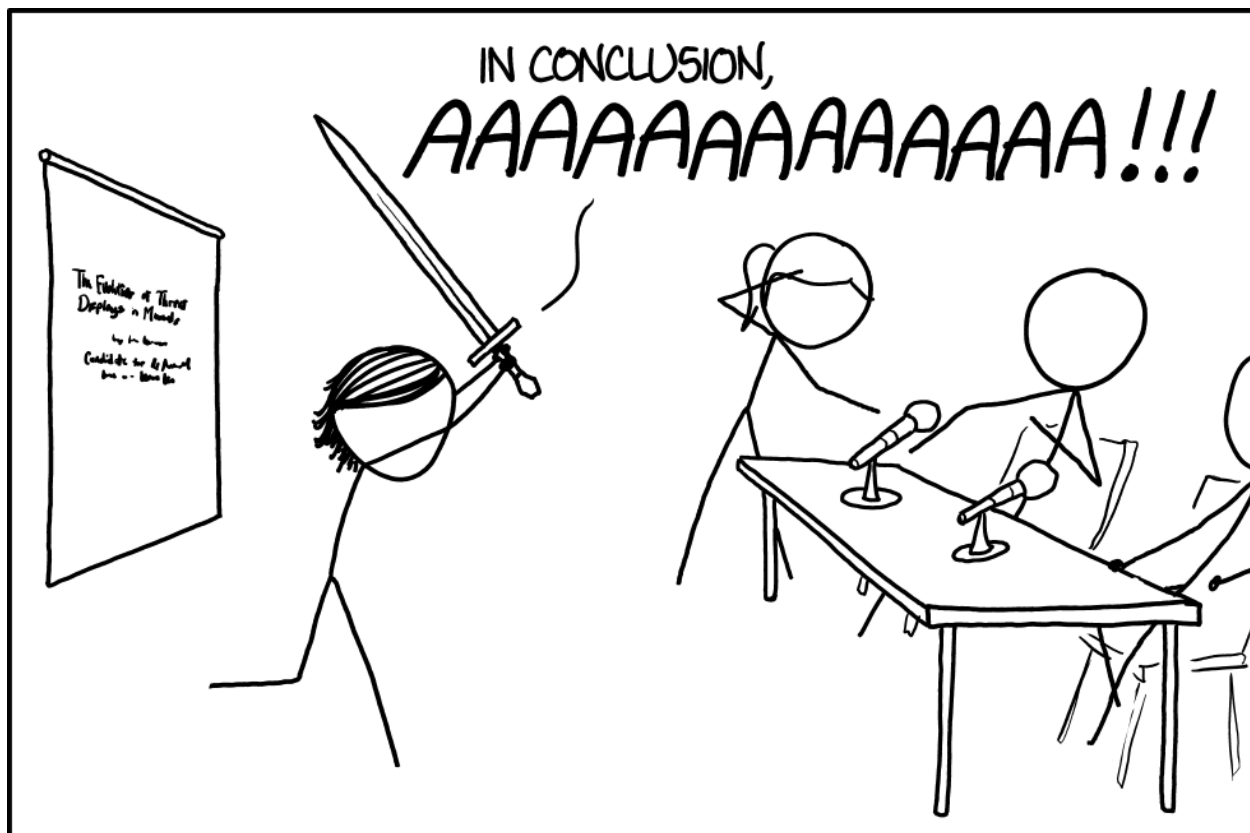
**Table 1:** Your first table.

| Value 1  | Value 2   | Value 3  |
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| 1        | 1110.1    | a        |
| 2        | 10.1      | b        |
| 3        | 23.113231 | c        |

...an reference it too: **Table 1**

### 2.4 Using Abbreviations

You may also use abbreviations like Quantum Machine Learning (QML) or Noisy Intermediate-Scale Quantum (NISQ) device. Make sure you define the abbreviations in the *glossary.tex* file. Further, you can use different commands. For the first usage in a section use `\acrfull` to show the full wording followed by the acronym in parentheses, as seen above. Use `\acrlong` to show just the full wording (e.g. Quantum Information Processing – this can be good for instances where the acronym might lead to ambiguity) or `\acrshort` for just the acroynm itself (e.g. FTQC, which stands for the fault tolerant quantum computing paradigm!)



THE BEST THESIS DEFENSE IS A GOOD THESIS OFFENSE.

**Figure 1: The best thesis defense is a good thesis offense.** A conceptual illustration of the celebrated thesis *offense*, an ambitious but often effective tactical maneuver.

### **3 Aim 1 Title**

#### **3.1 Introduction to Aim 1**

An introduction to Aim 1.

#### **3.2 Background to Aim 1**

This section will include the most relevant literature addressing this aim.

#### **3.3 Methods**

Maybe you'll discuss some methods.

##### **3.3.1 Some crucial details about the method**

It'll probably have a sub(sub)heading.

##### **3.3.2 Conceptual model, research questions and hypotheses**

Blah blah blah.

#### **3.4 Results of Aim 1**

Blah blah blah.

#### **3.5 Discussion of Aim 1**

Blah blah blah.

#### **3.6 Conclusion of Aim 1**

Blah blah blah.

## **4 Aim 2 Title**

### **4.1 Introduction to Aim 2**

An introduction to Aim 2.

### **4.2 Background to Aim 2**

This section will include the most relevant literature addressing this aim.

### **4.3 Methods**

Maybe you'll discuss some methods.

#### **4.3.1 Some crucial details about the method**

It'll probably have a sub(sub)heading.

#### **4.3.2 Conceptual model, research questions and hypotheses**

Blah blah blah.

### **4.4 Results of Aim 2**

Blah blah blah.

### **4.5 Discussion of Aim 2**

Blah blah blah.

### **4.6 Conclusion of Aim 2**

Blah blah blah.

## **5 Aim 3 Title**

### **5.1 Introduction to Aim 3**

An introduction to Aim 3.

### **5.2 Background to Aim 3**

This section will include the most relevant literature addressing this aim.

### **5.3 Methods**

Maybe you'll discuss some methods.

#### **5.3.1 Some crucial details about the method**

It'll probably have a sub(sub)heading.

#### **5.3.2 Conceptual model, research questions and hypotheses**

Blah blah blah.

### **5.4 Results of Aim 3**

Blah blah blah.

### **5.5 Discussion of Aim 3**

Blah blah blah.

### **5.6 Conclusion of Aim 3**

Blah blah blah.

## **6 Discussion**

Some detailed discussion.

### **6.1 A subheading**

Blah blah blah

## 7 Conclusion

This section would contain the conclusions drawn from the entire body of work.

### 7.1 A subheading

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## 8 References

[Cor21] B. A. Cordier. Ohsu latex dissertation template, 2021. Available on Overleaf.

## 9 Appendix

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