Technical Communication Crash Course

MCHE 470 – Fall 2013

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Why should I care?

- If you can’t communicate your ideas, they are worthless.

- Those that can communicate become bosses.

First Questions to Ask

- What is the purpose of this document or presentation?

- Who is the primary audience?
  - Technical competence
  - Expectations
  - Language skills
  - Interests
  - ...

} Who are the customers and what do they want?

What are we reporting?

- Present accomplishments
  - A design, prototype, device, etc *or*
  - New method, theory, or plan for solving a problem

- Do ***NOT*** present administration
  - We did this... Then, we tried that... Finally, we found...
  - Information on team meetings, etc

General Guidelines

- Maintain consistent formatting
  - Fonts
  - Figure sizes
  - Margins
  - ...

Your job is to make the audience's job as easy as possible.

- Generally avoid 1st person in writing
- Avoid chronological structure

  (We did this... Then, we tried that... Finally, we found...)
- Revise 10x more than you think you need to
  - Read aloud (or use computer speak-to-text)
  - Writing is a very small part of **WRITING**

Typical Tech. Doc. Sections

- Abstract
- Introduction
- “Main” Sections
  - Will vary by document type
- Conclusion
- References

Abstract

- Consider it a stand-alone document that summarizes the report

- An abstract:
  - Introduces the reason for the report (the problem being solved)
  - Presents high-level summary of the methods used
  - Summarizes *key* results

Introduction

- What is the problem and why should I care?

- Includes
  - Introduction of the problem
  - Survey of relevant previous work
  - A “roadmap” for the remainder of the report

ex) The next section discusses... Then, in Section 3, ... Section 4 describes... Finally, conclusions are presented in Section 5.

“Main” Sections

- For design reports
  - The chosen/recommended design immediately follows the introduction
    - Overview first
    - Then, details
  - Then, support the decision to choose that design

- For method, theory, problem solving reports
  - Logically present the method
  - Typically begin with simple case, then work to edge cases

Conclusions

- Very “abstract-like”

- Summarizes what was presented
  - No *new* information!
  - Reiterate the reason for the report (the problem being solved)
  - Present high-level summary of the methods used
  - Include *key* results

Figures

- The better your figures are, the worse your writing can be
- Figure number and descriptive captions go *under* figures

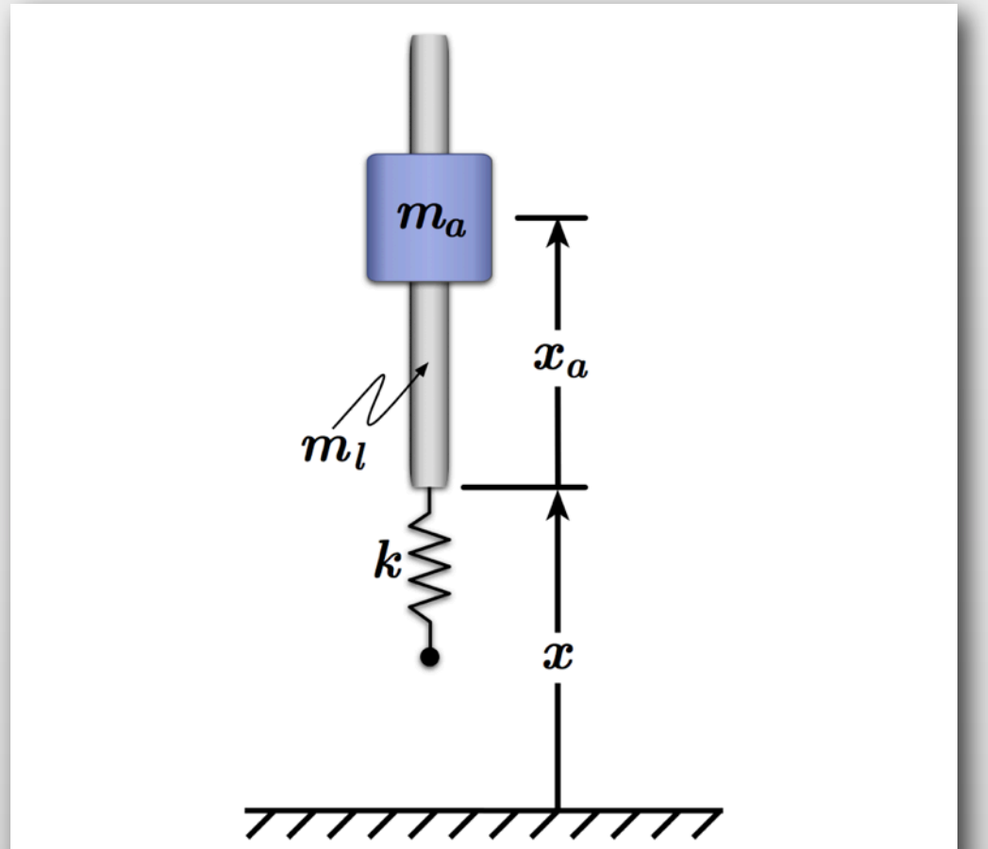

Fig 1. A Simplified Jumping Model

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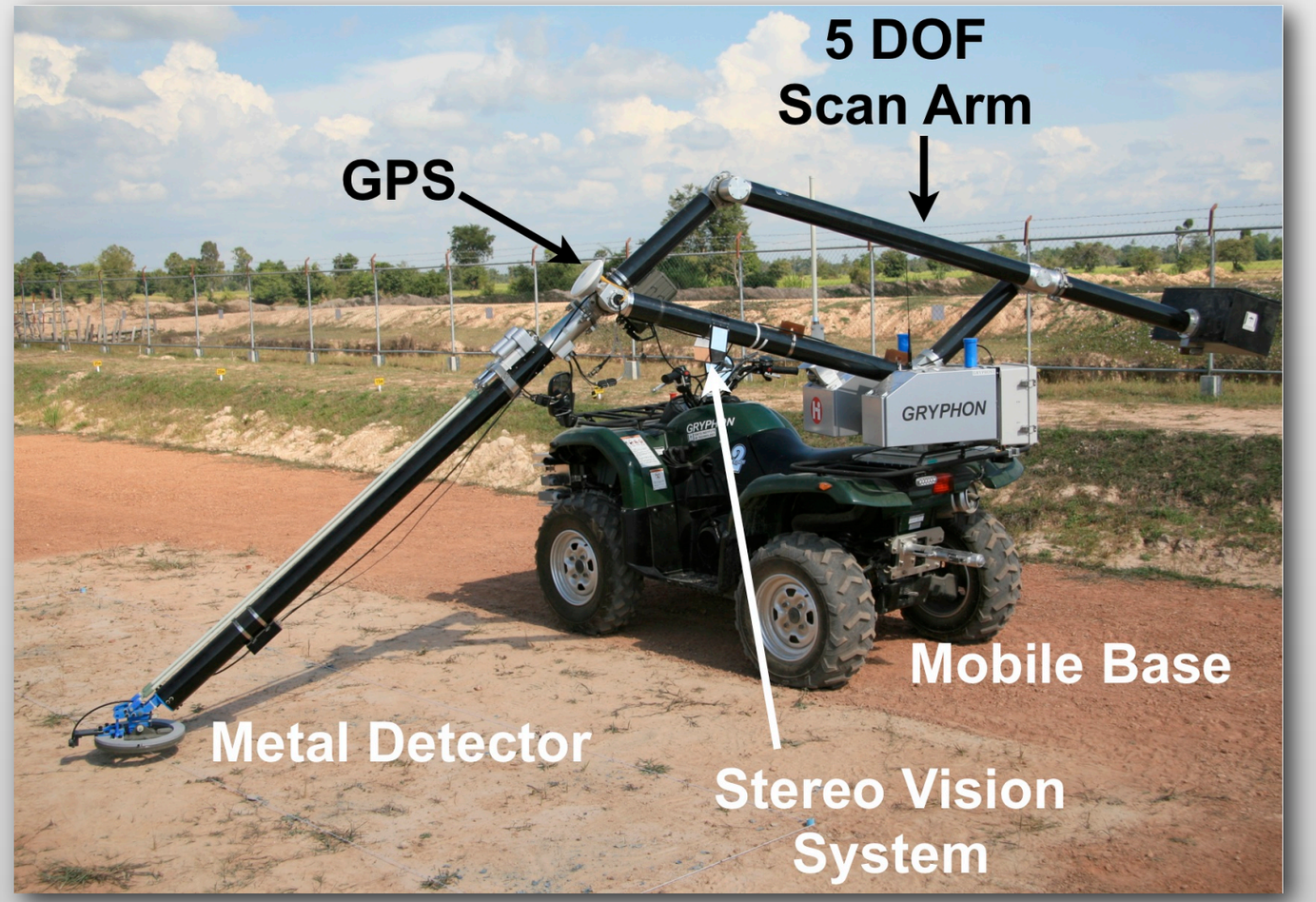
- Label parts according to function



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- Label parts according to function
- Font size ≧ body-text size
- White backgrounds are best

Plots

- Figure number and descriptive captions go *under* figures
- Include units
- Differentiate between lines (also clear in B/W)
- Font size ≧ body-text size
- White backgrounds are best

Good or Bad?

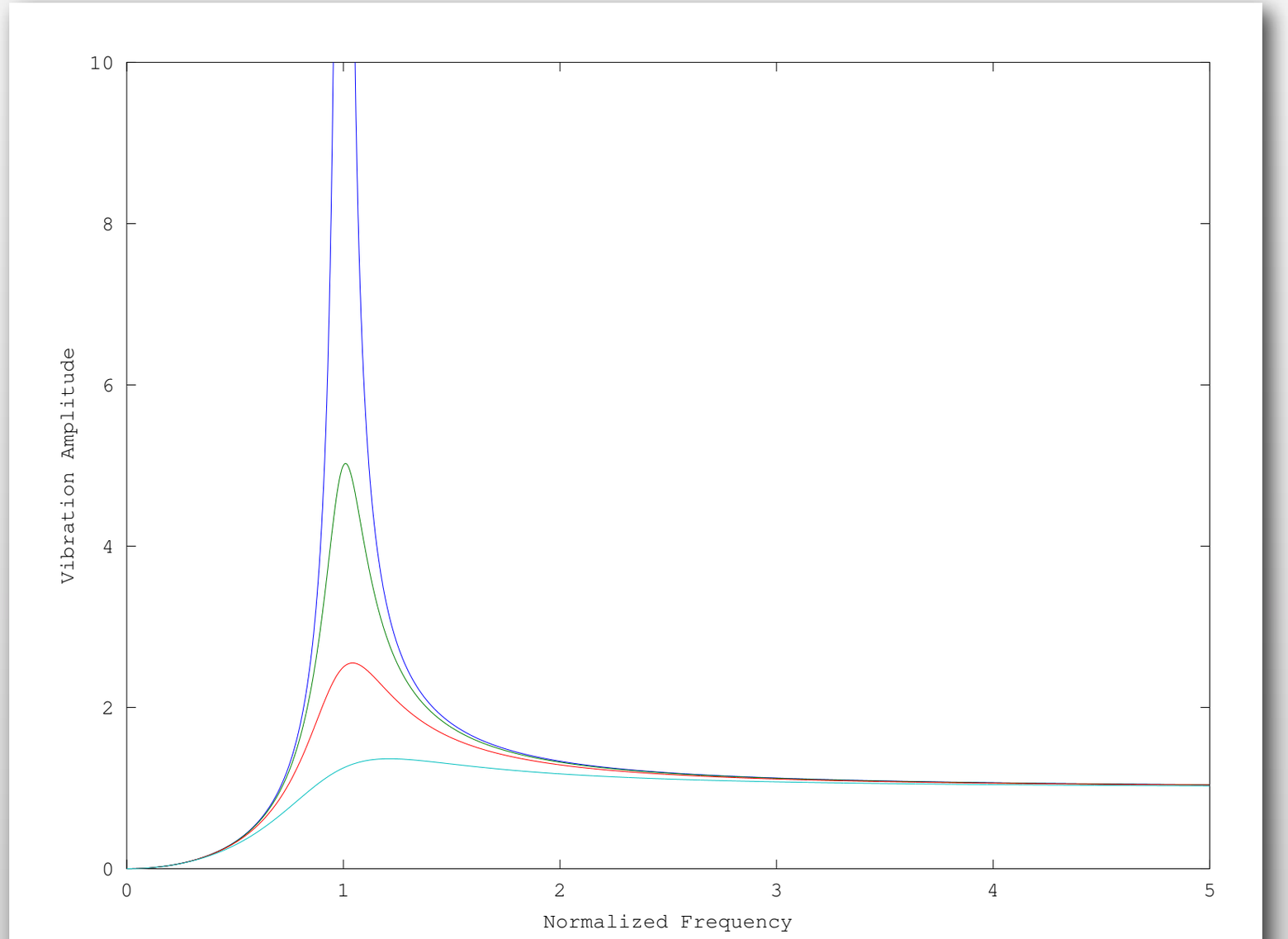

Figure 1: Vibration

Good or Bad?

- Text is too small
- Lines are too thin
- Unable to distinguish lines in B/W
- No legend
- No units

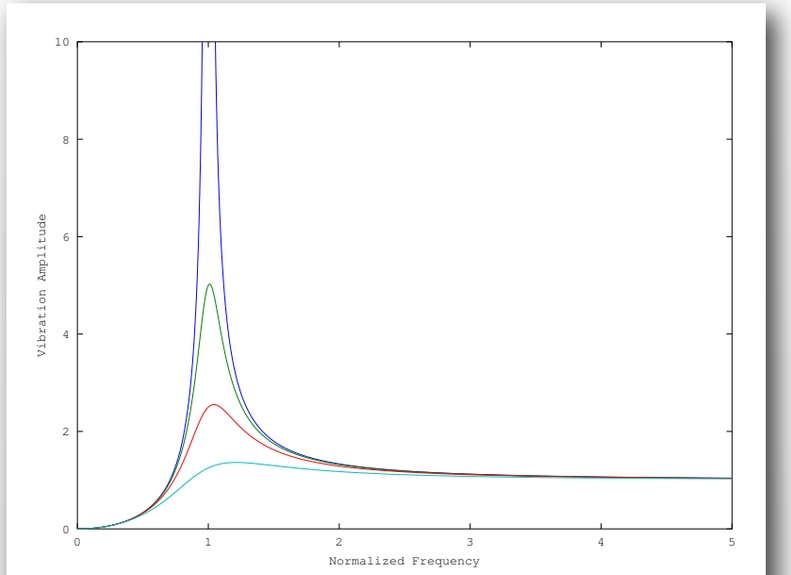

Figure 1: Vibration

- Figure caption not descriptive enough

Better?

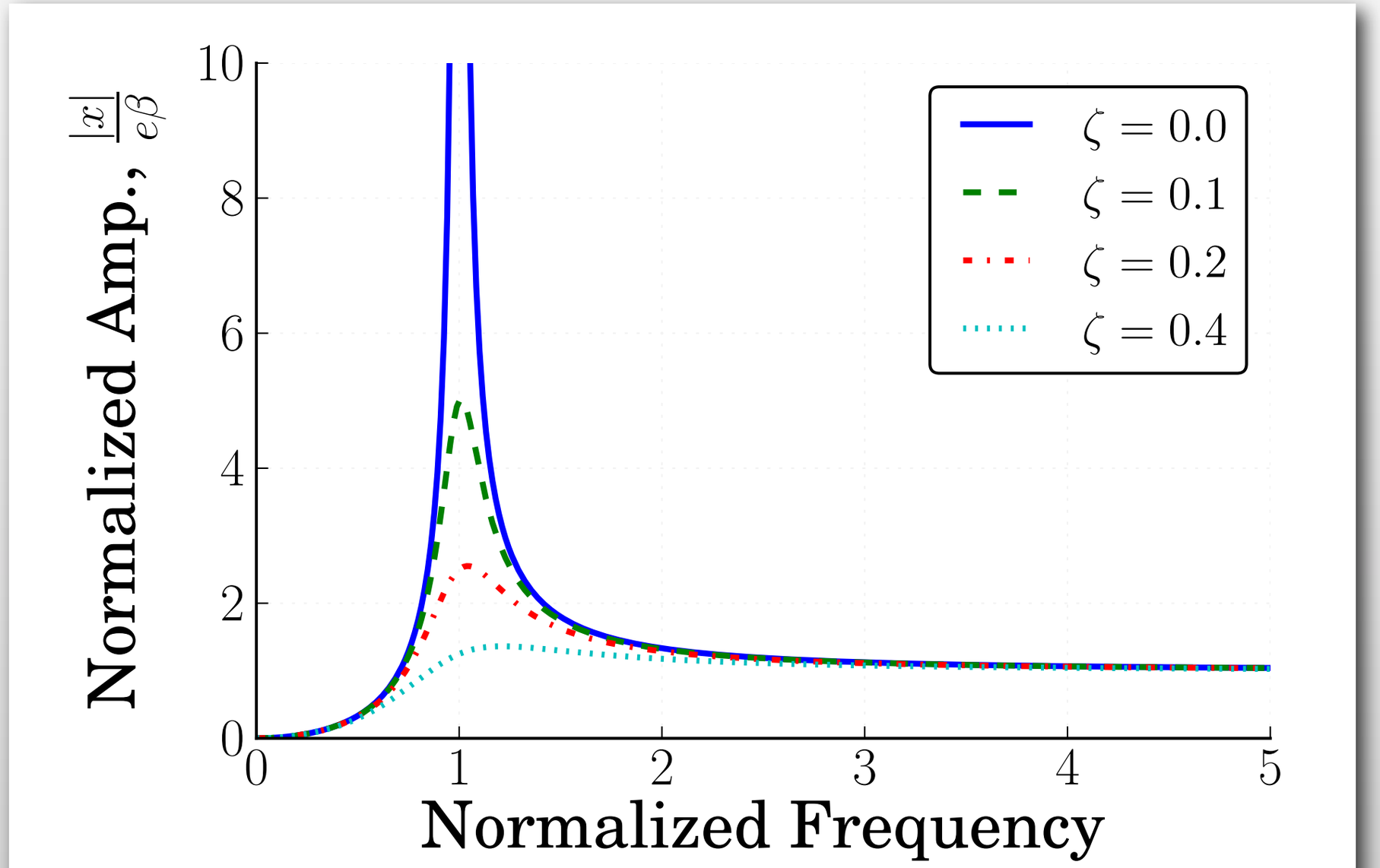

Figure 1: Amplitude of Vibration as a Function of Frequency

Writing about Figures/plots

- Include and number figures in order of reference in the text

- Don’t include figures you don’t reference in the text

- Exactly match terms from figure in text

- Referencing in text:
  - “Figure X shows... ”
  - “..., as shown in Figure X.”
  - “Figure X is ...”
  - Do *not* use parenthetical citation, “blah blah (Figure X).”

Tables

- Font size ≧ body-text size
- Table number and caption go *above* the table

Table 1: Command and Control Methods to Be Explored

Command Generation Method	**Control Method**
Positive Input Shaping	PID
Unity Magnitude (UM) Shaping	H_∞
Specified Negative Amplitude (SNA) Shaping	Sliding Mode
Deflection-Limited Input Shaping	Model Reference

- Number and include in order of reference in text
- Reference similar to figures and tables

Technical Presentations

- Get to the point... "*ta-da*" moments rarely work
  - Say what you are going to talk about
  - Talk about it
  - Say what you just talked about

} Basically same order as report.

- Talk to the audience, not your slides... Colbert Report style

General Presentation Guidelines

- Use “clean” slide templates – Your content is the star

General Presentation Guidelines

- Use “clean” slide templates – Your content is the star
- Avoid unnecessary animations
- You might need a separate set of figures for presentation
  - Bigger text
  - Less detail (an entire HoQ will not fit on a slide)
- Include slide number (for audience questions)
- This is too many words on a slide!!!
- See why you should avoid unnecessary animations?
- Let the audience know you are finished...

Thank you.