Powerful Presentations

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Simply stated...

https://www.youtube.com/watch?v=i68a6M5FFBc
Purpose of a research presentation

Is *not* to
- Impress the audience
- Tell them all you know about a subject
- Present every little detail of your work

Is to
- Give the audience a sense of what your idea/work is
- Make them want to know more about your work
- Get feedback on your work
Know your audience

- Who would be there?
  - Scientists expert in your field
  - Scientists not expert in your field
  - Students
  - Non experts
  - Who knows?

Most likely a mix so have something for all
Know your audience

- Keep in mind
  - They might be tired
  - They can read 😊
  - They are thinking “Why should I listen?”
  - Non-experts will tune off within 2 minutes
  - Experts after 5 minutes

- What can you do?
Know Your Topic

• Be prepared to get questions!

• “What if I don’t know the answer?”
  – Know WHEN to say “I don’t know”
  – Know HOW to say “I don’t know”
  – Don’t just stand there uncomfortably!

• Be able to recover from interruptions

• Know what to skip if you’re running late
  – Don’t just talk faster!
What can you do?

- **Early motivation** - at the beginning of your talk motivate your research with easy to understand examples

- **Spoil the punch line** - State your results early and in simple terms

- **Visuals** – Illustrate your idea with images and diagrams
Use examples

Examples are your weapon to

• Motivate your work
• Illustrate the basic intuition
• Show your solution in action (baby problem)
• Highlight extreme cases or shortcomings

If you are running out of time cut the general case not the example
Related work

- Be familiar with all related work
- Don’t list each paper you read
- Mainly talk about results that are immediately related to what you did
- References at the end of the talk or better in the paper itself
- Acknowledge co-authors (title slide)
Technical details: in or out?

A fine line

- Present specific aspect that show the “meat” of your work
- Leave the rest out. If you were convincing they will read your paper
- Don’t fill up your slides with lots of equations
- Prepare back-up slides to answer questions. Leave them at the end of the presentation
The skeleton

- What is the problem
- Motivation and goals
- Relevant state of the art
- What is your key idea/contribution
- Why is your approach good/better
- What I just said and what I want to do next
Preparing the presentation

- Less is more. Fill in with narration not words
- Use animation sparingly
- Use color to emphasize some points but limit to 2 or 3
- Be consistent! In the choice and use of color font size/type etc
- Use slide real estate appropriately
Preparing the presentation

- Prepare the slides in advance
- Show them to friends
- When you think you are done read them again
- Check all animations with the sound on 😊
Preparing the presentation

- Practice, practice, practice
  - Give a practice talk to a general audience
  - Give a practice talk to an audience of expert
  - Time your presentation (allow for speed up effect caused by nervousness)

- Always assume technology will fail you. Have backups.
Slide Design

• Goals:
  – Convey the necessary information
  – Be readable/understandable
  – Be interesting (enough)

• Avoid:
  – Over stimulation
  – Booooring
Show one point at a time:
  • Will help audience concentrate on what you are saying
  • Will prevent audience from reading ahead
  • Will help you keep your presentation focused
Fonts

- Use a decent font size
- Use different size fonts for main points and secondary points
- Use a standard font like Times New Roman or Arial
Color

- Use font color that contrasts sharply with the background
  - Red font on black background

- Use color to reinforce the logic of your structure
  - Ex: light blue title and dark blue text

- Use color to emphasize a point
  - But only use this occasionally
Graphs

- Use graphs rather than just charts and words
  - Data in graphs is easier to comprehend & retain than is raw data
  - Trends are easier to visualize in graph form

- Always title your graphs
Summary/Conclusion

• If your talk is more than 5 minutes, nice to summarize work & results
  – Bring people back if they zoned out
  – Remind them why you’re great

• Give “selling” points here
  – 30x performance increase with only 10% area penalty
  – Described novel method to create clean fuel from used cat litter
Delivering the talk

- Be enthusiastic! If you aren’t why should the audience be?
- Make eye contact with the audience
- Identify a few “nodders” and speak to them
- Watch for questions. Be prepare to digress or brush off when irrelevant
Delivering the talk

- Point at the screen not the computer
- Do not read directly from the PPT or your notes
- Have the “spill” for the first couple of slides memorized in case you go blank
- Finish in time
Handling questions

- Different types – handle accordingly
  - Need clarification
  - Suggest something helpful
  - Want to engage in research dialog
  - Show that he/she is better than you

- Anticipate questions (additional slides)

- Don’t let them highjack the talk (postpone)
How can I get better?

- Practice every chance you can
- Observe others
  - Steal good presentation ideas
  - Notice all the things that turned you off
- Seek comments from friends and mentors
Good Presentations

• Interesting topic, explained at audience’s level
• Slides are understandable and easy to see
• Good presentations reflect well on speaker!

I wonder if this technique would work for my problem

I never thought of that!

Let’s talk to them at the break

Interesting

You should with a PhD...

But it’s outside my main area

I understood this one!
Bad Presentations

- Audience won’t see your work is great
- But will make fun of you from back row

Those are some NASTY colors...

Hey – it matches my tie.

Please let it be OVER...

What does that slide say?

Dunno, I’m playing minesweeper

zzz
Don’ts
Dead Man Talking

• Are you hiding behind the podium?
• Are your hands/face motionless?
• Are you staring…
  – at your advisor/boss?
  – at your laptop?
  – at the screen?
  – at the ceiling?
• Is your back to the audience?

• IF SO… you’re probably BORING!
I Drank A Case Of Mountain Dew!

- Sometimes nerves make for fast talking
- Calm down. E-nun-see-ate.
- It’s not a race
  - People need time to absorb information
- Take a bottle of water if necessary
  - Bottles if you can work a cap (spillage)
  - Glass if you’re using a laser pointer
Ummmm... The... Uh... Yeah.

- Practice makes perfect
  - Caveat: OVER practicing can be bad...

- Do not read your slides like a script

- Most people lose 20 IQ points in front of an audience
This page contains too many words for a presentation slide. It is not written in point form, making it difficult both for your audience to read and for you to present each point. Although there are exactly the same number of points on this slide as the previous slide, it looks much more complicated. In short, your audience will spend too much time trying to read this paragraph instead of listening to you.
Fonts - Bad

- If you use a small font, your audience won’t be able to read what you have written.

- CAPITALIZE ONLY WHEN NECESSARY. IT IS DIFFICULT TO READ.

- Don’t use a complicated font.
Color - Bad

- Using a font color that does not contrast with the background color is hard to read.
- Using color for decoration is distracting and annoying.
- Using a different color for each point is unnecessary.
  - Same for secondary points.
- Trying to be creative can also be bad.
Avoid backgrounds that are distracting or difficult to read from.

Always be consistent with the background that you use.
Do not attempt to put all the text, code, or explanation of what you are talking about directly onto the slide, especially if it consists of full, long sentences. Or paragraphs. There’s no place for paragraphs on slides. If you have complete sentences, you can probably take something out.

If you do that, you will have too much stuff to read on the slide, which isn’t always a good thing.

Like the previous slide, people do not really read all the stuff on the slides.
- That’s why it’s called a “presentation” and not “a reading” of your work.

Practice makes perfect, which is what gets you away from having to have all of you “notes” in textual form on the screen in front of you.

Utilize the Notes function of PowerPoint, have them printed out for your reference.
- The audience doesn’t need to hear the exact same thing that you are reading to them.
- The bullet points are simply talking points and should attempt to summarize the big ideas that you are trying to convey.

If you’ve reached anything less than 18 point font, for God’s sake, please:
- Remove some of the text
- Split up the text and put it on separate slides
- Perhaps you are trying to do much in this one slide?

Reading a slide is annoying.
You should not simply be a text-to-speech converter.
This is a really long title for this single slide, I should have just summarized:

- Hard to read
- Many people don’t read the title anyway
- Should have been “Long Slide Titles”
Know Slide Boundaries

- People can’t read text that runs off the side of the slide.
Bullets Aren’t Everything

• How many
  – Levels of
    • Hierarchy do
      – You think
        » You need
          * To express
            - Your point?
• How smart will people think you are?

• Watch for:
  – there/their/they’re
  – too/to/two
  – its/it’s
There are exceptions, but in general
- Don’t have only text on most of your slides
- Try to draw diagrams wherever applicable
(Well-drawn) pictures easier to understand

There’s a CPU, a RAM and an FPGA and they’re all connected
- The FPGA connects to the CPU’s data cache
- The bus is 32 bits wide
- Blah blah blah blah
- You have to visualize it yourself
You are not Pixar Studios

• Previous slide(s) used “animation”…
  Animation Use it sparingly
  Can (it can be annoying)
  Be Very
  Distracting

• Use only where it is USEFUL
• Know if presentation system will handle
  – Different versions of PowerPoint, Macs, etc.
• Or use multiple slides to safely animate
  – Flip-book style
Line ‘Em Up

- This is a bad drawing
- Put in some effort
The Art of Suspense
The Art of Suspense

- Don’t
The Art of Suspense

- Don’t
- Be
• Don’t
• Be
• A
The Art of Suspense

- Don’t
- Be
- A
- Tease
Anticipatory Lecturing

• Don’t Be A Tease

• Let the audience think at their own pace

• It only provides benefit if there’s a “surprise” result
Mommy, my eyes are burning!

• Can you look at this for 45 minutes?
• Colors look different on every LCD projector
• Colors look different between transparencies and projector

• Side note: if printing slides, may want to choose white background to save ink!
I See A Ghost

• More contrast on monitor than projector
• Different projectors == different results
• Colors to avoid with white are:
  • Light Green
  • Light Blue
  • Pale Yellow
  
  Usually can’t read this...

• Your slides should have good contrast
Equations

\[ X' = A \times B \]
\[ = (A - (2^p - 1)) \times (B - (2^q - 1)) \]
\[ = AB - (B - (2^p - 1)) - A(2^q - 1) + (2^p - 1)(2^q - 1) \]
\[ X'' = (A - E_p)(B + Eq) \]
\[ = AB + AE_q - BE_p - E_p Eq \]
\[ = AB + AE_q - (BE_p + E_p Eq) \]
\[ = AB + AE_q - \frac{E_p Eq}{2} - \left( BE_p + \frac{E_p Eq}{2} \right) \]

\[ f(X', X'') = \frac{\Gamma}{2} \sum \frac{X' \phi_{\alpha \max}^2}{X''^{3/2}} \sum \epsilon \sqrt{AB + AE_q - \frac{E_p Eq}{2} - \left( BE_p + \frac{E_p Eq}{2} \right)} \]
\[ \int_R \phi_{\rho} f(\overrightarrow{X} | S_k) \frac{1}{(2\pi)^{d/2}} \sigma^{d} \times \frac{1}{P_k} \sum_{i=1}^{P_k} \exp \left[ -\frac{(\overrightarrow{X} - \overrightarrow{W_{ki}})^T (\overrightarrow{X} - \overrightarrow{W_{ki}})}{2\sigma^2} \right] \]

• Ummm... okay...
Keep It Simple

• Do you really need all those equations?
  – This is very instance-dependent!
  – Depends on what you’re discussing
  – Depends on your audience

• Sometimes you may need them
  – Explain the variables and what they mean
  – Give a “plain-text” description of it

• If you don’t need them, don’t use them!
Results

- You have lots of cool results
  - No one can read this
  - No one can understand this

- Graphs are your friend...
Graphs Can Also Be The Enemy
Thanks and Good Luck