Notes for November 27th

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1 How to Write a Great Research Paper

Rules:

- Any message could be said in the minimal amount of space. Do not play around with fonts, or add long appendices. It absolutely does not change the chances of the paper being accepted.
- Do not be afraid of cutting stuff from the paper.
- Give strong visual structure to the paper. Use figures, use tables, use subsections, etc.
- Use the *active* voice. Never use "I", always use "We". "One" is an ugly word in terms of sentence structure.
- Simple is always better.

Things to remember:

1. Strive to identify the key idea.
2. Make contributions explicit and give credit when it is due.
3. Use examples as often as possible.

2 How to Give a Good Talk

- Research is communication. Communication is made through papers and through talks.
- **All students have to give a 10-minute talk on Dec 2, 9 or 11.**
- A talk is not a paper, but an advertisement for the paper. Try to give an intuitive feel (for the non-experts) in an original way. The point is to convince the audience to read you paper.
- What to put in: Motivation(20%) and the Key Idea (80%).
- You have exactly 2 minutes to engage the audience.
- Avoid giving a shallow overview.
- Examples are your main weapon. It is OK to omit technical side conditions.
- Leave out: outline, related work, technical detail, never apologize.
- Write your slides the night before; at least polish them the night before.
- Do not use the templates. Do not use a lot of colors.
- By far the most important thing is to be *enthusiastic*, since it makes you less nervous.
- Script your first few sentences precisely (no brain required).
- Place some secret markers on the slides.
- Pick someone to speak to (a *nodder*).

- Watch the audience for questions.

Tips regarding questions:

- Questions are not a problem, they are an excellent way to engage the audience.
- Be prepared to truncate your talk.
- Be honest about the answer.
- It is all right if you cannot answer right away.

Other advice:

- Use animation effects sparingly.
- *Absolutely* finish on time.
- Remember that the standards are very low in giving talks.
- When introducing a new technical point, do it by example.
- Use a completely white background.
- Always give the audience time to understand the example.
- Keep colors different enough.
- See the definition of Model Checking without actually providing any definitions.

3 Career Advice

Taken from a talk by David Patterson, available at [1].

- Keep taking courses, but do not spend all your time on getting the best possible grade in the course.
- You only need to maintain reasonable grades.
- Start involving other faculties, so you can ask them about writing a good reference letter
- Get exposed to new ideas (courses, a minor).
- The advisor is there because he likes working with grad students, and his career is measured by the success of his or her students.
- It matters what you did for your PhD.
- Go to conferences as much as possible.
- Remember that you are working for yourself, not for the school or for the advisor.
- You cannot have a simple priority queue as your time management method.
- You have to have time for some long-range important tasks.

Other advice:

1. Remember that it is either Swim or Sink.
2. Read and Learn on your own.
3. Teach your advisor.
4. Show initiative.
5. Ask questions.
6. You don't have to know everything that has been done in your field before.

7. Cooperate with others.
8. Do not make things too complicated.
9. Keep things practical; evaluate your results.
10. Use systematic tests; your experiments should be *reproducible*.

Advice about papers and talks:

- Start from an outline, then a paragraph map, re-write draft; spell check and grammar check.
- Talks: 2 minutes per slide, don't over animate, dry runs, tape and video tape your talk.
- Poster advice: Structure, pieces with concrete topics, not too much text.
- Try to solve a problem that is relevant to others; do not invent your own problem.

For later in your career, follow Richard Hamming's Advice on how to do Nobel-quality research (transcript available at [2]).

References

[1] `http://www.cs.berkeley.edu/~pattrsn/talks/nontech.html`.

[2] `http://www.paulgraham.com/hamming.html`