Nurturing (Academic) Research Collaborations

Janie Irwin, Penn State University
mji@cse.psu.edu

June 2003

Collaborate

"to work jointly with other or together esp. in an intellectual endeavor"

Webster's

Types of Collaboration

- I'll have my grad student talk to yours
- Symbiotic trading of pieces of IP
  - » Exchanging knowledge, techniques, hardware blocks, tools, code, benchmarks
  - » Can be one time or the beginning of a longer term relationship
  - » Can be done long distance
- Mind-melding collaboration
  - » Sharing ideas in progress, developing something from scratch
  - » Long term
  - » Can't be started long distance; may be problematic to maintain long distance

Other Types

- Artificially or externally driven collaborations to compete for large $$
  - » Often transparent to the reviewer (not a plus)
  - » Sometimes they pan out and turn into real collaborations, but more often not
  - » If the wedding is a problem, the marriage is going to be a big problem
  - » To make it work, it's best to show a track record of collaboration before writing the proposal

Upsides of Collaboration

- Leverages your work – the sum is greater than the whole of the parts
  - » Visibility, impact, grantsmanship ($$)
- Two sets of eyes
  - » A built in (friendly) critic
  - » Someone who picks up the ball when you've run out of ideas or hit a brickwall
- Reinforcing partnership to cheer one another on (commiserate) when things aren't going so well

Downsides of Collaboration

- Perceptions of the community
  - » Who gets the credit externally - especially if one member of the team is more senior, from a better known school, …
  - » Who gets the credit towards promotion and tenure – will it count for or against you?
- Ownership
  - » Exposing your ideas to someone who might not continue the collaboration; will they use the ideas without credit to you (or claim them as their own)?

How to Get it Started

- Find people you are comfortable with
  - » Individuals can bring different skills/talents/strength to the team
- Start slowly
- Be prepared to be exposed because a good collaboration is one where you are sharing unfinished (perhaps bogus) thoughts
- Even when it makes sense on paper, collaboration has to come naturally (it's not just an academic partnership, but also an emotional one)

How to Make it Work

- Understand there are "proceeds" and come to an agreement early as to how those proceeds are going to be allocated.

1. If you're successful, there will be money involved
   - » Come to an agreement as to how the money will be split early on
     - Make sure your university bean counters endorse it (set up the accounting lines)
     - Make sure your university credit counters endorse it (for promotion and for overhead return)

How to Make it Work, Con't

2. And there will be papers involved
   - » Come to an agreement early on with respect to who gets first author credit, who will present papers, who else will be listed as co-authors
   - » Balance authorship and acknowledgements
3. And there will be students involved
   - » Come to an agreement early about who will be primary advisor; find out if co-advisorship is accepted by your University
   - » Don't give the students mixed messages and don't let the students mom and pop you

Larger Issues

- Intermittent outside collaborations while maintaining your primary collaboration
  - » Only works if its an orthogonal research effort
  - » Make sure that your primary collaborator is informed
- Collaborations with more than two in the team
  - » Be honest and open with all parties
  - » Be prepared to accommodate others desires, needs
- Biggggg collaborations
  - » May not be an honest collaboration
  - » May become an administrative nightmare; typically requires a hero (e.g., managing partner)

When/How to Stop It

- If you find your taking too much time discussing who owns what, then it may be time to stop
- When your friends start congratulating you on papers that you didn't know about

- Be honest with your collaborator(s) about your intentions and plans
- Come to an equitable agreement about the property settlement
  - » If you figured this out before hand (prenupt), it's easier
- It takes ~ three years to get out of a collaboration (flushing the joint ideas, money, and students)

Team Building

- Build a research team (ug & grad students, postdocs, other faculty)
  - » build team spirit
  - » weekly team meetings – keep track of deadlines and make sure each team member is working on a project leading to a paper submission
  - » once a year off-site intensive retreat – invite industry collaborators to attend
  - » ensure students have the necessary resources (e.g., office space, equipment, etc.) to do their work

Packaging is *important* – create a sexy web page to highlight your team's work and keep it up-to-date !

Tracking Activity

- Hand out a spreadsheet at group mtgs
  - » Accepted/papers in/yet to appear
    JVLSISP mk,.. – instr sched for low power – final in 4/6/03; to appear ???
    DSN'03 www.dsn.org/ Jun 22-25, San Francisco
    wz,.. - ICR for reliability – **wzhang** to present
  - » Accepted/final papers in progress
    OOPSLA oopsla.acm.org/oopsla2003/ [Jul 11] – Oct 26-30, Anaheim
    gyc,.. heap compression techniques
  - » Submitted papers
    TACO wz,.. – compiler I$ leakage mgmt (xMICRO) – sub 2/03 (CA:mahmut)
    SiPS sips03.snu.ac.kr (May 16)[Jun 16] – Aug 27-29, Seoul, KOREA
    hs,.. – exploiting value locality for secure energy-aware communication
  - » In progress/planned papers
    HPCA www.ac.uma.es/hpca10 **July 14+7**(Oct 6)[Nov 3] Feb 14-18, Madrid, Spain
    ll,.. – noise aware interconnects

Tracking Activity, con't

- Proposals funded
  NSF 0103583 - NGS:POWERful Software ($600k)(as,mk,vj,mji) - 9/01-7/04
- Proposals/WP submitted
  NSF/ITR/large (PI:LaPorta) – UMPIRE – sub 3/24/03
- Proposals/WP to be re/submitted
  NSF/NASA/HDCCSR –reliable, low power embedded sys - due **6/18/03**
- Group infrastructure issues
  ALL AUTHORS of accepted papers - Put pdf on mdl with "This paper appeared in *xxx*, month 200x." For papers in ACM outlets include footnote at bottom ©Copyright 2002 by ACM, Inc (link to info.acm.org/pubs/toc/CRnotice.html)
  ALL PRESENTERS – look for travel grants (e.g., www.sigda.org/programs/TravelGrant)
  Group mtg - Wed: 2:30 throughout the summer in 236 Pond
- Faculty and graduate student contact information (email addr., office, status)

Wei Zhang (wzhang)	224 P	- **taking** finals Sum03
Greg Link (link)	226 P (orlith/bld)	- pcand Spr03