

MSc project cluster experience

Sharon Goldwater, 13 Dec 2018 [updated 17 March 2022]

Update from March 2022

The document below was based on a single year of experience. I've now done group supervision for 4 years with groups of between 3 and 7 students using a similar approach (using online meetings for the last two years, and at least one PhD student available each year for more hands-on advice).

Some groups have been less engaged than the first group, but in all cases the approach has worked well for both students and myself. It's reduced the amount of time I spend on MSc projects (including proposal/selection, supervision, and marking) from ~25h/student to ~15h/student (or a bit more if <5 students).

The IPP phase is now a bit longer than in 2018, so I would not expect to meet with the group every week during that phase; instead I would schedule 4-5 meetings.

Overview

- Cluster of 7 strong students doing research-oriented NLP projects
- Single theme and shared toolkit/codebase for a starting point
- Weekly 90-minute group supervision, plus 1-2 scheduled TA hrs per week
- Students really liked it and took ownership, got better support
- It was easier and more enjoyable for me (but required more planning).

Background: what's a project cluster?

Several students work on individual projects that are thematically related. Likely have similar background reading, may all use the same support code/tools. Meet mainly as a group and encourage students to use each other for technical support and peer review of writing. May also involve a paid TA for additional support on these aspects and/or general guidance. Examples:

- different data sets, same models/algorithms
- same data set, different models/algorithms
- different extensions to the same support code
- different designs to solve the same/similar problems

My project cluster in 2018-19:

Not aimed as a "fallback" but as a challenging research-oriented project. NLP is in huge demand; over 40 students expressed interest. I wrote the description to make it attractive but also clear it would require self-direction and group interaction.

Took 7 students: 6 on my topic area plus one self-proposed on a similar topic. Final marks: 62-82.

Original title in DPMT:

"Sequence-to-sequence neural models for lemmatization OR historical text normalization"

Final project titles:

- Multi-Task Learning for Sequence-to-Sequence Neural Models of Lemmatization
- Convolutional Encoders in Sequence-to-Sequence Lemmatizers
- Joint models of lemmatization and morphosyntactic tagging using an attentional encoder-decoder with context
- Sequence to Sequence Japanese Neural Lemmatization: do we need segmentation?
- Exploring Context Representations for Neural Lemmatization
- A sequence-to-sequence neural network for English past-tense inflection
- Multimodal Semi-Supervised Lemmatization and POS tagging for Central Kurdish [the self-proposed project]

The student with the self-proposed project attended all of the group meetings and said he found these useful, but in retrospect having one somewhat distinct project made things harder for me and the TAs, and raised issues of fairness in supervision. I'm not sure I would agree to do it again.

Benefits

For students:

Student in my group told me that

- They really enjoyed the group aspect, having other students they could talk to and turn to for help. They felt the experience was better than many of their peers'.
- Peer feedback was useful and they even asked for an extra peer feedback session.
- The group meetings during IPP were more useful to them than their IPP tutorials.

I also felt they took greater ownership of their projects because they had to develop the specific details themselves, and they had support available even when I was away.

For me:

- 90 minute weekly group meetings: for 7 students, far more time-efficient than my usual 1/2 hour per student individual meetings, and students get to benefit from other students' questions.
- Because students could ask each other and TAs for technical support, I hardly had to do any. This meant less stress for me and hardly any email in between meetings.
- Much less context switching than separate projects = less stress and better answers for student questions.
- Didn't feel bad about going on holiday for a couple of weeks, because TAs still available.

For TAs:

- Good experience: TAs enjoyed being able to provide technical support and guidance, and getting to know the MSc students.
- They were also happy to give some oral feedback on short pieces of writing and help guide peer feedback sessions.
- However, at least one of them explicitly said he would not want to provide written feedback on drafts.

Possible issues/things to be aware of

- I did spend some time (30-90m) during each of the 6 IPP weeks preparing for the group meeting (e.g., choosing and reading papers, preparing guidance documents and/or reading/writing assignments). This required more organization than individual meetings and obviously time. However I plan to re-use many of the documents and am happy to share them with others, so I felt this time was more worthwhile than individual meetings.
- After initial peer feedback, I did still give feedback to all students on their IPP drafts and thesis drafts. This was a large time commitment (~1.5 hrs/student for IPP, ~2.5hrs/student for thesis) and also required planning ahead to block off time. The only way to scale this to a larger group would be to employ TAs to do it, which I have felt uneasy doing and which fewer PhD students are willing to do.
- Project design. Need to have a clear starting point and fallback option. In my case: based on a paper from my own PhD student using available code (so we know it works), and fallback would be "do this task on Language X" where data for many possible X's is available.

Example schedule and tips for each phase

Project proposal phase:

- In DPMT proposal, describe the general project idea and possible directions, being clear what students will need to work out for themselves. (Make sure some easy fallbacks are available: in my case, just pick a new language to build a system for.)
- To determine suitability, students fill out a form. No individual meetings.
- To help students decide, send an email with clear expectations: participating in weekly meetings and peer feedback and generally being part of the group.
- Ideally, choose a time for the group meeting and notify students *before* the project choice deadline (avoiding conflicts with popular/relevant courses).

IPP phase:

This schedule worked for my group of 7 plus TA. The 90 minute meeting would work for 6-7, otherwise lengthen it (but then students may start getting bored). I blocked off time to do the feedback on all drafts myself; this is a pressure point and won't scale much further without TAs.

- Set up a Slack channel for questions, reading/writing assignments, and peer review.
- 90 minute weekly meetings starting 27 Feb:
 - Weeks 1-4: First half to discuss assigned readings/exercises and second half for 5-10 minute updates/questions from each student. [Just barely doable in the time...]
 - Week 5: progress reports only
 - Week 6 (3 April): final meeting; peer review of draft IPP. Each student submitted a draft two days ahead. Split into two groups to assign readers and discuss at meeting.
 - 6 April: submit draft to supervisor, feedback returned by 10 April.
 - 12 April: IPP deadline
- One TA hour per week and TA attended weekly meeting in alternate weeks to stay abreast.
- Goal: students have a good idea of next steps so they can get going between/after exams but before group meetings start again.

Project phase:

In summer, we continued with 90-minute weekly group meetings. I had two TAs who alternated attending the group. Each held one drop-in help hour per week. (The number of hours for a single TA would be fine, but they did say they preferred having two, as backup support for harder questions.)

13 June-04 July: weekly meetings with progress reports and next steps/questions. TAs ran two of these meetings while I was away.

06 July: students submit 2-4 page progress report by email.

w/c 9 July: individual 1/2 hour meetings with students, discuss progress report.

18 July: progress reports and next steps/questions.

25 July: peer feedback on Introduction chapter. (Submit two days ahead, split into two groups for reading/discussion.)

3 Aug: (by popular demand) peer feedback on up to 10 pages of draft thesis.

8 Aug: deadline to send draft to supervisor for feedback.

17 Aug: final submission deadline.