



HOW TO WRITE GOOD PAPERS

2020.04.06

JUHO KIM



Verba volant, scripta manent
(spoken words fly away, written words remain)
– Latin proverb

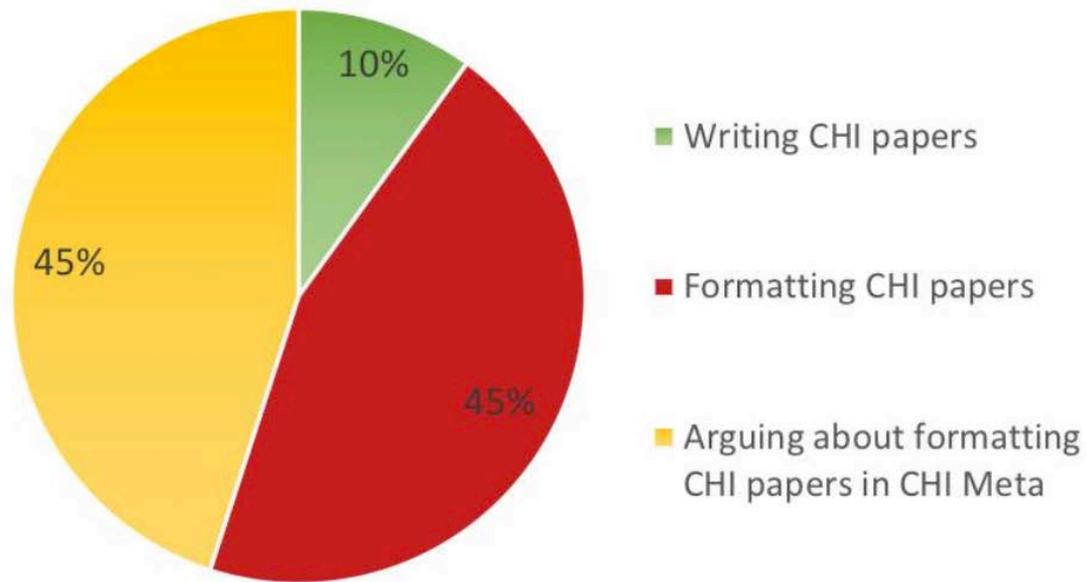


Sue Fussell

September 12 at 9:58 PM · 🧑



CHI 2019 in a nutshell 🤔🤔



👍 🤔 ❤️ 58

5 Comments 1 Share

ASSIGNMENT #3
DEBRIEF



WHY DID YOU CHOOSE
THAT PAPER?



WHAT ABOUT THE PAPER ATTRACTED YOU AS A READER?

- X Title
- X Topic
- X Message
- X Authors
- X Contributions
- X Easy to read? Nice visuals?



WHY IS THE PAPER YOU CHOSE
A GOOD PAPER?



WHAT MAKES GOOD RESEARCH?

- x Research is creation and communication of knowledge that is
 - o Novel
 - o Generalizable
 - o Valuable
 - o Valid



WHAT MAKES GOOD RESEARCH?

X Research is creation and communication of knowledge

that is

today's focus

- Novel
- Generalizable
- Valuable
- Valid

3.

WHAT ARE THE MAJOR
CONTRIBUTIONS OF THE PAPER
YOU CHOSE?



CONTRIBUTION TYPES (IN HCI)

- X Artifact: building novel technology/system/algorithm/interaction
- X Empirical: understanding artifact & human behavior
- X Methodology
- X Theory
- X Dataset
- X Survey
- X Opinion

WRITING A PAPER



WHY DOES WRITING MATTER?

- X Writing is communicating (newly found) knowledge and discussing its process, validity, scope, and implications.
- X Your research is almost always shared with the world as written documents (= papers).
- X Primary readers: fellow researchers who might like to build on this knowledge.
 - Treat it like designing API: think how others might use it.



ACADEMIC WRITING IS HIGHLY FORMULAIC

- X You have to learn the rules.
 - Abstract => Intro => Related work => ...
 - Reporting stats
 - Area-specific norms and ways of explaining & convincing
- X What do academics “speak in”?
 - Logical arguments, valid claims, references to previous knowledge, methodological rigor, novelty, (a very specific version of) English
- X Analogous to writing code in many ways
 - Syntax/logical errors, debugging, code reviews, documentation, ...



KEY MESSAGE: APPROACH IT READER-CENTERED

- X Visualize readers & how they read your paper.
 - Time-pressed
 - Get to the message ASAP. Visualize & Summarize.
 - Not as excited as you are
 - Strong motivation, novel solution, promising results
 - Critical
 - Better be correct & rigorous

How Video Production Affects Student Engagement: An Empirical Study of MOOC Videos

Philip J. Guo

MIT CSAIL / University of Rochester
pg@cs.rochester.edu

Juho Kim

MIT CSAIL
juhokim@mit.edu

Rob Rubin

edX
rrubin@edx.org

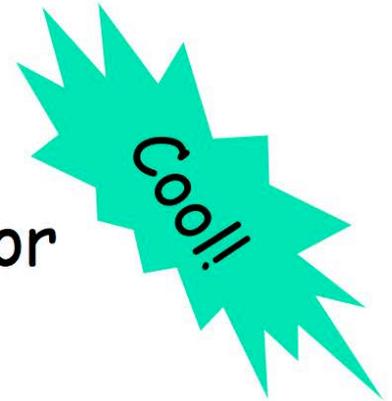
Finding	Recommendation
Shorter videos are much more engaging.	Invest heavily in pre-production lesson planning to segment videos into chunks shorter than 6 minutes.
Videos that intersperse an instructor's talking head with slides are more engaging than slides alone.	Invest in post-production editing to display the instructor's head at opportune times in the video.
Videos produced with a more personal feel could be more engaging than high-fidelity studio recordings.	Try filming in an informal setting; it might not be necessary to invest in big-budget studio productions.
Khan-style tablet drawing tutorials are more engaging than PowerPoint slides or code screencasts.	Introduce motion and continuous visual flow into tutorials, along with extemporaneous speaking.
Even high quality pre-recorded classroom lectures are not as engaging when chopped up for a MOOC.	If instructors insist on recording classroom lectures, they should still plan with the MOOC format in mind.
Videos where instructors speak fairly fast and with high enthusiasm are more engaging.	Coach instructors to bring out their enthusiasm and reassure that they do not need to purposely slow down.
Students engage differently with lecture and tutorial videos	For lectures, focus more on the first-watch experience; for tutorials, add support for rewatching and skimming.

Table 1. Summary of the main findings and video production recommendations that we present in this paper.

- “Computer programs often have bugs. It is very important to eliminate these bugs [1,2]. Many researchers have tried [3,4,5,6]. It really is very important.”



- “Consider this program, which has an interesting bug. <brief description>. We will show an automatic technique for identifying and removing such bugs”



Illustrating How Mechanical Assemblies Work

Niloy J. Mitra^{1,2}

Yong-Liang Yang¹

Dong-Ming Yan^{1,3}

Wilmot Li⁴

Maneesh Agrawala⁵

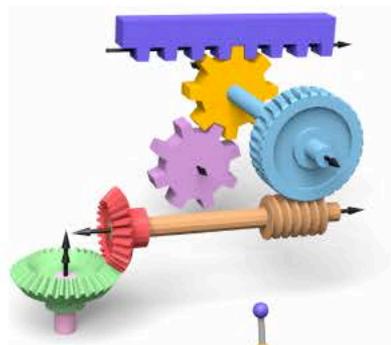
¹ KAUST

² IIT Delhi

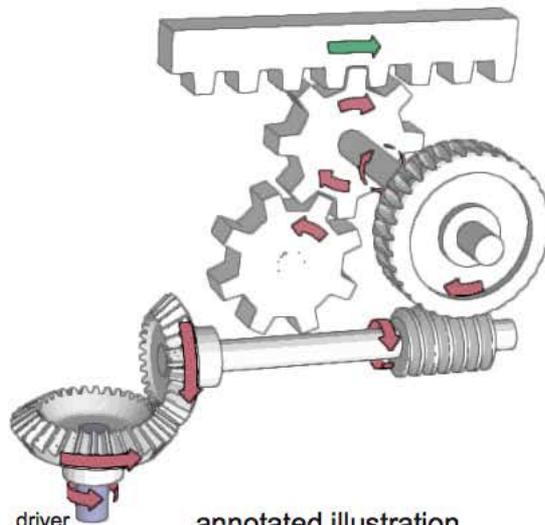
³ Univ. of Hong Kong

⁴ Adobe Systems

⁵ Univ. of California, Berkeley

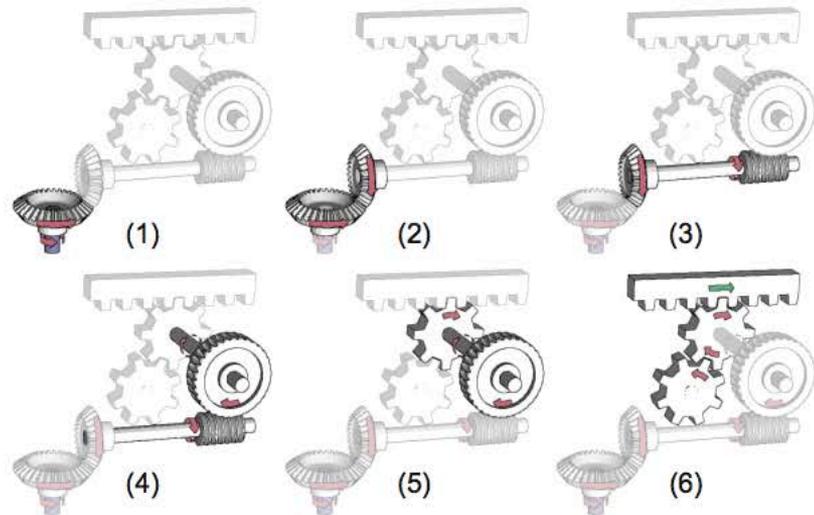


motion analysis



driver

annotated illustration



(1)

(2)

(3)

(4)

(5)

(6)

causal chain

Figure 1: Given a geometric model of a mechanical assembly, we analyze it to infer how the individual parts move and interact with each other. The relations and motion parameters are encoded as a time-varying interaction graph. Once the driver is indicated by the user, we compute the motion of the assembly and use it to generate an annotated illustration to depict how the assembly works. We also produce a corresponding causal chain sequence to help the viewer better mentally animate the motion.

ANATOMY OF A RESEARCH PAPER

X Title	X 1000 readers
X Abstract	X 100 readers
X Introduction	X 100 readers
X Background (or Related Work)	X 10 readers
X Main idea / Methods	X 7 readers
X Evaluation + Results	X 5 readers
X Discussion	X 3 readers
X Conclusion / Future Work	X 10 readers

ANATOMY OF A RESEARCH PAPER

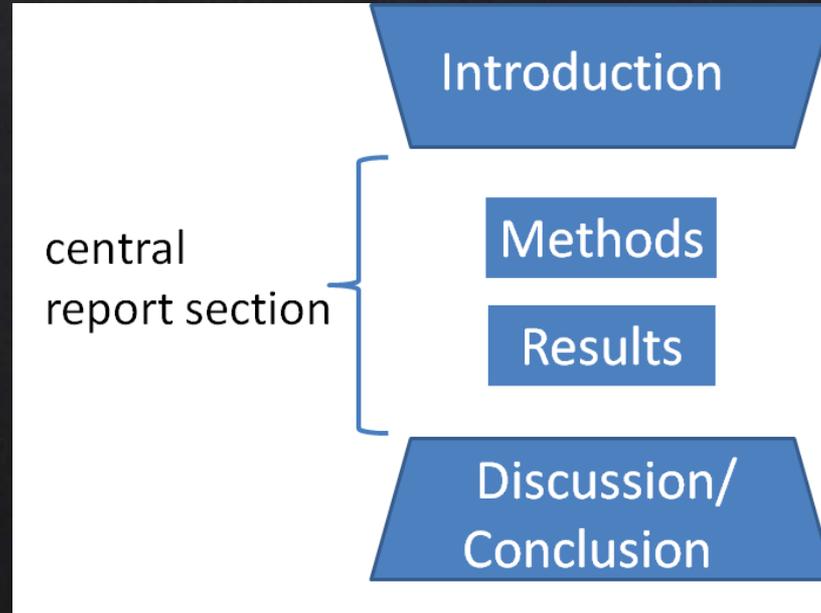
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BEFORE WRITING A PAPER, I ASK MY STUDENTS...

- x What will the contributions of this paper be?
 - o What needs to be done to claim these contributions?
- x Why would someone cite this work?
 - o Write a hypothetical sentence some future researcher might use to reference your paper.

REMEMBER IMRAD MODEL?





TITLE

- X Catchy Titles Are Good: But Avoid Being Cute
- X Should represent the contribution.
 - System/artifact
 - “AODV–BR: Backup routing in ad hoc networks”
 - “ Learning Without Peeking: Secure Multi–Party Computation Genetic Programming”
 - Empirical
 - “Parallel Prototyping Leads to Better Design Results, More Divergence, and Increased Self–Efficacy”
 - “Anyone Can Become a Troll: Causes of Trolling Behavior in Online Discussions”



ABSTRACT

- X One recipe
 - General problem space / motivation (very brief)
 - Approach taken
 - Methodology + Key findings
 - Why the findings matter
- X Often used as material for TPC bidding or session scheduling



ABSTRACT

- X Describe the work not the paper.
- X Present concrete results.
 - “We present results from our evaluation” (X)
 - “Our technique shows a 35% increase in performance over the baseline condition” (O)
- X Do not copy & paste sentences and phrases from Introduction & Conclusion.
 - They serve different purposes & paraphrasing reduces ambiguity.
 - Repeating can be seen as sloppy writing & bad style.



INTRODUCTION

- X Many different recipes exist. But all roughly follow similar structure.
- X My favorite: the 5-point structure:
 - State of the world ...
 - The big BUT...
 - Therefore, we did ...
 - The key findings are ...
 - The contributions of this work are ...

COMMON
MISCONCEPTIONS
ABOUT WRITING



“I’M NOT A NATIVE SPEAKER SO MY WRITING’S
GOING TO BE INEVITABLY WORSE THAN A NATIVE
ENGLISH SPEAKING COLLEAGUE.”



I was once asked what were the most vital assets of
a competent programmer.

...

I said "exceptional mastery" of his native tongue because you
have to think in terms of words and sentences
using a language you are familiar with.

– Edsger W. Dijkstra

2.

“I SHOULD START WRITING WHEN
MY ‘RESEARCH’ IS COMPLETE.”





X Writing papers is a primary mechanism for doing research (not just for reporting it).



3.

“WRITING 10 PAGES IS EASY AFTER
WORKING ON THE PROJECT FOR MONTHS.
I WILL SPEND A FEW DAYS BEFORE THE
DEADLINE TO WRITE IT UP.”



- X TIME: crucial difference between bad and good papers
- X Multiple revisions are required, ideally until feedback is mostly spelling and grammar issues.
- X Intro often gets rewritten multiple times from scratch.
- X Beta paper: 2 weeks before the deadline



“I SPENT MONTHS IMPLEMENTING AND
DEBUGGING THIS MODULE.
I’M GOING TO WRITE FOUR PAGES ABOUT IT.”



- X No, a paper is not a research diary.
- X You spend 90% time implementing and debugging, but it might just be a paragraph in the paper.
- X Focus on the “intellectual contribution”
- X What’s the take-home message?

5.

“I SHOULD NOT SHARE MY WRITING
WITH OTHERS UNTIL IT'S
COMPLETELY READY.”

TIPS ON LANGUAGE & STYLE

- X Use a spell checker (or services like Grammarly) for any writing.
- X Do not mix facts (results) with opinions (discussion).
- X “We” is reserved to authors.
 - “We live in a connected world.” (X)
- X Oxford commas (at least be consistent)
- X Use active voice as much as possible.
- X Do not use ref as nouns. E.g., “[3] shows that...” (X)
- X Spell out numbers up to 10 + don’t start a sentence with a number.
- X Commonly mistaken uncountable nouns
 - “feedbacks”, “researches”, “faculties”, “advices”, “softwares”, “stuffs”

TIPS ON WRITING HABITS

- X Start writing 30 mins everyday.
- X Write not just papers, but blogs, FB posts, Tweets, etc. Make videos.
- X Care about the visual structure.
 - Sections, emphasis, charts, tables, figures
- X Steal good patterns from your favorite papers (going back to Prof. Yoo's meta reading skill).
- X Plan & think before writing (replace with coding or making slides): outlines or notes help.



Audrey Girouard created a poll.

September 6 at 1:59 AM



With all the ongoing discussions about templates, I'm curious to know which format people are using.

<input type="checkbox"/> New ACM SIGCHI format - Overleaf			139 other people
<input type="checkbox"/> New ACM SIGCHI format - LaTeX		+48	
<input type="checkbox"/> New ACM SIGCHI format - Word		+41	
<input type="checkbox"/> Previous CHI format - Word		+30	
<input type="checkbox"/> I've given up		+8	
3 More Options...			



Jofish Kaye and 6 others

9 Comments

ASSIGNMENT #4: REWRITE THE ABSTRACT

- X Rewrite the abstract of the paper from Assignment #3.
- X Avoid limiting to only simple word changes.
- X Analyze what “recipe” the original is following & think how it could be strengthened.
- X Shoot for 150–200 words.
- X Will discuss some examples in the writing workshop.

RESOURCES

- X “The Elements of Style” by Strunk & White
- X “Writing for Computer Science” by Justin Zobel
- X [“How to write a great research paper”](#) by Simon Peyton Jones
- X [”Top-10 tips for writing a paper”](#) by Jim Kurose
- X [“Tips for Writing Technical Papers”](#) by Jennifer Widom
- X [“How do I write a good research paper?”](#) by Andy Ko
- X [“Writing Technical Articles”](#) by Henning Schulzrinne

AREA-SPECIFIC RESOURCES

X HCI

- [An HCI research paper writing guide formatted as an HCI paper](#) by Jacob O. Wobbrock

X Software Engineering

- [“Draft Guidelines for My Students on Writing Software Engineering Research Papers”](#) by Mark Harman

X Systems

- [“Tips about writing systems papers”](#) by Lin Zhong