

Publishing Your Research

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Education

BS 1986 USP-Brazil / MS 1990 USP/ PhD 1997 Georgia Tech

Professional (Academia → Industry → Academia)

- Professor at USP-Brazil 1996 -2000 (tenure 2000)
- Research Scientist at IBM TJ Watson 2000-2012
Manager since 2007; several other leadership titles
- Principal Engineer&Manager, Qualcomm Research (2012-14)
- Professor and Department Head, Texas A&M Univ

Personal

- 2 cats, 125+ first cousins;
- Single except for 8 years ☺
- caretaker 2010-2015
- Fun: knitting, reading, travel



Ramón Cáceres



- Grew up in Dominican Republic
- BEng in EE from McGill U in Canada
- MS in CS from UC Berkeley in CA
- Software engineer in Silicon Valley startup: Pyramid
- PhD in CS from UC Berkeley in CA
- Industrial researcher at AT&T and IBM in NYC area
- Startups in NYC along the way: Vindigo, ShieldIP
- Software engineer at Google in NYC

Publishing Your Research

- Part 1 – The publishing process
- Part 2 – The writing process

Thanks to Soha Hassoun and Ming Lin for much of the material in these slides, which they had in turn adapted from previous Grad Cohort and Grace Hopper presentations.

Goal of Publishing

- Benefits
 - Advance the state of the art
 - Public evidence of your abilities
- Quality vs. quantity
 - **Quality!** Quantity varies by area.
 - Citations matter as career progresses
- How to have impact
 - High-quality work
 - Highly visible outlets

Outlets for Publication

- Primary outlets
 - Conference papers
 - Journal papers
- Related outlets
 - Workshop abstracts and short papers
 - Doctoral consortium at conference/workshop
 - Posters at conference/workshop
- Other outlets
 - Books, software, patents, data repositories
 - Social media: blogs, Twitter, YouTube, ...

Conferences

- Conferences are main focus in CS*
 - Primary research outlet for CS (selective)
 - Place to meet for other disciplines (not selective)

* But be sure to understand what outlet is primary in your area (especially if doing interdisciplinary research where journals may be primary)

- Not all conferences are equivalent
 - Know the top conferences in your research area
 - Acceptance rates and citation impact
 - Sponsoring organizations

Conference Process

- Fixed submission date
 - Typically around same time each year
 - May have separate abstract deadline
- Program committee
 - May be hierarchical and/or make multiple passes
 - May use non-committee reviewers
- Details vary by area and year
 - **Read the Call for Papers carefully!**
 - Consult senior researchers in your area

Journal Process

- No fixed deadlines
- Have more space and time
- No travel or registration expenses
- Can be hard to finish without a deadline
- Review cycle often much slower

Journal Review Outcomes

- Accept
 - Rare on first submission
- Minor revision
 - May mean “probably accept”
- Major revision
 - Important to make changes to address comments
- Reject
 - May specify “resubmit as new” or “hopeless”

What Reviewers Look For

- **Clear contributions to state of the art**
- Convincing motivation
- Sound methodology
- Correct results
- Good writing makes a difference!

Part 2 - The Writing Process

Before You Start Writing

- Think about what you want to accomplish
- Write a succinct problem statement
- Discuss your ideas with others
- Learn from previous papers
 - Claimed contributions
 - Motivation, methodology, results
 - Organization and flow
 - Writing style

Think about your audience

- Who are they?
 - Thesis committee, specialists, general readers?
 - May need to appeal to different audiences
- What do they know?
 - May not work in your general area
 - May not be familiar with your specific problem
 - May not be aware of your prior work
 - Need to give them sufficient context and background
 - Must demonstrate the importance of your work

Title and Abstract

- First impression of your paper
 - Used to decide whether to read or review it
 - Include terms useful for searching
- Should be a clear, complete summary
 - Include motivation and findings
 - Could substitute for reading the paper
- Avoid acronyms, citations, and formatting

Authorship

- Be explicit and generous
- Author ordering
 - By contribution or convention
 - Importance of position
 - Early clarity to avoid conflicts
- Authors' responsibilities
 - Contributed to the work
 - Verified the work
 - Willing and able to present

Organization

- Introduction
 - Motivation, problem statement, and contributions
- Background and state of the art
- Methods
 - Overview
 - Subsections on each key step/process
- Implementation, evaluation, and results
- Conclusions and future work

Introduction

- Motivation and high-level problem statement that non-experts can appreciate
- Quick overview of current needs and what state of the art does not address
- More detailed problem statement and proposed solution strategy
- **List of key contributions**
- Optional roadmap of the rest of the paper

Tips for a Strong Introduction

- Make the problem and its importance clear
- Outline your approach to solving the problem
- Stress the contributions of your work

A strong introduction is key to getting a paper accepted to a selective venue where program committee members have a large reviewing load

Background

Questions to consider

- How much should be included?
- How should it be organized?

Rules of thumb

- Include enough for intended audience(s)
- Place it before and near where it is needed for clarity

State of the Art

Questions to consider

- Which related work should be included?
- At what level of detail should it be described?
- How do you respectfully discuss their limitations?

Rules of thumb

- Focus on most relevant work but be generous
- Give enough detail to make clear novelty of your work
- Compare and contrast to your work — don't just summarize their work
- Stress building upon vs. tearing down

Methodology

- Overview of the work: diagram? chart?
- Specific “process” in steps

Precise description of your solution

- Key ingredients:
 - **Problem Statement**
 - Assumptions
 - Strategy & Overall Approach

Methodology: Tips

- Allow an *informed expert* (e.g. grad students) to reproduce
- Don't fall into the trap of writing your “journey of discovery”
- Be formal & **precise**
- Acknowledge limitations
 - Explain why they exist
 - Frame them as *positive* when possible

Evaluation – Experiment Design

Assessing the success of the approach

- Independent variables
what is being varied/compared
COMPARISON: your technique versus other techniques
- Dependent variables and measures
what is measured
- **Effectiveness** – precision, accuracy, speedup
- **Trade-offs** - cost, overhead

Learn from great and weak examples

Results

- Clearly explain what you observed
- Pull content out of text when possible
- Avoid paragraphs of numbers
- *Tables and figures should stand alone*
Do not assume reader is looking at them while reading the text
- Help the reader interpret the results

Conclusion

Summary of contributions to the state-of-the-art

- Intellectual /scientific merit
- Broader impact on the topic area, the field of computing, and the society
- Be strong and positive
- Limitations & open issues
- Future Directions

Acknowledgments usually omitted for anonymity; final version should acknowledge all funding support and individuals who aren't authors

General tips on Writing: References

- Not the place to save space
- Thorough survey
- Key references must be included
- Avoid having mostly self-citations
- **Be generous & gracious**
- Give appropriate credits

Submitting Your Paper

- Create a finished paper

 - Ensure proper layout

 - Copy-edit

- Anonymize appropriately (look at CFP)

- Submit on time

 - Usually can submit early and modify

- Read the CFP carefully

 - Ask the PC Chair if you have questions

Author Responsibilities

Do NOT plagiarize

Obtain permission for use of material

Cite and acknowledge work

Be explicit about reuse of previous work

No dual submissions

Support the reviewing process

Submit work you are proud of

Respond to the reviews you receive

Provide thoughtful reviews



CRA
Computing Research
Association

Dealing with Reviews

Separate out the emotional response

Write a rebuttal or make edits later

Understand the reviews

Identify important issues

Get to the root cause of complaints Issues you already address were unclear

Respond to the reviews

Reviewers will see the paper again

Dealing with Rejection

Great papers ~~sometimes~~ often get rejected

There is variation and error in process

New or bridge topics particularly at risk

Keep trying

Good target: Three submissions

Consider a venue change

Match content to the best audience

Address reviewer comments

Papers can always be improved



Final steps: Publishing Your Research

Prepare the camera-ready version

Goal is a strong paper, not just an accepted paper

Address reviewer comments

Work well with your shepherd

(great recommendation letter opportunity!)

Share the paper with others

Link to it, blog about it, Tweet about it Present the work

Leave the details in the paper

Resources

Paper writing advice

An Evaluation of the Ninth SOSP Submissions or How (and How Not) to Write a Good Systems Paper (Levin & Redell)

http://john.regehr.org/reading_list/levin_sosp.html

Writing Technical Articles (Columbia CS Department)

<http://www.cs.columbia.edu/~hgs/etc/writing-style.html>

The Elements of Style (Strunk & White)

ACM Policy

Plagiarism http://www.acm.org/publications/policies/plagiarism_policy

Note in particular the definition of “self-plagiarism” Making your paper public

ACM Author-izer service (with interesting FAQ:

<http://www.acm.org/publications/acm-author-izer-service>

Questions ?

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