Publishing Your Research

Margaret Martonosi, Princeton
Andrea Danyluk, Williams College

Margaret Martonosi Intro #1: The Technical Me…

Cornell BS EE '86 -> Stanford PhD, 1994

Princeton 1994-now: Assist., Assoc., Full…

Research: Computer architecture and mobile systems. Power efficient systems. Memory model verification. Quantum Computing.

Sabbaticals: IBM (2005) & US State Dept (2015-6)

Margaret Martonosi Intro #2: Non-Technical Me

- Married 17 years to Kevin Burkman
- Met when we were both hike leaders for the Appalachian Mountain Club
- Other fun: Running, swimming, travel

Andrea Danyluk Intro #1: The Technical Me...

Vassar BA '84 -> Columbia PhD, 1992

NYNEX Science and Technology, Expert Systems Lab, 1990-94

Williams College 1994-now: Assist., Assoc., Full...

Year off from Williams 2018-19: Academic director of Align M.S. in CS at Northeastern University

Research: Machine Learning. Also CS Curriculum and Data Science Curriculum.

Sabbaticals: NYNEX/Bell Atlantic (1997-98); NYU (2015-16)

Andrea Danyluk Intro #1: Non-Technical Me...
Married 35 years; Son (26); Daughter (24)
Fun: Hiking, travel, reading, crossword puzzles

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Publishing Your Research

Part 1- The Publishing Process
Part 2- The Writing Process

Thanks to Holly Rushmeier for some of the material in these slides, which she, in turn, had adapted from previous Grad Cohort presentations and a Grace Hopper presentation by Jaime Teevan

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The Publishing Process

The "Writing Bug"

It's addictive!

Why?

It feels good:

- to share what you've done
- for others to be interested
- to say how you've advanced state of the art!

So keep doing it -- as much as you can?

- **Quality!** Quantity varies by area
- Citations matter as career progresses
- Venue matters

Avenues for Publication

Examples from Machine Learning

Machine Learning journal

International Conference on Machine Learning (ICML)

Workshop on Adaptive Learning Agents (16th was held at the Federated AI Meeting in Stockholm)

Workshop on Network Interpretability in Deep Learning (held at AAAI 2019)

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Avenues for Publication

Examples from ML

Machine Learning journal

International Conference on Machine Learning (ICML)

Workshop on Adaptive Learning Agents (16th was held at the Federated AI Meeting in Stockholm)

prestige

field recognition

visibility

feedback

Additional

Workshop Abstracts

Doctoral Consortia Abstracts/Posters

Conference/Workshop Posters

feedback

Other Outlets

Thesis

Software, patents, books, data repositories

Social media: blogs, Twitter, YouTube

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Publication Development

Peer-Reviewed

Workshop

Authors are NOT tied to this pipeline!

Conference

Journal

beginning of an idea, some evaluation

more evaluation, well thought out

well evaluated, complete idea

Focus*: Conferences

Conference status is different in CS than other disciplines

       Primary outlet for CS (selective)

       Place to meet for other disciplines (not selective)

Not all conferences are equivalent

       Know top-tier conferences in your research area

       Acceptance rates/citations

       Sponsoring organizations

Acceptance requires that an author attend

Visibility can be very high from giving a talk or meeting with other researchers

       *Be sure to understand what is primary in your area of CS
        (especially if doing interdisciplinary research)

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Conference Process

Uniform Submission Date

       Typically once/year

       May have separate abstract deadline

Program Committee

       May be hierarchical, may have non-committee reviewers

Decisions

       Single decision or rebuttal

Details vary by area and year

       Read the CFP carefully!!!

       Talk to Grad Cohort speakers from your area

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Peer Review Process

- Reviewer selection
    - Drawn from citations, contacts, lit search
    - Uses keywords or categories (beware of choosing too broadly)
    - Experts in the field
    - No conflicts of interest

- Single-blind- author does not know reviewers
- Double-blind- reviewers do not know author, author does not know reviewers

What Reviewers Look For

Clear contribution

Technical soundness

Solid evidence

Rejection!
-What didn't reviewers understand?
-How can I make it clearer?

Good writing will never make a paper. But, it helps to make contribution, technical soundness, and strong evidence clear!

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The Writing Process

Writing Effectively

- Empathy for reader:
  - Get out of your head and into yours.
  - They haven't been "riding along with you" during your work; they just got here. Avoid "kidnapping them". Tell them where you are going and why it matters
- Short sentences
  - Humans stop and process information at the period (.) Give them more places to pause and process.
- Outline, clear sequencing, and topic sentences
  - Write out an outlined bullet list of sections and clearly sequenced key points.
  - Turn each key point as the topic sentence of a paragraph.

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The Intro

- What is the problem?
- Why is it important?
- What have others done about it?
- What are you doing about it? (What is novel/different from others?)
- What are the takeaways? should the world learn from your work?

Improving some writing: With your neighbor…

Keep in Mind

- Read each other's abstracts
- Offer 1-2 specific bits of positive feedback.
  - Find things they did well
- Offer constructive feedback to improve
  - Specific wording markups
  - Overall writing/explanation strategies

- The Big Questions your abstract should answer:
  - What is the problem?
  - Why is it important?
  - What have others done about it?
  - What am I doing about it?
  - [if appropriate] One results number for reader to remember

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Resources

- Strongly Suggest: "The Science of Scientific Writing" by Gopen & Swan

- https://cseweb.ucsd.edu/~swanson/papers/science-of-writing.pdf

- Very short – just a few pages, but gives great strategies to work on.