How to FUND your research program

Jo Atlee
University of Waterloo, CANADA

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Academic Freedom
(for the most part)

You can pursue whatever research you want

BUT, you will need some funding to be successful
• to pay for students
• to travel and present your work
• funding is sometimes used in tenure evaluations
Funding Opportunities

Multiple funding sources

• multiple government agencies
  – (US) http://www.grants.gov/applicants/find_grant_opportunities.jsp
• industrial research labs
  – Microsoft Research Connections, Google Faculty Research Awards
  – SAP ARC, IBM CAS, etc. graduate fellowships
• industrial partnerships
• university awards

(US) NSF funding

• NSF accepts ~15% of proposals in core SE/PL research
• percentage is higher for CAREER applications
• best to apply for CAREER award early
Funding Opportunities

Show up when invited to meetings with funders

• don’t prejudge funders’ needs
• good experience in explaining your work to others
• good exposure to other colleagues in the meeting
Funding Opportunities

Align your funding efforts with your research program

- not the other way around
  - having no money may be better than having money with distracting obligations

- be open to new research directions
  - branch out some to demonstrate independence from supervisor

- BUT, don’t spread yourself too thinly

- ideally, research projects should be related
  - want coherent body of important work at tenure time
Funding Opportunities

Pros and cons of industrially funded research

+ keeps you grounded in reality
+ often entails access to data, tools, developers
+ attracts good industry-bound students
+ work may have real impact on practice
+ partners can write support letters for proposals
+ results may be commercializable
+ fewer constraints on how funding is used
Funding Opportunities

Pros and cons of industrially funded research

- can take longer to produce results; may need to
  - learn the domain
  - filter / abstract / massage data
- may have non-research deliverables
  - development work
  - progress reports
- publications may be delayed or censored
  - non-disclosure agreements
  - IP agreements
Tie the proposed work to an important open problem

• significance of research problem is increasingly important
• helps granters to justify how their money is spent

Tie the proposed work to previous work you have done

• convey your unique ability to conduct proposed research

Describe how students benefit from the proposed work

• what technical expertise they will develop
• what training they receive in research methodology
• how they benefit from interactions with junior and senior members of the research team
Seek Advice
(lots of it)

Advice on funding opportunities

- university’s research office:
  - aware of funding opportunities
  - can offer advice, answer questions
  - may know how about the reviewing process, criteria
  - may have technical writers
    - trial a writer before taking him / her on

- granter:
  - is the proposed research a good match for the call for proposals?

- grant holders:
  - how difficult / timeconsuming is the application process?
  - how onerous are the grant obligations?
Seek Advice
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Advice on your proposal

• grant holders:
  – ask for copies of highly successful grants

• colleagues, mentors, former grant reviewers:
  – ask multiple people to review your proposal

• chair, senior colleagues:
  – ensure that the budget reflects the cost of research
    i.e., own salary, students, administration, computing, overhead

• reviewers:
  – if a proposal is rejected, revise and resubmit

Agree to serve on a grant review panel
Reach out to Collaborators

Consider applying for grants with co-investigators

- collaborative research grants
- infrastructure grants

+ can increase your number of successful grants
+ you see firsthand how others work
+ new ideas arise from integrating ideas, work
+ collaboration can add a social component to research
Summary

Align your funding with your research program

Seek lots of advice