

6.962: Graduate Seminar in Communications

Class Evaluations (full text), 13 December 2000

1. **What were the three aspects of the class (e.g. format, topics, style of presentation, etc.) you most liked?**

Summaries prepared before each presentation. I think most of them were very useful and even more clear than the papers themselves.

The topics. I learned what the important issues are in currently popular research areas.

The faculty presence.

Effort people put into their presentations.

Summaries.

Informal nature of discussions.

The methodology for choosing topics is good – letting us choose what to present makes for a better presentation (more interest therefore more effort). Also, the discussions were relatively interactive, so that keeps everyone interested and involved. Since you asked for three aspects, and I know these questions will be strictly enforced, I also liked the informality of the course.

i) I particularly liked the summaries people wrote up. Both gave me quick access to the topic (particularly in weeks I didn't have time to read the whole paper), and was also a good exercise in preparing my own talk. ii) I also like the informality of the discussions. I think this might be heightened if people used the blackboard rather than slides. I found myself approaching it more like an area exam than an informal discussion group. iii) I very much liked presenting a topic I knew little of at the beginning of the semester. Now I feel I know the basics in that area.

The presentations were all pretty good. The material students chose to cover are mostly reasonable. The depth and breath of the topics were good. The talks were easy to understand, I only had to skim through the paper and read the summary to be able to follow. I think the summary before class thing was a good idea.

Student-driven (and everyone was very well-prepared), we had a good mix of topics, and the interaction during the presentations was good.

Overall, I think the class was a great experience. The weekly summaries were a great idea and really helped. (And they'll be great to keep for future reference.)

The faculty interaction was very good - they let the students take control, but they helped the presenters choose topics and papers, and were able to provide insight on what's going on in research for these topics.

I think that organizing the talks into 3 or 4 categories worked well, rather than having them completely random. (Though this might be a little harder to do in a future term.)

Overall I thought that the course was a great success. First of all, it was consistently interesting, and I learned a lot. The topics were very well chosen. Secondly, the quality of the presentations, the preparatory work and the subsequent reports, and of the discussion was exceptional. I was most impressed by everyone's holding to the highest standards despite the lack of any external incentives to do so.

With regard to your specific questions, I think that the format, topics, style of presentation, etc. were all very well chosen, and hard to improve upon. I hope that the seminar does continue in future terms, and I would be happy to continue to participate. The theme can vary according to the interests of the participants, and need not be focussed on communications; e.g., I think that a term on signal processing could be good, and I would encourage LIDS students to participate.

I first would say that I think the class was really good. The choice of topics ended up being great, even though I was skeptical about some at first (turbo codes, multiuser detection). This was partly because each person was allowed to talk about what he/she was interested in, and thus could give a more interesting talk.

The level of the presentations was good, with most including both a tutorial part and a discussion of the details of the problems. The class interaction was also good, although sometimes the faculty dominated the discussion more than necessary (this is a tough call to make, because we also benefit from hearing their words of wisdom).

The policy of the class of having the paper available a week before and the summary available a couple of days before worked well when people adhered to it. However, many times the papers were put up on the web site only a couple of days before class. This policy (or something similar) should be emphasized so that everyone has a chance to read the papers and thus allow for more discussion.

I enjoyed sessions which were tutorial-like, because I benefited most from them. Sessions which focussed solely on one particular paper were less useful to me. I think this tended to happen with the information theory sessions. (Maybe it's also because information theory is one of my weak points.)

I found that the course topics were very useful for my research; I have been looking at low-density parity check codes, iterative decoding algorithms, and multiuser detection, and the class provides some interesting ideas on these topics.

The pre-class write-up was very useful. Journal articles can be long-winded and difficult to read, and having a brief summary with the presenter's own interpretation is very useful.

I think 6.962 was a great success in terms of both organization and execution. Everything worked perfectly well even though it was the first time the class is offered.

I liked the format, style of presentations of the class.

I liked the style of presentations, and also the not-too-formal class setting in which they were given (kind of like what you'd get in a group meeting rather than a lecture). Sometimes two hours would seem to go on for a very long time however, although sometimes that's how much time you need to get the talk across

I liked the fact that students were able to pretty much choose whichever topics they wanted. Originally I thought some of the topics might be dull, but I actually ended up learning a lot about things I otherwise wouldn't have thought were interesting.

I liked the level of faculty interaction. They did a good job of providing the class with their wisdom without overwhelming the discussion.

The third aspect I liked most were the iterative coding topics.

Content – We got to cover hot new topics, essentially whatever we wanted. We covered a lot of ground in two hours every week.

Ability to leverage – We all did a lot of work, but essentially for just one week. The rest of the time we got to coast and leverage someone else's work. This is exactly what I originally wanted to course to be about, and I hope it stays this way. Our (limited) discussions allowed us to leverage each other's perspectives on problems, which really requires mature graduate students who've had a lot of exposure to various problems.

Flexibility – I didn't need to be at every meeting, yet I could read the summary and chat with a few friends and pick up the main parts of the story. (In retrospect, Gallagher's suggestion of a summary beforehand was particularly wise.)

2. What three changes could help make the class even better?

The format of presentations. I turned into a semi-formal area-exam style. I think it would be better if we did (as we talked at the beginning of the term) concentrate on only a small number of issues on each paper rather than trying to present the whole thing in no depth.

Using blackboard rather than using the slides for presentation.

A 50-50 balance between presentations and presenter led discussions.

Nothing major, just nit picking: Maybe having a bit more discussion during the talks would be useful. A couple of the talks got a little too mathematical, but in general everyone kept the talks to the right level of understanding. Having a few more non-DSPG students?

I really benefited a lot by presenting a topic I knew nothing about a priori, and I think everyone else did as well, since I explained everything at the most basic level. Perhaps students in future sessions should be strongly encouraged to volunteer for topics they have little or no prior knowledge in.

I think we can do away with the post-lecture report; I'm not sure if anyone reads it.

I'm not sure if students actually read the articles before class. Perhaps we do not have to make reading the article an "official" prerequisite to attending a particular session. (not that it really matters.)

It would have gone even better if more people read the papers before coming to class — but that's impossible to change. A change with great impact would be to have someone bring cookies and drinks. Lastly, I wouldn't mind having a little more practical bent to the discussions — what are people designing now (that we know of or are allowed to say), and why are they doing it that way? This last one is probably too difficult to make interesting for everyone, though.

i) Getting a wider range of graduate students to attend (e.g. LCS). ii) Somehow making the discussion even more informal. Not sure how, use of the blackboard? I think that occasionally there were comments made by the faculty that were beyond most student's knowledge base, and so were a bit intimidating. More generally, however, it was great to have the faculty around. iii) Some simple coffee/snacks.

One thing that I think would improve the class is the semi-formal presentation style. Almost all of us tried to talk about everything that is in the papers and concentrated on many different things. This prevented the audience to concentrate on a single issue in depth if they did not spend some time reading the papers.

I think the presentation time could be limited to 30 mins and the presenter could focus on the important 1-2 issues about the paper. And a couple of days before the presentation, the speaker could let others know about the issues he will concentrate on.

The use of blackboard would help to make the presentation more informal and help induce discussion.

I think the class would be better if instead of requiring a summary prior to class, which is time consuming but people don't necessarily read it, the presenter would spend more time on constructing simple examples that emphasize the main ideas (like Huan did).

I think there should be an emphasis on presenting the main ideas intuitively rather than a lot of results. Since the students all have the paper they can look at the results in the paper.

Encouraging more interaction amongst the students

Have a more tutorial approach

Snacks/food

Focus more on introductory material

Faculty – If students are running the course, then students should get to hand select the faculty who become significantly involved. At times, there was a bit too much barnstorming from certain members of the faculty. Constructive comments that contribute to everyone's understanding are great and much appreciated; however, nitpicky comments about detailed mathematical concerns serve little to no purpose in our seminar.

New Ideas/Brainstorming – Perhaps a little risky because of intellectual ownership issues, but one aspect of the course that I had hoped would evolve is the idea of suggesting ways of expanding or reinterpreting various results, relating to other areas, and generally coming up with new directions. This appears to have happened off-line in some instances (limited sampling within my own research group).

Examples – Some folks were able to generate nice examples and geometrical interpretations. These were very nice and will carry the most value several years from now when I refer back to the summaries, because they will quickly get me back into the train of thought. More emphasis on examples would be great.

The faculty should be more involved in terms of choosing the papers or even the outline of the content. This would encourage me to choose a topic that I am not familiar with, so I don't have to go through lots of papers that I am not familiar with and pick something. Also, giving an outline makes sure that the students cover the more relevant material, not that the students didn't do a good job.

I think I should have wrote a personal note for myself after each class and summary the content in my own words, so that I can remember what's covered better. I am not sure whether making it a requirement is a good idea. It does give me more pressure to actually do it. It is more work for the students but would make this more like a class.

It might be good to have a slightly broader array of topics such as signal processing or control.

Including people from LCS or Control might provide an interesting perspective.

One possibility would be to have food/drinks before during or after the class similar to the various seminars and colloquia on campus, but this might be distracting.

there seemed to be some disparity as to the level of the talks...some of were pretty hardcore and current in their topic and results, and others were more survey-type...I liked both kinds, but some areas didn't seem to have the survey types at all, which makes it harder to figure out what is going on without the background. I guess there's just not enough time to cover everything...it might be better to have fewer topics but more sessions with each one? That would tend to make the class a bit more seasonal, with a mostly coding session, and a mostly wireless session, etc etc)

also, sometimes it would have been nice to get the papers and/or summary much earlier than the Monday before, just to give more time to possibly be able to read it all beforehand...and discussion reports? what happened to them? they just sort of seemed to stop after yours

3. Of the above changes, if you could make only one change for the next time the class is held, which would it be?

Clearly: make Chuck bring cookies and drinks.

Recruiting further abroad in the department.

The format of presentations. I turned into a semi-formal area-exam style. I think it would be better if we did (as we talked at the beginning of the term) concentrate on only a small number of issues on each paper rather than trying to present the whole thing in no depth.

cancelling the summaries and instead investing time in examples.

For next time, present tutorials on subject before delving deeply into papers.

One specific recommendation for change is that the time be chosen such that students from Alan Willsky's group can participate. Thursday afternoon?

well, I have no idea how the topics were originally chosen since I wasn't there the first meeting, so I don't know about that one...I do think each topic should have at least 3 sessions on it so you can get a good view about what is going on in that topic

The faculty should be more involved in terms of choosing the papers or even the outline of the content. This would encourage me to choose a topic that I am not familiar with, so I don't have to go through lots of papers that I am not familiar with and pick something.

Have a wider array of topics.

4. What topics would you recommend for future classes?

Wireless networks (higher-level protocols and performance analysis)

Simulation techniques (importance sampling, etc.)

Random matrices and various asymptotic eigenvalue spectra

Linear and non-linear optimization

Non-parametric detection and estimation theory (learning theory)

Digital watermarking

Historical anecdotes about Shannon, Gallager, etc.
Chess (dynamic programming)

If the class is meant for other people, same material is fine. But given the number of students left in the communications area are mostly first or second years, they might need more faculty assistance.

If we are going to try different topics, I can think of Computer networks / internet issues. How does akamai work? Signal / image / speech processing. Beyond that might be too far from me.

Hmm, that's tough. That depends too much on who is in the class — it must be interesting to the speaker and to everyone else. Here's a topic I don't know anything about but wouldn't mind learning about — object recognition, or other topics on image processing. How about video compression?

Detection and Estimation, Wavelets, maybe something about Networks.

Similar to this time. Info Theory/Coding/Wireless. Perhaps some estimation theory stuff not covered in 6.432.

Interaction between physical layer and higher layers.

Turbo Code Implementation issues. Spread spectrum, CDMA

As for topics for the future, I am always partial to anything information theoretic. As I said above, the important thing is that people present what they like, and hopefully people's interests will coincide enough so that everyone will enjoy most of the presentations.

Subspace methods (music, esprit ...), blind methods for detection, source separation etc., cyclostationarity and use for equalization, coding.

I think a repeat of the topics would be fine.

dspeech, video maybe? optical communications? I think the topics that we had were good, but maybe there were too many of them

5. Assuming there is faculty and departmental support, would you sign up for a similar course if it were held next semester?

Undecided (time constraint).

Yes.

If I were not trying to graduate this summer, then yes. In my current situation, I'm not sure.

Yes.

If it is still on communications, the same set of topics. I probably won't. If it is on different topics, I might. This would mean that they would be something I am not familiar with. For example, computer networks. Interesting, yet I am not familiar with it. I would certainly need faculty assistance. But given that I haven't even taken 6.263, I might be more willing to learn about them rather than presenting. So I might just sit in.

I haven't decided. Probably leaning toward yes, but I'll have to think about how much time I want to put in. I'd definitely like to sit in on

some of them, but it won't work out if too many people just want to observe.

I would definitely be interested in taking the class again.

Damn good chance.

Yes

I would sign up

Yes

6. **Assuming the course is held again, would you be interested in helping with the organization? (E.g. reserving the room, updating the website, etc.)**
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Yes, if I take.

No — see my answer to 5.

Some.

I think reserving rooms, or updating the websites are doable. It is the "etc" that I am afraid of. :)

would not mind helping out on the organizational side.

Yes.

Sure. (Although I think there would be minimal organization required; the course appears to run itself.)

sure, I guess I could work on the web page or whatever...

Yes.

I would be willing to help.

Not next term.