How do I Give a Conference Presentation?

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Research Group doing research on all things Computer Science, theory and practice:
http://researchgroupdoingeverything.cs.illinois.edu/citemeplease!
Before you get to give a conference talk

You need to **start**

1. You need to select an **area** to work on
2. You need to find a **problem**
2. You need to find an **idea**
3. You need to **execute** the idea
   – Analysis
   – Experiments
   – **Write!**
4. You need to **get it accepted**
Tips on How to Start (a Successful Research Career)

• Go to Jail

• Disagree and Fight with your advisor

• Feel inferiority complex from a senior grad student who produces 10 papers per year, or a few very high-quality papers per year
Robert Morris

- Cornell CS PhD Student in late 1980’s
- Wrote first Internet worm (exploited overflow in sendmail daemon)
  - Inadvertently released worm on young Internet, and brought it down
- Was arrested, tried and sent to jail. Ousted from Cornell
- Did community service
- After leaving jail, went to Harvard to complete PhD. Finished PhD sometime in mid to late 90s
- Now a Professor of Computer Science at MIT
- Designer of many cutting-edge systems like Ivy, Chord, application-level DNS, multicore OSs, etc. Well-known researcher in p2p systems
- Nice person!
Feel inferiority complex from a senior grad student

• It’s important (to feel inferior)!
• It’s important that you say, “Wow!”
• But it’s also important that you say, “Dang! I can do that too!”
• And then do it!
• Maybe an imaginary senior PhD student ;)
Tips on How **Not** to Start a Research Career

- Write your own Research Paper in isolation
- Work only with your advisor and no one else
- Talk to only grad students in your year; don’t talk to any senior Grad students
- Talk to only grad students in your area; don’t talk to Grad students in other areas
- Try to publish papers in the top conferences without any help
- Try to publish papers in bottom conferences
- Be ambitious without support and help
- Don’t collaborate
What are the Rules of Thumb?

- First, find **one thing** that you **like** to work on
- Then diversify
- Over time, find your niche(s)
- Don’t stagnate
  - A rolling stone gathers no moss (but does gather papers and reputation)
Life of Ra (a Research Area)

Hype - “Wow!”

First peak – end of hype (“This is a hot area!”)

First trough – “I told you so!”

Young (low-hanging fruits)

Adolescent (interesting problems)

Middle Age (solid base, hybrid algorithms)

Old Age (incremental Solutions)
How do I identify what stage a research area is in?

1. If there have been no publications in research area more than 1-2 years old, it is in the “Young Phase”

2. Pick a paper in the last 1 year published in the research area. Read it. If you think that you could have come up with the core idea in that paper (given all the background etc.), then the research area is in its “Young” phase.

3. Find the latest published paper that you think you could have come up with the idea for. If this paper has been cited by one round of papers (but these citing papers themselves have not been cited), then the research area is in the “Adolescent” phase.

4. Do Step 3 above, and if you find that the citing papers themselves have been cited, and so on, then the research area is at least in the “Middle Age” phase.

5. Pick a paper in the last 1-2 years. If you find that there are only incremental developments in these latest published papers, and the ideas may be innovative but are not yielding large enough performance benefits, then the area is in the “Old Age”.

6. If no one works in the research area, or everyone you talk to thinks negatively about the area (except perhaps the inventors of the area), then the area is dead.
Which Conferences do I Submit to?

• Good ones top ones, but reasonable ones
  – Don’t submit just for kicks. Spoils your reputation
  – Don’t submit to a lower conference if you feel the paper can do well at a better conference
  – Ask your advisor. Ask others. Be independent.
  – Go to conferences, make friends and contacts, and ask your friends about “reputation” of a conference

• And: submit to journals! Takes longer, but is very important!
I so wanted to do a conference talk, but my paper got rejected

• Everyone gets rejected
  – Acceptance rate in top conferences: 5%-20%
  – Acceptance rate for proposals at the National Science Foundation: < 10%
  – Chance of a Bill in US Congress becoming Law: 4%
  – Einstein-Rosen submitted their paper on gravitational waves to Phys Rev. They rejected it. Einstein wrote a letter back:

  Dear Sir,
  We (Mr. Rosen and I) had sent you our manuscript for publication and had not authorized you to show it to specialists before it is printed. I see no reason to address the in any case erroneous comments of your anonymous expert. On the basis of this incident I prefer to publish the paper elsewhere.

  Respectfully,
  P.S. Mr. Rosen, who has left for the Soviet Union, has authorized me to represent him in this matter.

• OK to be angry at rejection
  – But you should be confident about your results
  – Use any anger or negative feelings to fuel your work
OK, I got in! (Congratulations!)
Oops, I need to present!

• Chicken Chicken Chicken Chicken

http://www.youtube.com/watch?v=yL_11d9OSdk
So, what’s the secret to a good talk?
So, what’s the secret to a good talk?

• Don’t bore the audience
What’s the secret to a great talk?

• Tell a good story
• Everyone loves a good story
What?

• The goal of your talk is not to convey the paper to them
• The goal of your talk is to serve as an appetizer, so that the audience goes back and reads your paper (and cites it)
Preparing your slides

• How much time do you have?
  – Budget > 1 minute per slide

• Who is your audience?
  – Broad vs. Focused
  – Will they be familiar with a term/system? If yes, you don’t present background for term

• Keep your slides simple
  – Don’t have fancy patterns that distract
  – Don’t put them to sleep with dark backgrounds
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Preparing your slides (2)

• Think of the *theme* for each slide
• Have a *Takeaway* slide early on (and then also at the end)
  – If the audience doesn’t understand anything else, that’s the least they should take away
  – They can always read the paper for the rest
• Keep coming back, even repeating, the key takeaway points during your presentation
Preparing your slides (3)

• Use examples. Use color.
• Be adventurous – try using not just PowerPoint, but Keynote, Prezi, …
• Do NOT fill your slides with
  – Code, pseudocode, algorithms, equations
  – If you need to use them, maintain a balance
• Images are ok, but don’t be too busy
Preparing your slides (3)

• Use examples. Use color.
  – **But not too much color**
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Preparing your slides

• Use examples. Use color – But not too much color

• Be adventurous – try using not just PowerPoint, but Keynote, Prezi, …

• Do NOT fill your slides with code, pseudocode, algorithms, equations – if you need to, put them on a blackboard instead.

• Images are ok, but don’t be too busy
Giving the Talk

• Speak slowly
  – There will be people of many backgrounds and various levels of English in the audience

• Speak clearly

• Speak English

• Don’t be afraid to apologize
  – E.g., if you mince words

• End with the **Takeaways** slide, not with a “Questions?” slide with nothing else on it
Walking the Talk

• Look at the audience, not backwards at the slides
  – Look forward at your laptop
  – It’s called a “talk” for a reason (not a powerpoint presentation)

• Use accessories
  – Laser pointer, remote slide advancer, wireless mic if available

• (Did I mention you need to have a Takeaways slide?)
No really, How do I NOT be nervous during a talk?

• If you’re not nervous before a talk, something might be wrong with you
• Nervousness => energy
• But be confident
  – You’re the one who’s done the research
  – You’re the only one who knows all the nitty-gritties of your paper
  – You’re the only one who knows the things your paper does not do
  – Even your advisor doesn’t know as much as you do
Words of Caution

• Don’t overclaim (also applies to the paper)
  – “We solve the problem of cloud reliability.”

• Don’t undersell

• Don’t condescend

• Be honest
  – It’s not a competition: you’re advancing the frontiers of research, along with everyone else
  – Reputation takes a long time to build, but can be lost in a flash
What about those Questions?

• Most questions are straightforward
  – “How does X work again?”

• But be prepared for nasty questions
  – “Why are you working on X at all?”
  – “X has been tried before and it has failed.”
  – <SOSP 2013> “I just tried Y on my laptop and it’s faster than the numbers you’re presenting right now.”
  – In answering these questions, it’s useful to know that you’re not trying to convince the questioner (esp. if he is prejudiced), but the rest of the audience
Preparation

• The best way to prepare for a talk:
  – Practice, Practice, Practice, Practice, …

• Give practice runs in front of your advisor, in front of group, in front of your friends, in front of your group again, in front of your other group, in front of your advisor again

• If your advisor says he/she has no time
  – Bug him/her
  – Ask other faculty
  – Fire your advisor
Preparation (2)

• It’s a two-way street: Attend practice runs of other people in your group/your other friends

• Only on the 3\textsuperscript{rd} try does the talk really gel

• (Mark Twain) “If I had more time, I would have written a shorter letter”
Speaking English

• Practice speaking English at work
• Try to make it a rule never to talk in your native tongue, as long as you’re in Siebel
• This will vastly improve your presentation skills – trust me!
Ok, I’m done with my first paper. How do I diversify?

• No rules.
• Work with other grad students.
• Work with other faculty members.
• Perhaps outside your area, but not too outside.
• Take courses! Both inside your department (outside your area) and outside your department
• CS is multi-disciplinary, and evolving. Don’t fight it, but go with the flow!
Giving Back

• Offer to
  – Review papers at conferences (ask your advisor!)
  – At journals
  – Serve on shadow PCs

• You learn by doing

• Don’t forget to submit to journals
How do I measure my impact?

• Periodically, do a little ego-searching, er, Google searching…
  – Search for your own name on Google
  – On Google Scholar
  – On citeseer
  – On DBLP
  – Look for citations of your work
  – Re-evaluate and re-calibrate

• Try to have impact! (papers, citations of, industry)
What Else?

• Write software that has real users (and contributors)
• Go work in an industrial research lab!
  – Internship!
  – My internships gave me good letter writers, and good future collaborators (I still work with them!)
  – Helped me make friends from among other PhD students (who now work in big companies!)
  – Gave me topics for my PhD research.
  – They interviewed me for a job, and gave me an offer
• But be careful: companies may restrict publishability of your work with them under IP (Intellectual Property)
  – Ask ahead of time. Talk to your advisor about it.
• Interviews at these companies increasingly coding-oriented
Ok, I have 10 papers. What’s the big picture?

- Basically, a PhD degree means you are equipped to do all the following
  1. Pick an arbitrary area (not necessarily in CS)
  2. Understand it yourself
  3. Identify problems in it
  4. Solve these problems in an innovative manner
Think: “Where am I on this spectrum?”

– Basically, a PhD degree means you are equipped to do all the following

1. Pick an arbitrary area (not necessarily in CS)
2. Understand it yourself
3. Identify problems in it
4. Solve these problems in an innovative manner

Think: How do I push myself to the next level on this spectrum?
And remember:

• A conference paper is only a (starting) step in a long research career.
  – Well-begun is half-done.
• A grad degree is a way of self-discovery
• It changes your philosophy to life (especially a PhD)

And of course the caveat: there are caveats to all rules