

Some Comments about Doing CS Research

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- Personal perspective
 - Specific to me (and my views often regarded as odd or contrarian)
 - Specific to my area
 - Biased towards "first-tier" research
- Pessimistic perspective?

Being a CS graduate student is about

1. Learning to do research
2. and doing it.
3. The rest is noise.

Why do CS research?

1. **Intellectual**—To advance science or technology
2. **Personal**—You are driven to do it (as an outlet to creativity)
3. **Ego** — I must be really smart (there must be better ways to stroke your ego)
4. **Social**—To advance social goals (I don't buy it)
5. **Strategic**—As a stepping stone to where you want to be (I don't like it)
6. **Boredom**—For fun (why not !?)
7. **Mandated**—It's forced on you (ignore or change system)

What is your research?

Your research is your papers

- Cor: what isn't in your papers isn't your research (and doesn't exist)
- Cor: your research isn't your: projects, proposals, ideas, skills, who you know, whom you work with, ...

What is a paper, anyway?

~~A snapshot of your thinking~~

~~A line on your vita~~

Glyphs against a blank background

1. Ink on a piece of paper
2. Marks on a computer screen
3. The pdf/ps/dvi that becomes (1) or (2)
4. The TeX that becomes to (1), (2), or (3)

Versions of your paper

Full version (on web)

Any length. The version I increasingly consider as definitive

Proceedings version

Typically 12-15 pages allowed

Journal version

Increasingly, doesn't exist

I regard it as one paper. Make it one LaTeX file

(If your work is your research, your research is your papers, and your papers are glyphs ...

then you need to focus on those glyphs!

- I reject the thesis that there is a important distinction between the ideas and the presentation; "the presentation is the thing"
 - ~~Sloppy writing is a sign of sloppy thinking~~
 - Sloppy writing is sloppy thinking
 - Your papers belong on the web
-)

→ a.k.a., a good paper

What is good research?

- Ground-breaking work (opens up a new line of work, people follow) (nicest place to be long-term)
- Good incremental work (best bet as a grad student?)
- Useful work
- Socially-redeeming work (unlikely in our field)
- Aesthetically pleasing work
- Starts from (and leads to) good questions
- Not published in "LPUs"

What is good research, cont. (*a postori view*)

- **num-of-references-to-your-papers**
a better indication of how you're doing than
num-of-papers
- Doing a few good papers much better than doing lots of mediocre ones.
- **Most papers worthless** (nobody remembers them /cites them / gives a damn about them)

<http://citeseer.nj.nec.com/cs/>

<http://www.informatik.uni-trier.de/~ley/db/>

What it takes to do first-rate research: personality characteristics

1. Dissatisfaction
2. Good taste
3. Creativity
4. Persistence (to the point of obsessiveness)
5. Ability to suspend doubt (a kind of meditation)
6. An open mind
7. A suspicious disposition (curiosity)
8. Intelligence

What it takes to do first-rate research: concretely

1. Time About 200—1000 hours for a good paper?
2. More time Additional authors doesn't reduce time/author
3. Then more time
4. Ideas
5. Skill in writing
6. Training

More about writing

1. Write, rewrite, throw-away, write, rewrite, rewrite, throw away, rewrite, ...
2. LaTeX skills
3. Aesthetic sensibilities

A few more hints

1. Don't immediately try to see what other people have done
2. Look at problems sideways
3. Move problems to the back of your head
4. Work on multiple problems at a time
5. Write as you do your research, not after (to the minimal extent that this means anything)
6. Find the right work environment for you
(me: flat, clear desk; silent room; mechanical pencil with soft lead (0.5mm), a few differently colored pens, a laptop computer, no distractions)
7. Beware of token-management, and doing backups