

Supervisor Letter

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Abstract

The purpose of this document is to align expectations between the supervisor and the (prospective) student. It is a point to begin negotiation from - we can agree to change the rules, but there is an abstract budget to changes.

Interests My primary research interests are as follows:

1. Causality
 - Causal Reasoning
 - Causal Inference
 - Causal Machine Learning
 - Causal Reinforcement Learning
2. Statistical aspect of sequential decision making
 - Bandits
 - Markov Decision Processes
 - Active Learning
3. Challenging applications of statistics in social sciences

However, I am open to exploring other topics if they are not too far away from my previous interests (I have been doing a few very different things thus far), and (unfortunately) I am hyper-curious. Topics should broadly fall within statistics and machine learning (theoretical or applied; not necessarily computer science).

I have some projects written down that could become the thesis.

The goal of the thesis The ultimate goal is to become an independent researcher (understood broadly). Writing a thesis gives a unique opportunity to learn the hard and soft skills of research. This metaskill gives a major psychological and problem-solving advantage in whatever way of life is chosen afterwards. These include

- overcoming the initial lack of ideas and deficit in skills
- deconstructing a more complex system into workable and relevant chunks
- identifying the gaps in knowledge
- planning and managing a large long lasting project
- reading literature with a purpose
- writing a larger composition
- refining the ideas over a longer period and larger material

One can learn this, most likely, only through self-exploration, although guided. It is (unfortunately) one of the few occasions where society gives you time to tackle something bigger with this much freedom. The secondary goal is to advance science. The third bonus goal is to fulfill the need for creation. It should allow one to grow personally, to create and have something of their own. Discovering something the world has never seen is also a unique metaphysical experience.

The role of the supervisor My role is primarily a subset of the following:

1. to show what are the boundaries and what is the map of the field, point to sources and materials, highlight what might be more or less important
2. to ground the ideas, such that they are tractable
3. to share the principled ways of thinking about tackling certain problems
4. to be a sparring partner for your intermediate ideas
5. showing alternative or more abstract kinds of ways of thinking about concepts
6. provide extra motivation and psychological support (to a degree)
7. share good practices, practical workflows for efficiency etc.
8. introduce you to the community, share opportunities

Do not expect me to “solve your problems” per se or to for you to be my “employee”. These are the wrong type of archetypes.

Time dimension

- Typically, we will meet once a week for an hour of discussion.
- I will reserve an additional optional three hours once a month for longer meetings or for time spent on activities related to the thesis on my side.
- According to the university expectations, the student should work on the thesis approximately 32 hours a week in a block. It is not a good measure, as this surely must include breaks. To triangulate, we can agree on how much pure work this translates to roughly. My proposition is that it should be 20-24 hours of pure efficient work (excluding breaks). Therefore, a weekly “progress” is expected (development or lessons learned, tangible or intangible, background research, trying things out), up to the fact that life happens. Another option is to spread it over longer periods of time, which I recommend.
- It is advised to begin widely understood preparation 3/4 of a year before handing in the thesis in order to have more time, less stress, and to be more robust to unexpected events.
- There is space for some more spontaneous interactions between the supervisor and the student, if the speed/acceleration of the progress, matter of the task, or stage of the project makes it justified

Communication Suggested practical format of communication

- Before the meeting an email in a reasonable advance is sent with the following short notes
 1. what I did in the past period
 2. blockers/decisions I need to make
 3. what I will try next and how
- At the end of the meeting we will explicitly notice
 - Decision/plan
 - Student will … by [DATE].
 - Supervisor will … by [DATE].
 - Risks/assumptions
- One have to also think about other people - bear in mind to estimate how much time do other people have on their side, people are busy.
- Share the working (and final) material on Overleaf. At some point, we could also start some minimal versioning there.

- Whenever you share material, it should be very clear at what stage it is and how to read it: is it camera-ready, is it brainstorming, is it a draft, is it work in progress
 - What kind of text have you sent? (Where does it fit into the overall thesis)
 - How drafty or polished is it?
 - What challenges have you faced when writing the text?
 - What would you like your feedback on?
- I will also be available for short exchanges on some agreed platform
- My rigid official working hours are between 9:00-12:00 and 13:00 - 17:00 Monday to Friday. However, I sometimes work in the evenings and on weekends, but we should not schedule regular meetings then.
- I seek your feedback on how advice is going for you and what does/does not work. You should feel free to be the one instigating it. Please feel empowered to request certain formats of receiving feedback.
- Free exchange of information and fluent communication is of absolute importance. It should be a safe space, it is from my side.
- We are playing in the same team and we should play in open cards - this way it will be easier. I will also repay in honesty. There is never a need to “cover up”. We all make mistakes. Apart from the truth, the overall trajectory over long horizon is what matters the most.

Miscellaneous

- You should have some inherent curiosity about the topic. You should not treat it as a part of the work, it should become your passion, in the sense that it is enjoyment, not a burden.
- It matters how much you are curious about the topic and the meaningfulness of the journey you embark on more than the final grade.
- We should treat ourselves with meaningful respect and be generous towards one another. We should work together and not against each other. As a rule: you produce the thesis; I advise, guide, and provide feedback, whatever you can do on your own in reasonable time, do so. But also, don't be afraid to ask stupid questions, do not polish things overly – in the sense that we should rather be agile than cascade.
- Best if you roll the dice and go all the way, but not required

What should I do if this sounds interesting? Please send an email to qlv877@di.ku.dk that describes your interest with [THESIS] in the title. Ideally, for projects in blocks 3 and 4 (1 and 2) I need your email by November (May) for full consideration. Please include the following information:

1. Who are you (all potential group members)?
2. What relevant courses have you taken and how did it go or whom I might know that can vouch for you (not necessarily a direct link)?
3. If there are particular topics that you are interested in?
4. What would be the main goal (e.g. getting a good grade, developing a prototype, getting a degree)?
5. If you are currently planning to work alone, would you be interested in talking to others in the same situation about forming a group?

What happens next? I will reach out to you and ask further questions regarding the project. If we both think there is a potential match, we should have a conversation about thesis ideas in person or online.