



Writing a Research Proposal

Informatics

2019-2020

Aim

- to help you produce a clear, concise and stylistically appropriate *Research Proposal*.

The language and conventions covered here should also help you produce a well-written *Dissertation*.

A common question to begin....

Can I use “**I**”?

Video Segmentation Algorithms

Read P.1 of the example proposal. How has the writer made their narrative impersonal? When do they switch to 'I'.

<https://www.wiki.ed.ac.uk/download/attachments/381815852/irp.god.pdf?version=1&modificationDate=1541514337000&api=v2>

A common question to begin....

Thus in this project we will focus on ...

In this report we will propose a ...

In the next section we will give a ...

In section 4 we will present a ...

In section 5, we will proceed by discussing ...

Our hypothesis is that ...

A common question to begin....

Thus this project **will focus on** ...

This report **will propose** a ...

The next section **will give** a ...

Section 4 **will present** a ...

Section 5 **will discuss** ...

My hypothesis is that ... **It is hypothesized** that ...

Other examples

We will further discuss the methodology for ...

As we have already discussed, the ...

We can extract X from ...

We might adapt an X ...

We will refer to X as Y .

In this sample we can see that there are ...

We aim to reduce the X by Y -ing the Z .

Other examples

The methodology for X **will be discussed** further ...

As already discussed, the ...

X **can be extracted** from ...

An X **might be adapted** ...

X **will be referred to** as Y.

In this sample **it can be seen** that there are ...

The X **can be reduced** by Y-ing the Z.

A KEY point



So, what are the implications for your use of verbs, for example?

What is focus of the proposal?

A) Image segmentation is the first stage of image processing in many practical computer vision systems.

B) When it comes to computer vision systems, the first stage is image processing.

Video Segmentation Algorithms

Staying with the example proposal, what is the basic organisation?

<https://www.wiki.ed.ac.uk/download/attachments/381815852/irp.google.pdf?version=1&modificationDate=1541514337000&api=v2>

Organisational Principle

- Purpose
- Hypothesis
- Background
(Subsections)
- Methodology
(Subsections)
- Evaluation
- Work Plan
- References

Agree?

Organisational Principle

- **Motivation:** problem; hypothesis; significance; feasibility; beneficiaries
- **Background**
- **Methodology:** including risk assessment
- **Evaluation**
- **Expected Outcomes**
- **Research Plan**
- **References**

Another Question:

What is the difference between:

- *motivation*
- *purpose*
- *objectives*
- *aims*

Organisational Principle

- Background known
 - Present tenses (simple & perfect) & Reference to literature
- Unknown/ problem/ need
 - **However**, ... **Although** ..., **Despite** ..., **Nevertheless**, ...
- Aim/ Hypothesis
 - **I hypothesize that** ...
 - **This project aims to** ...
- Significance/ impact
 - **This proposal serves to not only create ... but also** ...
 - **Further research that builds on this project would** ...

Useful structures for expressing aims and objectives

(Thus) This project/study **aims to** ...

(Therefore) **will build on** ...

will focus on ...

will set out to ...

The objective is **to evaluate** the feasibility of ...

The purpose of this study **is to** ...

There **are** two primary aims of this study: 1. **To** ...

This **motivates** a ...

And another Question:

What is the difference between:

- *method*
- *methodology*
- *tools*

That KEY point again



So, what are the implications for your use of verbs, for example?

Video Segmentation Algorithms

Back to the example proposal: foot of page 3 on. What tenses do you see being used?

<https://www.wiki.ed.ac.uk/download/attachments/381815852/irp.good.pdf?version=1&modificationDate=1541514337000&api=v2>

Present & Future
verb forms [Active
& Passive]
Conditional *would*

The aim of X **is to do** Y. [infinitives]
X **can be used to do** Y. [modals]

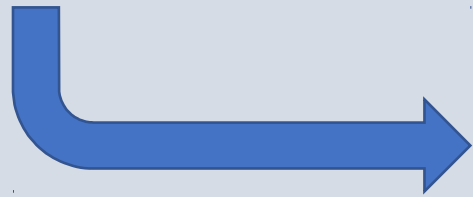
The methodology / procedure is similar to the ones you cite

- *The methodology selected will be / is intended to be....*
- A modified version of
- Slightly modified
- Adapted from
- Based [in part] on/ partly on
- In line with
- In essence
- To modify/ to refine/ to revise [BE SPECIFIC].

And then explain how in detail!

The intended procedure is significantly different to those you cite

- Although in essence similar,
- Although in many ways similar,
- Although partially based on,



one novel step will be to
adapt/ adjust / alter/ change...

THEN SAY what you are altering in detail and WHY!

Justify the choices you make

- To validate the results from X, data will be analysed using Y.
- For the sake of simplicity, only X will be analysed
- The advantage of using three-dimensional analysis is that X.
- One advantage of using X is that Y.
- By partitioning the sample into three, I will be able to ensure X.
- The X will be Y, so allowing the Z.
- This should avoid issues with X or Y.

Significance of Research

The proposal should demonstrate the originality/usefulness of your intended research.

You should therefore explain why your research is important, for example:

- by explaining how your research builds on and adds to the current state of knowledge in the field

or

- by setting out reasons why it is timely to research your proposed topic).

Identifying the gap or problem

- gap in our knowledge
- little evidence is available for ...
- restricted by ...
- not sufficiently ...
- need for ...
- there is growing concern ...
- remains unclear
- does not achieve / offer ...
- deficient
- drawback
- impractical
- inaccurate
- inadequate
- incompatible
- limitation
- redundant
- unrealistic
- weakness

Establishing impact and significance

- A current / common / crucial issue / focus
- A powerful tool / method
- Of great concern is
- Of growing [commercial] interest is
- attracting / generating widespread interest
- play(s) a key role in ... / a major part in ...
- play(s)
- For a number of years, ... / the last decade, ...
- The importance of
- typical(ly)
- well-documented
- widely recognised
- worth / worthwhile
- benefit / beneficial
- Importance
- Vital
- potential / possible / probable

Useful language for 'significance', 'impact' & 'gap'

Image segmentation is the first stage of image processing in many practical computer vision systems. The development of static image segmentation algorithms **has attracted considerable research interest** and **is enriched by a wide range of methodologies**. **However**, work that **has been published** in the video analysis domain **is still** quite **narrow and biased towards** the sole use of motion characteristics. **The recent proliferation** of digital video archives and the **advent** of video analysis techniques **has augmented** the interest in the identification and

Useful language for 'significance', 'impact' & 'gap'

Image segmentation is the first stage of image processing in many practical computer vision systems. The development of static image segmentation algorithms **has attracted considerable research interest** and **is enriched by a wide range of methodologies**. **However**, work that **has been published** in the video analyses domain **is still** quite **narrow and biased towards** the sole use of motion characteristics. **The recent proliferation of** digital video archives and the **advent** of video analysis techniques **has augmented** the interest in the identification and

A proposal is about showing you understand the possibilities.....

- By doing X, the intention is to Y.
- I expect to achieve ...
- This should mean that ...
- This could lead to X.
- Potentially, ... Presumably, ...
- It seems plausible that ...
- Manageable / feasible

How will you 'measure success'?

The Language of Evaluation

X will be evaluated **in terms of / for** ...
measured **on the basis of** ...
against a set of ...

X **will be used to evaluate** the ...

I will **evaluate and compare** the ...

The objective **is to evaluate** the feasibility of X as a Y

Useful verbs in a research proposal

- To operationalise ...
- To determine ...
- This then enables ... This will ensure ...
- This is / may be dependent on...
- X typically occurs when...
- X is typically performed by ...
- I envisage + Verb-ing ... [NB: Do **NOT** use *IT IS ENVISAGED*. Etc!]
- A key component ...

Link sequences to make an overall narrative

- Once ..., X
- On + Verb-ing ...,
- Having established the X, I then intend to Y.
- Methodologies tend to vary in that...

Writer responsibility

Topic sentences ↗ information flow [theme & rheme]
Cohesion ↗ repetition ↗ This/These ↗ **bamboo sentence**

One last KEY point



One last KEY point

perhaps, admittedly, may,
possibly, likely, probably,
predominantly, presumably,
seems, appears, may, suggests,
to some extent, sometimes,
often, around, roughly, fairly,
usually

is, are, will be, believe,
know, prove, certainly,
indeed, always,
undoubtedly, in fact,
clearly, actually, firm,
obviously, conclusively,
definitely, evidently,
straightforward

Abstract

Include:

- Background
- Unknown/ problem/need
- Overall objective
- General strategy
- Significance/ impact.
- **Include a statement of need**
- **Clearly identify the overall objective**



Avoid these common errors in postgraduate research proposals:

- Rationale is weak
- Writing is vague
- Uncertain outcomes
- Problem is not important
- Proposal is unfocused

(from MIT

https://ocw.mit.edu/courses/biology/7-16-experimental-molecular-biology-biotechnology-ii-spring-2005/scientific-communication/lec03_resch_prop.pdf

)



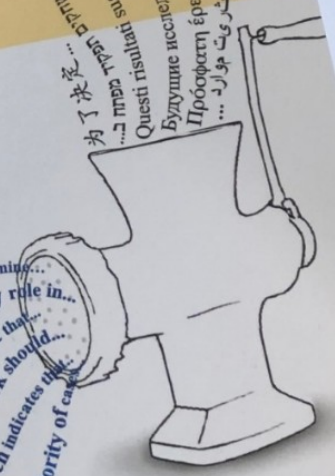
Science Research Writing

For Non-Native Speakers of English

Hilary Glasman-Deal

In order to determine...
These play a key role in...
These results suggest that...
Future work should...
Recent research indicates that...
In the majority of cases...

... 2 przez ...
... questi risultati indicano che...
... будущие исследования должны...
... Πρόσφατη έρευνα δείχνει ότι...
... در اکثریت موارد...



Imperial College Press



The University of Manchester

Academic Phrasebank

Introducing Work

Referring to Sources

Describing Methods

www.phrasebank.manchester.ac.uk