

# INFO4990 IT Research Methods

## Research Ethics

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based in part on slides by Judy Kay

## Overview

- Background principles
- Correct research
- Honourable research
- Credit and authorship issues
- Protecting oneself against others

## Ethical principles

- Professional ethics
  - ACM Code of Conduct
  - ACS Code of Conduct
- Emphasise obligations to clients, community, profession as a whole

## Correct research

- The rest of the community must be able to rely on your claims about your contribution
  - This allows the field to advance
- Be explicit about the evidence for your claims
- Be open and clear about limits or weaknesses of your work

## Truth in research (I)

- If you say you built a system, it must exist
  - Complete and running (integrated)
  - Not just separate pieces for each aspect
- If you state performance values, they must be real and fair
  - Describe the environment in enough detail (eg was there other load, were the caches pre-filled, what hardware/software was used)

## Truth in Research (II)

- Data must be representative
  - Don't pick the most positive examples from several attempts
  - Don't reason circularly (ie don't use data to derive a hypothesis, or to determine key parameter values, and later claim the same data as evidence)
    - Instead, have separate training set and evaluation set

## Honourable research

- Respect sources of data
  - People who were used for experiments (eg usability)
    - Informed consent
    - Confidentiality [make anonymous]
  - People about whom data speaks
    - Confidentiality [make anonymous]
  - People/organisations that provided information, equipment, funding etc
    - Licence conditions
    - Non-disclosure agreements
    - Possible approval process

## Credit (I)

- Give credit to others
  - Cite sources you build on
    - Enough detail to find their work!
    - Use their words only in quotations (and then, be accurate)
  - Acknowledge everyone who played a role
    - Eg tech support who provided patches to compiler
    - Eg friend who proofread for language idioms
    - Eg assistant who entered the data
    - Eg someone who gave an idea that turned out to be wrong but led to solution
  - Authorship for those who provided important ideas
    - "conceiving, executing or interpreting" part of the research

## Credit (II)

- Don't double-count
  - If there are several papers coming from the same research, make sure each has a distinct contribution, and explain what that is
    - Eg one paper describes system architecture, another presents network optimisation, another shows innovative UI
  - Cross-reference all the other work in each publication

## Authorship (I)

- Discuss with supervisor
  - What is contribution of this paper?
  - Who are the authors?
- When?
  - Before writing the paper
  - Again, before releasing it (put on web, submit to conference, etc)

## Authorship (II)

- Usually, supervisor will be co-author
  - If they contributed significantly (identify the problem, put the work in a framework, help refine the design or plan the experiments, write or revise substantial parts)
- Often other members of the group will also be co-authors
  - Paper may combine results from several students' projects
  - This requires care and clarity when these results are discussed in an individual student's thesis

## Protect yourself (I)

- Conflict with supervisor
  - Can occur during thesis (eg over funding, co-authorship, commercialisation, etc)
    - Best if issues discussed before work starts (eg agreement over ownership of IP)
    - If necessary, approach School research director
      - Or Associate Dean (Research Pgrads)
    - Key is clear communication, and written records of agreements, presentation of ideas, etc

## Protecting yourself (II)

- Planning for the future
  - Before you leave the university, talk to supervisor about future plans/possibilities
  - Will you continue the work?
    - What directions/extensions will supervisor give to other students (vs those you will do yourself, or give to your students)
  - Will you submit for publication?
    - Maybe supervisor will polish and submit, with both as co-authors
    - Maybe another student will continue, leading to combined publication

## Protect yourself (III)

- Issues with referees, acquaintances, web surfers
  - People who see your work before publication might, if they are not ethical, publish it themselves, or improve on it
  - This can restrict your recognition
    - May even destroy your chance to get a degree!
  - Best protection is timestamped publication (eg School Tech Report)
    - Before putting on web or submitting or sending out for comment

## University of Sydney Codes

- Statement by all authors
  - Accepting that they did contribute
  - Identifying one author as taking responsibility
- Preservation of data
  - In a known location for 5 years, even after individuals leave the university
- Conflict of interest
  - Identify affiliation or financial interest
- Human subjects
  - Ethics approval process
- Commercialization
  - IP created by a student belongs to the student unless signed away before project started