

How to do Research: Dorr, 9/8/03

- No guaranteed algorithm
- How do you become a member of your community?
 - Start by reading
- How do you read a paper?
 - It's an acquired skill
 - Questions to keep in mind
- How do you get connected to smart people?
- How do you learn related fields?
- How do you deal with failure, get unstuck, etc?
- Other stuff (for another time): Writing, talking, programming, choosing an advisor.

Read!

- Get grounded in your field by reading
 - Textbooks and published journal articles
 - Bibliographies from syllabi, google
 - Which journals do you read?
- How do you read a paper?
 - Cheat. (1) abstract, intro, conclusion; (2) find the good stuff; (3) go back and read whole paper
 - Questions:
 - How can I use this?
 - Does this really do what the author claims?
 - What if ...?
 - Tie the paper into what you are working on.

Get “connected”

- Don't wait til “cool idea” in a journal!
- Electronic mailing lists
- Get refs from people who say “Have you read...”
- Email links to people who might be interested.
- Distribute drafts
- Send copies of your pubs to people.
- Bridge gaps
- Google interesting citations
- Hang out
- Interact with outsiders
- What's the point of conferences?
- Get one summer job away from your lab

Learn Related Fields

- Why? Increasingly good research requires knowledge of related fields.
- Linguistics, Foreign Language, Medical informatics
- Other fields provide perspective on your own field.
- How many? 1-2 by the time you graduate.
- How to do this?
 - Graduate course? Textbooks?
 - Journal: Follow references (using citeseer)
 - Read stuff by famous people
 - Go to talks

Have fun even if you fail sometimes

- It is easy to burn out on research
- Both triumphs and tragedies are a part of the process
- Risk taking
- Do successful people fail?
- What can you do with a stack of failures?
- Research takes more time than you thought.
- Make research a part of your everyday life.
- Rate of progress varies radically.
- Set goals. Tell someone!

What do you do if you're stuck?

- Getting stuck is like “writer’s block”
- Setting your sights too high: work on a sub-problem first.
- Seriously stuck: Work one hour a day.
- Leave a fun task for the next day
- Fear of failure: Are you putting yourself to the test?
- Aids to the insecurity slump: recognition, feedback from smart people
- Progress: Your ideas aren’t obvious. Write it up!
- Research can be fun—that’s why we tolerate the pain.
- Looking back at what you’ve done: (a) It’s worthless; (b) Hey, it’s clever!