## **Publishing Your Research**





# Link to captions



## Publishing your research

•Step 1: Do some great research



•Step 2: Write it up into a great paper

Step 3: Get it published in a top venue



### Writing a great paper

- A great paper conveys several things:
  - Adds to the existing body of knowledge
  - Presents and validates an idea through evidence.
  - Provides influencing perspectives.
  - Connects its contributions to the broader body of knowledge.



#### **Structure**

- Introduction
- Overview
- Method
- Evaluation
- Related work
- Discussion/Conclusion



### Writing the Introduction

- An good introduction tells a story.
  - What is the problem
  - Why is important
  - Hint at the idea and its promise
  - (here or later) what are your research questions?
  - Why should one keep reading?
- The introduction is a contract.
  - Do not overgeneralize
- Separate opinion from facts
- Do not over promise



## What's your idea?

- •This may show up throughout the paper (but probably the intro)
- Build intuition
  - Use a running example
  - Favor intuition over precision
  - Examples:
    - What does your algorithm do on a concrete example?
    - What is it like to use your new interface?



#### **Related work**

- •Sometimes it goes at the end, sometimes it goes in the beginning.
- The context where your work exists
  - What you build upon
  - Different solutions to the same problem
- Choose your research tools
  - Semantic Scholar, arXiv, ACM DL



#### Method

- What you did. Why.
  - Why this method, algorithm, system, etc.
  - Break it into meaningful components.
  - Make sure the level of detail is appropriate to the audience.
  - Make sure you introduce every term before you use it.
- Peer review happens here



## **Evaluation / Results / Findings**

- The evaluation should connect back to specific research questions
- It should be clear that you went out of your way to try to disprove your hypothesis.
- Separate data and observations from opinions

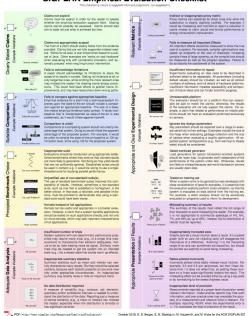


## **Evaluation examples**

https://www.sigplan.org/Resources/EmpiricalEvaluation/

https://faculty.washington.edu/wobbrock/pubs/Wobbrock-2012.pdf

#### SIGPLAN Empirical Evaluation Checklist



#### Seven Research Contributions in HCI

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#### ABSTRACT

Research in human-computer interaction (HCI) addresses both technological and human-hebayioral concerns It follows that the contributions made in HCI are usually separately familiar to engineering, design, or the social sciences, but rarely brought together under one roof. The seven research contribution types covered here are (1) empirical, (2) artifact, (3) methodological, (4) theoretical, (5) benchmark / dataset, (6) survey, and (7) opinion. Of course, some research articles make more than one type of contribution. The goal of this paper is to give researchers insight into the contribution types found in HCI papers, and to provide examples for further reading. I do not claim that the chosen examples are the "best of breed;" rather, they are examples with which I am familiar and that I feel illustrate a given contribution.

Contributions methods research science invention

#### **ACM Classification Keywords**

H5.m. Information interfaces and presentation (e.g., HCI):

#### 1 EMPIRICAL CONTRIBUTIONS

Empirical research contributions consist of new findings based on systematically gathered data. Empirical contributions may be quantitative or qualitative (or mixed), and usually follow from scientific studies of various kinds (e.g., laboratory, field, ethnographic, etc.). In HCI, the purpose of empirical contributions is to reveal formerly unknown insights about human behavior in relation to information or technology. Empirical research methods commonly used in HCI include formal experiments, field experiments, field studies, interviews, focus groups, surveys, usability tests, case studies, diary studies, ethnography contextual inquiry, experience sampling, and automated data collection (e.g., sensing, logging).

#### How Empirical Contributions Are Evaluated

Empirical contributions are considered trustworthy when the methods that produce them are executed with rigor and precision "The devil is in the details" in empirical work Identifiable confounds and biases must be avoided in studies of all types. If methods are sound and findings important, empirical contributions should be judged favorably.

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#### **Examples of Empirical Contributions**

Bragdon, A., Nelson, E., Li, Y. and Hinckley, K. (2011) environments. Proceedings of the ACM Conference in Human Factors in Computing Systems (CHI '11) Vancouver British Columbia (May 7-12, 2011). New York: ACM Press, 403-412.

Burke M. Kraut R and Williams D. (2010). Social use of computer-mediated communication by adults on the autism spectrum. Proceedings of the ACM Conference on Computer Supported Cooperative Work (CSCW '10). Savannah, Georgia (February 6-10, 2010 ). New York: ACM Press, 425-434.

Casiez, G., Vogel, D., Balakrishnan, R. and Cockburn, A. (2008) The impact of control-display gain on user performance in pointing tasks. Human-Computer Interaction 23 (3), 215-250.

Chilana. P.K.. Wobbrock, J.O. and Ko, A.J. (2010). Understandin usability practices in complex domains. Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI '10). Atlanta, Georgia (April 10-15, 2010). New York: ACM Press,

Clarkson, E., Clawson, J., Lyons, K. and Starner, T. (2005). An empirical study of typing rates on mini-QWERTY keyboards Extended Abstracts of the ACM Conference on Human Factors in Computing Systems (CHI '05). Portland, Oregon (April 2-7, 2005). New York: ACM Press, 1288-1291.

Czerwinski, M., Horvitz, E. and Wilhite, S. (2004). A diary study of task switching and interruptions. Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI '04). Vienna, Austria (April 24-29, 2004), New York: ACM Press, 175-

Dawe, M. (2006). Desperately seeking simplicity: How young adults with cognitive disabilities and their families adont assistive technologies. Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI '06). Montréal, Québec (April 22-27, 2006). New York: ACM Press, 1143-1152.

Findlater, L., Wobbrock, J.O. and Wigdor, D. (2011). Typing on flat glass: Examining ten-finger expert typing patterns on touch surfaces. Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI '11). Vancouver, British Columbia (May 7-12, 2011). New York: ACM Press, 2453-2462.

Grudin, J.T. (1984). Error patterns in skilled and novice transcription typing. In Cognitive Aspects of Skilled Typewriting, W. E. Cooper (ed.). New York: Springer-Verlag, 121-143.

Hwang, F., Keates, S., Langdon, P. and Clarkson, P.J. (2004) analysis. Proceedings of the ACM SIGACCESS Conference on

SIGPLAN evaluation checklist

PDF: http://www.sigplan.org/Resources/EmpiricalEvaluation/

7 research contributions in HCI



## Discussion/Conclusion

- Don't just repeat what you did.
- People don't remember numbers, they remember stories.
- What are the opportunities arising from this work and its results?
- What comes next?



### Paper writing advice



## **Building Publishing Muscle**

- Non-Archival Publications
  - Workshop papers
  - Poster Abstracts
  - Doctoral Symposia
  - \*\*ArXiv \*\*
- Archival Publications
  - Full-length Conference and Journal Papers



#### **Know Your Audience**

- Read lots of papers from the target venue
- Attend the venue (if a conference)
- Review for the venue if possible (ask your advisor to recommend you for this)
- Program Committee meetings
  - Senior students may get invited if their advisor pulls strings
  - You may be able to observe as a student volunteer

#### Make an Outline

- Iterate and agree on the outline with your co-authors before you start writing
- •You often have a story beforehand... what are the plot points?
- You don't need to write in the sections in order



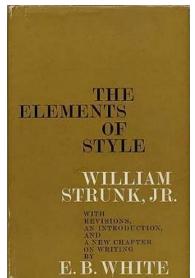
### **Start Early**

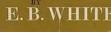
- The more iterations, the stronger the paper
- Set an internal deadline with your team
- Perfect is the enemy of done
- Leave ample time for advisor and peer feedback, making submissions accessible, creation of video or other supplementary materials



### Leverage Resources

- writing courses at your university
- reference books (Strunk & White)
- professional or pro bono proofreaders
  - Can you or your advisor apply for funding for this type of resource?
  - Free resources often include paper mentoring programs offered by conferences & professional societies







### Becoming a good writer

- Read, write, repeat
- Is a practice, not an event.
- Be succinct
- While you get better at it, get help
  - Courses
  - Professional editing services
- Al tools can be helpful, but do not let them take over the writing from you.

## Supplementary materials

- Videos, appendices, instruments, datasets
- Presentation that goes with it



### **Getting a Paper Published**



#### **Communicate with Co-Authors**

- Agree on deadlines (for outline, drafts of sections, full draft, feedback, etc.)
- Agree on division of labor
- Be explicit about authorship (who & in what order)



#### Pick a venue

#### Many factors to consider

- Venue quality
- Topic alignment
- Review pool and process
- Desired publication date



#### **About Deadlines**

- What to do if the submission site crashes near the deadline...
- •When is it OK to request an extension?



#### **Metadata Matters**

- Abstract Pre-Registration
- Keywords = Reviewer Matching
- •What name should you publish under?



## **Rebuttals & Reacting to Reviews**

- Sleep on it!
- Get the venom out in a throw-away draft
- What if your scores are very low or high?
- Prioritize reviewers' comments & group by theme
- Pro tip: spreadsheet your rebuttal plan
- Start early, get feedback, iterate
- aka.ms/rebuttals



## Things to Avoid when Writing

- Plagiarism (including self-plagiarism)
- Dual submissions
- All-nighters (start early, iterate often!)
- Complaining about reviews on social media
- Submitting without knowledge of advisor/co-authors



### Parting tips & reminders

- Publications stay on your CV forever
- Determine authorship early be explicit and generous
- Reviews learn from them and improve your work
- Send a paper because it is ready, not just for feedback
- When doing reviews, imagine the authors reading them.



## Acknowledgments

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### **Questions / Discussion**

#### Discussion topics:

- What are you working on?
- How would you most like to improve your writing?

