

Research Supervision

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1 Overview

This document describes my view of the supervision of research towards a degree, and outlines what I believe should be the mutual expectations of supervisor and supervisee. It's intended for my students and potential students, so they know what they are getting into.

2 General Issues

2.1 Choice of Topic

We need to work together to identify a topic that's interesting to you and interesting to me. If you're not interested in the topic, you'll find it very hard to put in the work required. If I'm not interested in the topic, you won't get as much of my attention as you should.

2.2 The Structure of Your Period of Study

Regardless of the academic level at which you're carrying out your research, the overall structure is likely to be the same: you'll do a detailed literature review, on the basis of which you'll identify some key research issues you want to address; you'll pick one or more of these research issues, and you'll work out how to address them, probably building a piece of software along the way as a proof of concept; and then you'll write up this work in a thesis. How this works out in detail for honours degrees and PhD degrees is described further below.

2.3 The Importance of Writing

Regardless of the academic level of your research, I expect you to be writing all the way through, and not just at the end when you put together your thesis. There are a number of reasons for this; in particular:

- It is often only when you try to explain something in written form that you become aware of some of the issues that you need to address.
- If you cannot communicate your research to others, then you might as well not have done it.

I expect you to produce a thesis whose written quality is high. The more you write, and the sooner you start, the better your writing will be.

2.4 Supervision

2.4.1 Meetings

During your first six months, you can expect to meet with me most weeks for an hour. For honours research, this continues right through to the completion of your thesis. For PhDs, in most cases this model extends into the second six month period, but if your work is proceeding very quickly, then we may reduce the frequency of our meetings after the initial six months, perhaps meeting once a fortnight or even once a month. Beyond the first year, how often we meet depends on the stage your work is at, and the amount of input you need to continue making progress; I'd still expect to meet once a month to keep up with how the work is progressing. Of course, if you feel you need more supervision, you just need to ask; often we'll have additional meetings for specific purposes.

It is your responsibility to make sure our meetings happen, and I expect you to send me a short summary, by email, of the meeting shortly after we meet: this should outline, in bullet points, the

key items we discussed, conclusions we came to, and actions required by either party with expected dates by which they will be carried out. The message doesn't need to be any more than a screenful or so; its purpose is to provide both of us with a record of the meeting.

It's also a good idea if you can take the initiative to propose agendas for our meetings before they take place, again by email.

2.4.2 Reading Your Writing

I read running text at an average of 10 pages an hour, and slower than that for densely technical material. Please bear this in mind when you give me things to read: I need to be able to schedule enough time to read things before we meet, otherwise our limited meeting time is wasted.

2.4.3 Managing Progress

As well as the summaries of meetings mentioned above, I expect you to also send me a short summary report at the end of each week that summarises the work you have carried out that week. I need to receive these reports by 5pm Friday each week, since they play a role in my planning for the following week, and I do that planning at 5pm on a Friday.

These reports need to be in a specific format. They should have a subject line of the form

Weekly Report YYYY-MM-DD: Week *N* of *M*

where the *YYYY-MM-DD* is the date of the Friday on which the report is submitted, and the *N* and *M* remind us both of how far through your research project you are: for PhD projects, *M* is 156. You need to use this format of subject line since I use this in managing my email.

In the body of the message – not as a Word attachment or anything else – you then should provide just simple bullet points under the following headings:

- + Achieved/delivered this week
- + Difference to plan
- + Comments
- + Next week's targets

The report should be short – no more than 20 lines.

3 Matters Specific to Honours Research

3.1 The Structure of Honours Research

What you have to do and when you have to do it by is very much determined by the deadlines that are part of the honours program; see the honours web pages.

4 PhD Specifics

The expected duration of a PhD is generally three years, and that's how long you'll get funding for. It's quite hard to complete a PhD in our area in that time: some people manage, but most go over by at least six months and often more. Nonetheless, you should plan to finish in three years; then you can fall back on the extension if you really need to.

4.1 The Structure of PhD Study

There's no one model that fits all cases, but the following structure is a good default.

Months 1-6: The Literature Review

The main goals of this stage are as follows:

- reading widely;

- becoming aware of the key players in your research area and reading the principal works;
- identifying the key issues in your research area; and
- writing your literature review.

Note that this means you already need to know the broad area you want to work in when you begin the PhD, so it's appropriate that we discuss that at length before you start.

You should also use this time to take courses to fill in gaps in your knowledge.

Months 7-12: The Thesis Proposal

The main goals of this stage are:

- identifying your research questions and the research hypotheses you will explore;
- working out in broad terms how you will approach these questions;
- writing this up as a plan for your research.

Meanwhile, you may still be taking courses to fill in gaps in your knowledge.

Months 13-24: The Research

The main purpose of this phase is to explore the research hypotheses introduced in the research proposal, and to develop answers to the research questions you identified. This is the core content of your research work; this involves developing the conceptual and theoretical machinery that makes up your research contribution, and implementing a system that demonstrates your ideas. This is when you will do the bulk of your programming, although you may have done some already in working out the thesis proposal.

Months 24-36: The Thesis Write-Up

It really does take a year to write up your thesis, so you need to start early. The thesis will typically have six chapters: an introduction, a literature review, three chapters that contain the substantial contributions that make up your work, and a conclusion.

Although it's appropriate to have a point in time where you decide you are starting to write up, there is no real hard line between this stage and the previous one. In part this is because you should be writing all the time in any case; but more importantly, as you write up the thesis itself, you will identify all kinds of problems that you need to address, so that you end up filling in holes in the research while you are writing.

4.2 Publication

4.2.1 Writing in Academic Style

Unless you have previous experience of real academic research at a postgraduate level, writing in the academic genre is unlikely to come naturally. To acquire this skill, you need to write a lot and read a lot. The first few times you give me a document to read, it will be returned covered in comments. Don't despair: I do this to everyone, and I wouldn't put in the effort if I didn't care about your work.

Writing your first publishable paper is a big deal, and I'll help you a lot with this. Generally what happens is that we discuss the work a lot, you revise a basic paper several times in response to my comments, and when things are starting to take shape, I spend time with you, preferably at a keyboard, revising the text extensively to make it appropriate for academic publication. I would expect to be second author in return for these conceptual and writing contributions; more

generally, your first few papers are likely to be co-authored with one or other of your supervisors, or both, unless you're submitting to a special student session at a conference.

4.2.2 Publication Targets

There are hundreds of workshops and conferences out there. Here are the main ones you should be interested in:

International Events

- The annual meeting of the Association for Computational Linguistics, held in July: acceptance rate 20-25%, submissions around December. This is the most important event in the field, and it should be your goal to have a publication in this conference before you finish your thesis.
- Coling, the International Conference on Computational Linguistics: held in August of every even year, acceptance rate around 40%, submissions around February.

National Events

- ALTWS, the Australasian Language Technology Workshop, held annually in December with submissions due around August.
- ACSC, the Australian Computer Science Conference, held annually in February.
- AAI, the Australian Artificial Intelligence Conference, held annually in December with calls around July.
- SST, the Speech Science and Technology Conference; held every two years.

You'll find there are also dozens of specialist workshops, often in interesting places; if you can find the money to attend these, that's great, but it's best to focus on the events above.

5 Expectations

It's important that we have a clear understanding of what we can expect from each other. Here's my take on this.

5.1 What I Expect

1. You take all steps possible to meet agreed deadlines, and you arrive for meetings punctually. You let me know if you will be late. You send summaries of meetings after they happen, and follow through on actions as agreed.
2. You get to know the community you are becoming part of: you should join the relevant ACL SIG if there is one, sign up to the relevant mailing lists, and learn who's who in the area.
3. You take your research seriously: you should join the ACL, and keep up with relevant research in your area by constantly searching out new stuff and reading widely. You should become an expert in the area of your research.

5.2 What You Can Expect

1. I take all steps possible to meet agreed deadlines, and I arrive for meetings punctually. I let you know if I will be late. I follow through on actions I take on as a result of our meetings.
2. I take your research seriously, providing comment on your work that is at a higher level of consideration than I would give to journal and conference papers I review.
3. I attempt to provide helpful pointers to relevant research and people, and generally help you as much as I can to carry out a world-class piece of research.