

How To Write A Good SIGGRAPH Paper

Steve Lin

MSR Asia

What is a Good Paper?

- Introduces significant ideas/results to the research community
- Clearly communicates your ideas/results
- Provides insight and understanding on what you've done

Why is Good Writing Important?

- Improve chances of paper acceptance
- Increase impact of your work
- Elevate quality of your research

Overview

- Why you should start writing early
- How to write a bad research paper
- Some general guidelines on writing

Why you should start writing early

Writing well



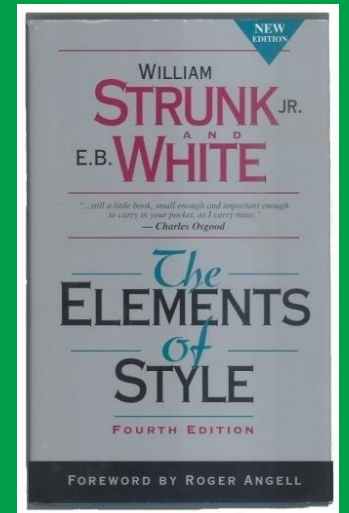
Thinking well

(many thanks to Kurt Akeley)

Clear writing comes from clear thinking

“Fortunately the act of composition, or creation, disciplines the mind; **writing is one way to go about thinking ...**”

— E. B. White
In *The Elements of Style* Addison Wesley, 1999



Writing improves understanding

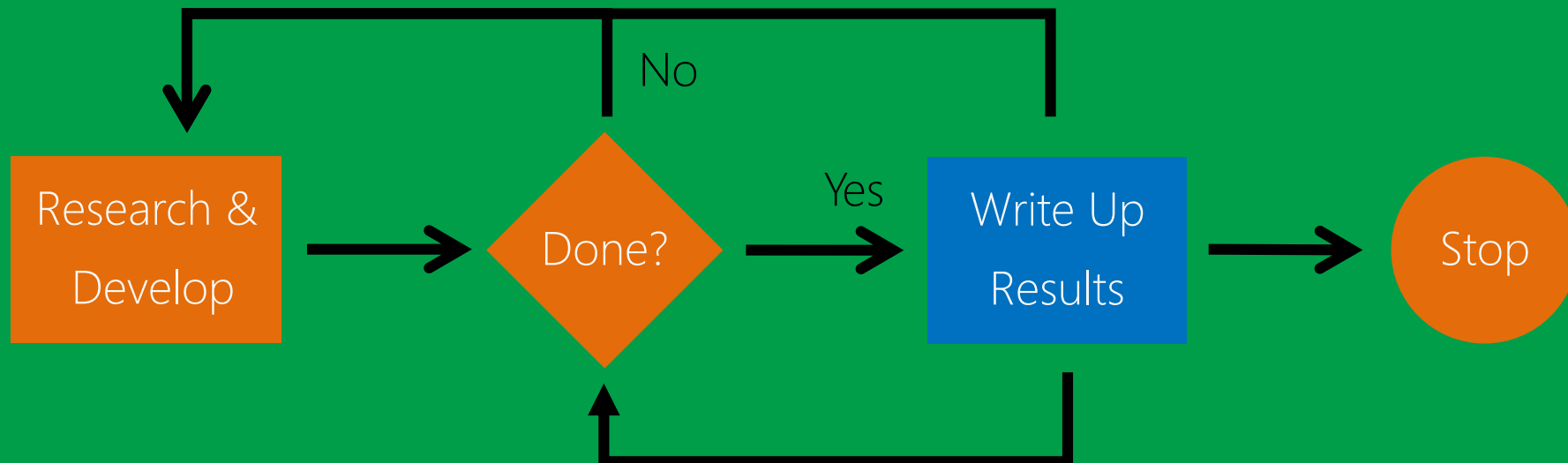
“I hear and I forget;

I see and I remember;

I write and I understand.”

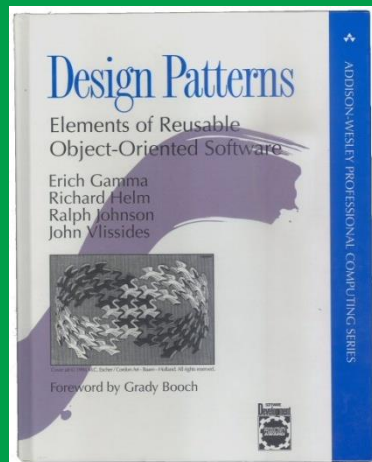
— Confucius (translated)

Research and Development Process



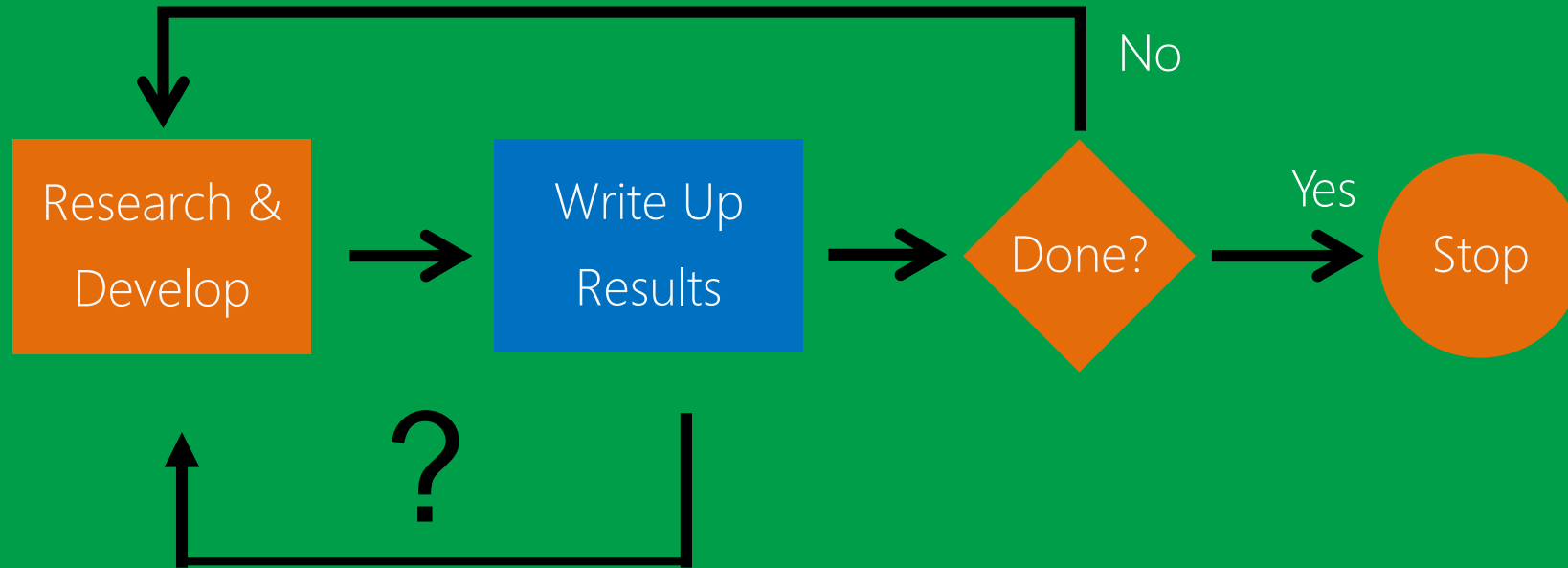
Not just wrong, but painfully wrong!

“Don’t worry if you don’t understand this book completely on the first reading. We didn’t understand it all on the first writing!”



— Erich Gamma, Richard Helm, Ralph Johnson, and John Vlissides
In *Design Patterns*
Addison Wesley, 1995

Research and Development Process



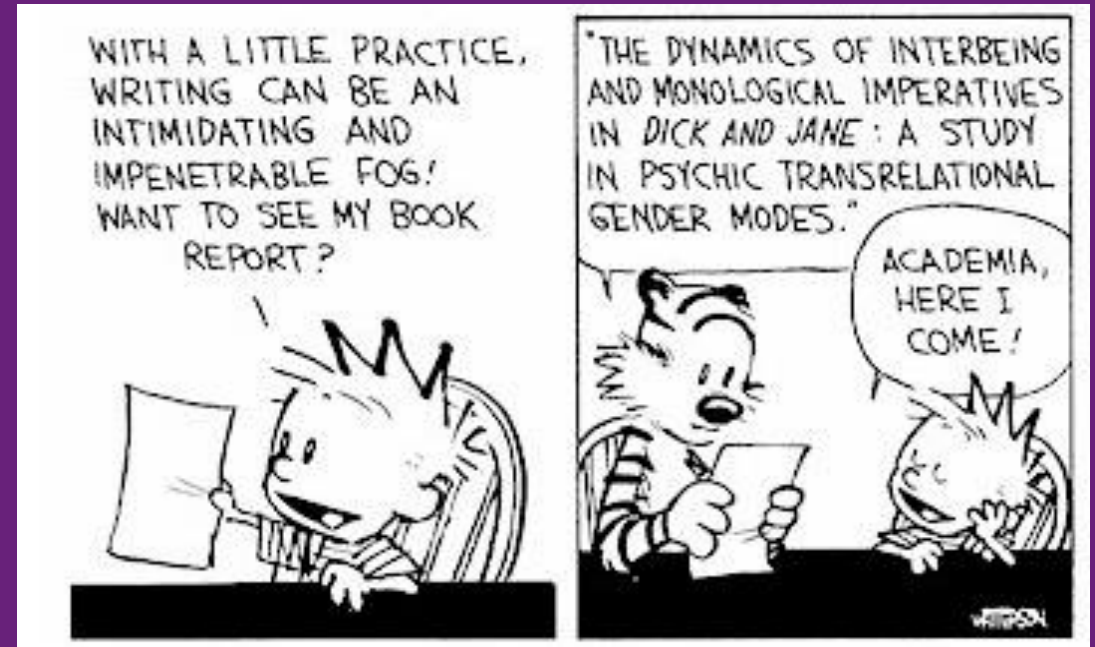
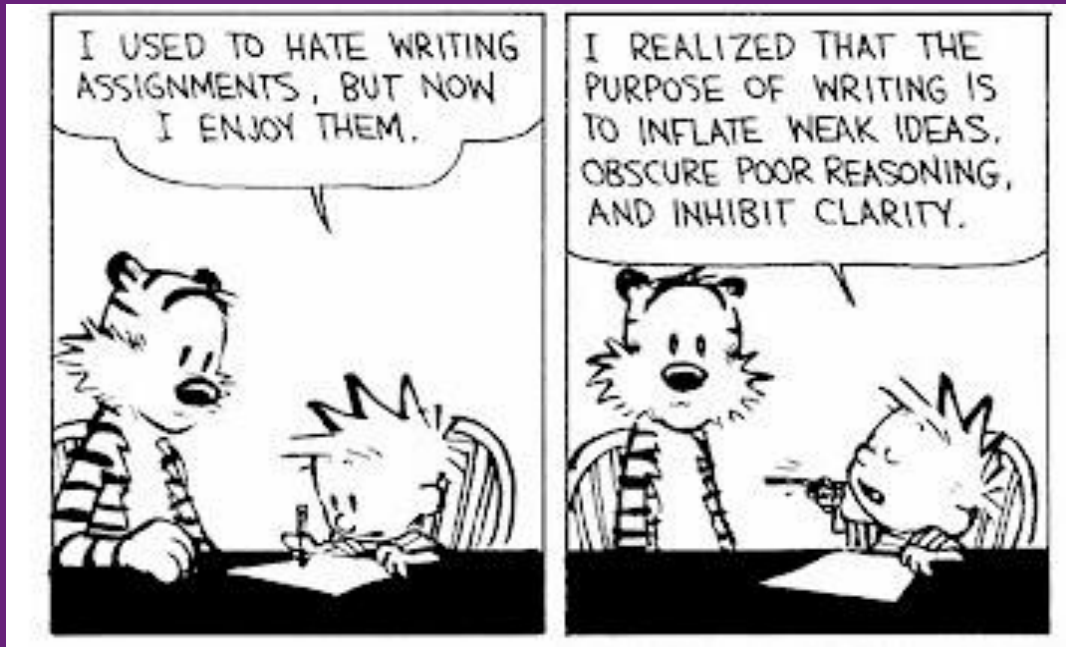
“I have always written these motivational abstracts, as I call them... My hit rate on these abstracts, specifically the fraction that become a submitted paper, is about 75 percent.”

— Marc Levoy
EE & CS Professor, Stanford

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- Why you should start writing early
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How to write a bad research paper



Write the paper for only yourself

- The audience knows everything you do
- As long as you understand it, everyone else will
- Everything in the paper should be obvious and needs no explanation

The previous work is all garbage

- There's nothing good to say about previous methods
- Our work is so good compared to others
- Don't even need to mention some of the other works

Provide no context

- Do not explain your problem
- Do not mention assumptions or settings
- Do not compare to related works
- Do not discuss contributions

Just describe what you did

- First we did this, then we did that, and then we did another thing...
- Do not explain why, or discuss results
- Do not mention alternatives

Focus mainly on details

- You spent 3 months of the 6-month project on optimizing a certain part of the code, so you should spend half the paper talking about it.
- Everyone reads papers for the little details, not the big ideas

Be different just because you can

- Create new notation and terminology just to be different from previous works: $f = x(y)$
- Change the notation throughout the paper
- Do not give definitions for new or unusual terms

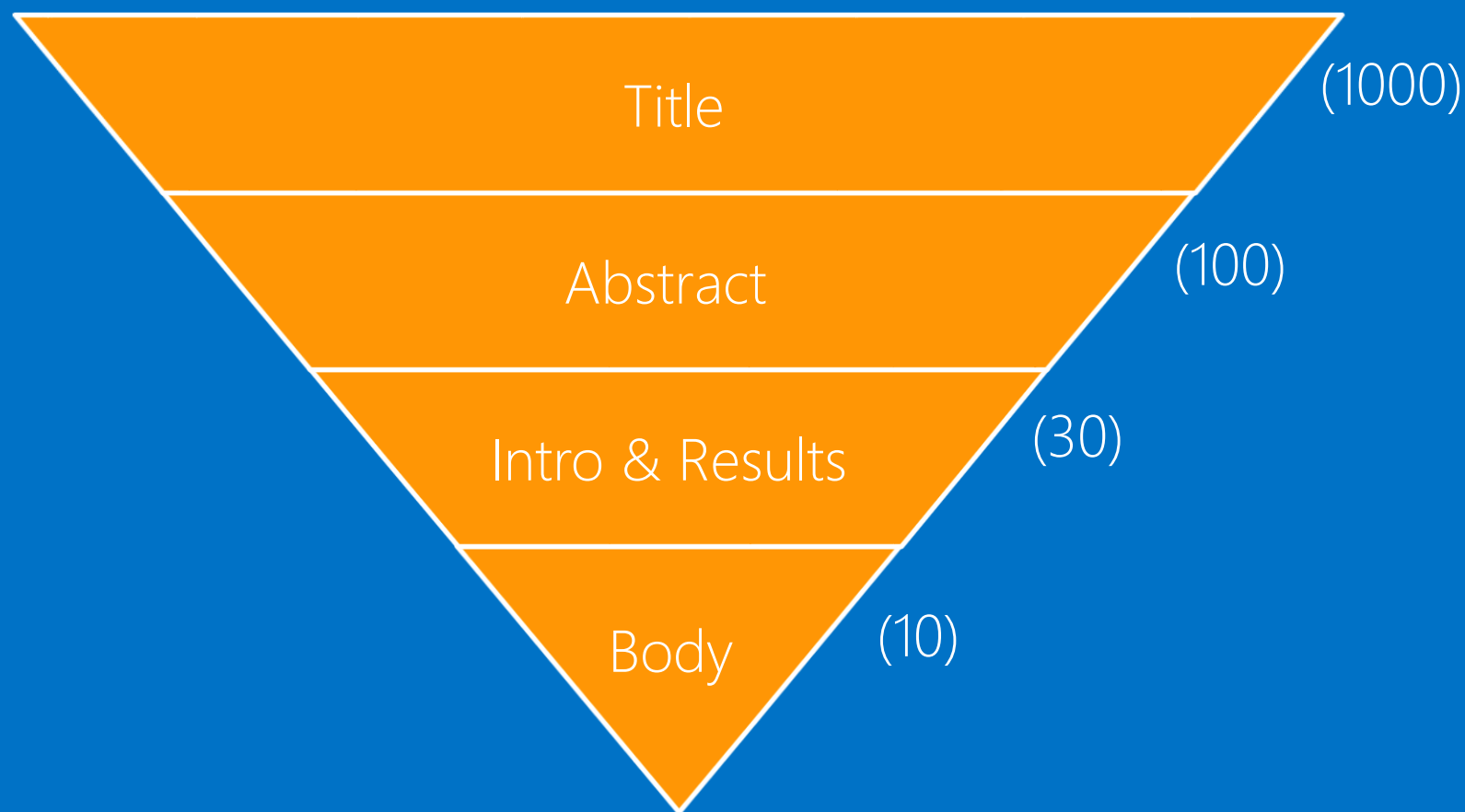
How to write a bad research paper

- Write the paper only for yourself
- All previous work is garbage
- Provide no context
- Just describe what you did
- Focus mainly on details
- Be different just because you can

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Attention from readers



Title

- Describes your work with accuracy
 - “Computing Scattering Properties of Participating Media using Lorentz-Mie Theory”
- Stimulates reader interest
 - “Symmetrization”
- Subtitle
 - “Mesh Puppetry: Cascading Optimization of Mesh Deformation with Inverse Kinematics”

Abstract

- Many people will read only the abstract
- Make it useful and appropriate
- Make it as specific and concrete as possible, without getting too technical.

Abstract contents

- The problem your work addresses
- Why the problem is interesting
- What is new about your solution
- Results and impact of solution

Abstract example

We present hybrid images, a technique that produces static images with two interpretations, which change as a function of viewing distance. Hybrid images are based on the multiscale processing of images by the human visual system and are motivated by masking studies in visual perception. These images can be used to create compelling displays in which the image appears to change as the viewing distance changes. We show that by taking into account perceptual grouping mechanisms it is possible to build compelling hybrid images with stable percepts at each distance. We show examples in which hybrid images are used to create textures that become visible only when seen up-close, to generate facial expressions whose interpretation changes with viewing distance, and to visualize changes over time within a single picture.

 Problem Interesting New Results

Teaser figure

Hybrid images

Aude Oliva* Antonio Torralba† Philippe. G. Schyns‡
MIT-BCS MIT-CSAIL University of Glasgow




Figure 1: A hybrid image is a picture that combines the low-spatial frequencies of one picture with the high spatial frequencies of another picture producing an image with an interpretation that changes with viewing distance. In this figure, the people may appear sad, up close, but step back a few meters and look at the expressions again.

Abstract

We present *hybrid images*, a technique that produces static images in which the faces displayed different emotions. High spatial frequencies correspond to faces with "sad" expressions. Low spatial frequencies correspond to the same faces with "happy" and "surprise" emotions (i.e., the emotions are, from left to right: happy,

Introduction

- Set up your paper
- Perhaps the most difficult part to write
- Need to be persuasive

Introduction structure

- Introduce problem
- Explain why problem is interesting and relevant
- Briefly review common approaches to problem
- Describe your solution
- High-level overview of approach
- Highlight contributions, what is new
- What results you get
- Paper organization

Related works

- Describe fairly, be diplomatic
- Demonstrate knowledge and understanding
- Similar techniques for different problems
- Depending on paper length, may be included in introduction

Body

- Convey idea before details
- Use examples
 - explain algorithm using a concrete example for illustration
- Equations
 - should be able to skip yet still understand paper

Equations

- Give simple verbal explanation
 - “The BRDF relates the outgoing radiance R to the incoming illumination I as follows:”
- Remind readers about previous equations
 - “We combine Eq. (2) and Eq. (6) to obtain the following energy function:”
 - “We combine the deconvolution constraint of Eq. (2) and the regularization term of Eq. (6) to obtain the following energy function:”

Results

- Verify each claim that you made
- Comparison to other methods if possible
- Point out anything not obvious at a quick glance

Discussion and Conclusion

- For experts, discussion may be the most interesting part
 - limitations, how they might be addressed
 - conditions when assumptions can be relaxed
 - insight on contributions, how they can benefit others
- Conclusion
 - quick reminder of why your work is great
 - future directions

Tips for Non-native English Speakers

- Learn by examining well-written papers
- Spell checker: available in most text editors
- Grammar checker: Microsoft Word!

Thank you!