Writing a Research Proposal

Informatics

2018-2019
Aims

• By working through the exercises here, you should be able to produce a clear, concise and stylistically appropriate Research Proposal.

• The language and conventions covered here should also help you produce a well-written Dissertation.
Some questions to begin....

Can I use ‘I’?
Read P.1 of the ‘good’ example. How has the writer made their narrative impersonal? When do they switch to ‘I’.
Another Question:

• What is the difference between
• *purpose*
• *aims*
• *objectives*?
Useful structures for expressing aims and objectives

In this proposal, we aim to _______ this issue by ______ a X

XX algorithm that will (1) systematically explore XXX and (2) seek the fastest XXXX

The aim of XXX is to ensure ZZZZ.
Useful structures for expressing aims and objectives

In this proposal, we aim to **approach** this issue **through** employing a X

**XX** algorithm that will (1) systematically **explore** XXX and (2) **seek** the fastest XXXX

The aim of XXX is to **ensure** ZZZZ.
Tell a partner:

• What is your intended objective?
• What are your intended aims?
• What is your intended purpose?
What is the difference between *method* and *methodology* and *tools*?
Methodology is the ‘big’ one

• Methodology is about the principles that guide our research practices. Methodology explains why we intend using certain methods or tools in our research.
• Method + ‘ology’ = ‘knowledge about’ methods.
A Possible Organisational Principle

• Background known
• Unknown/ problem/ need
• Aim/ Hypothesis
• Significance/ impact
Write the first sentence of your proposal
What is this proposal about?

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.
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).
• What is the significance[ importance] of your topic for the field? For society/human kind?
• Write it down.
Establishing impact and significance

- A current issue
- A powerful tool
- Of great concern
- Of growing interest
- Play (s) a key role in
- Play(s) a major part in
- For a number of years

- Typical(ly)
- Well-documented
- (of) Commercial interest
Show your sentence to a partner. Could you make the significance clearer/stronger?
Write your gap/ problem in two sentences.
Useful language for ‘significance’, ‘impact’ and ‘gap’

• G__________ the heavy involvement of human Ub in essential biological processes, BfUbb r___________ further i_________. This is further e__________ by opportunistically pathogenic nature and suggested contributions to IBD. T_ d_______, there is no study characterizing the expressed protein and identifying its binding partners. This is the f__________ o_ the c__________experimental proposal. Findings are e__________ to provide further i__________ into this extraordinary protein and given the novelty of Ub homolog expression in a bacterial species, any findings may also have s__________ i__________ in the f__________ of microbiology and evolutionary biology.
Given the heavy involvement of human Ub in essential biological processes, BfUbb requires further investigation. This is further emphasized by opportunistically pathogenic nature and suggested contributions to IBD. To date, there is no study characterizing the expressed protein and identifying its binding partners. This is the focus of the current experimental proposal. Findings are expected to provide further insight into this extraordinary protein and given the novelty of Ub homolog expression in a bacterial species, any findings may also have significant implications in the field of microbiology and evolutionary biology.
• **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 in video analyses techniques has augmented the interest in the identification and tracking of physical objects within videos. High level semantic annotation of physical objects is the key to applications ranging from security and surveillance to information retrieval to sports and entertainment.
Discuss with your group:

• How does your project extend previous work?
• How does it avoid previous mistakes?
• How will you make this clear in your proposal?
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].
The intended procedure is significantly different to those you cite

• Although in essence similar, although in many ways similar, although partially based on,

• A/ One novel step will be

• adapt/ adjust / alter/ change/ THEN SAY what you are altering in detail and WHY!
Justify the choices you make

• **To validate** the results from XXX, data will be analysed using XZXXXXX.

• **For the sake of simplicity**, only XXXX will be analysed.

• **The advantage of using** three-dimensional analysis is that XXX.

• **One advantage of using** XXXX is that XXXXX.

• **By partitioning** the sample into three, I will be able to ensure XXXX.

• **The XXXX will be XXXX, so allowing** the ............

• **This should avoid issues with** XXXX or ZZZZZZZZ
A proposal is about showing you understand the possibilities......

• By doing XXXXXXX, the intention is to XXXX.
• This should mean that..
• This could lead to XXX...
• Potentially, presumably....
• It seems plausible that ....
• Manageable/ feasible
How will it happen?

• Rigorously?
• Smoothly?
• Thoroughly?
Useful verbs in a research proposal

• To operationalise
• To determine
• This then enables
• This is / may be dependent on...
• XXXX typically occurs when...
• XXXXXX is typically performed by
• I envisage +V+ing  Do NOT USE IT IS ENVISAGED. Etc!
• A key component
• JUSTIFY THE CHOICES YOU ARE MAKING TO YOUR PARTNER
The Language of Evaluation

HOW WILL YOU ‘MEASURE SUCCESS’?

Tell your partner
Link sequences to make an overall narrative

• Once....
• On = V+ING
• Having established the XXX. I then intend to XXXXX
• Methodologies tend to vary
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
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...

Imperial College Press