MAKING GOOD PRESENTATIONS

Brad Smith

ICMTS 2023

SECURE CONNECTIONS
FOR A SMARTER WORLD

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INTRODUCTION

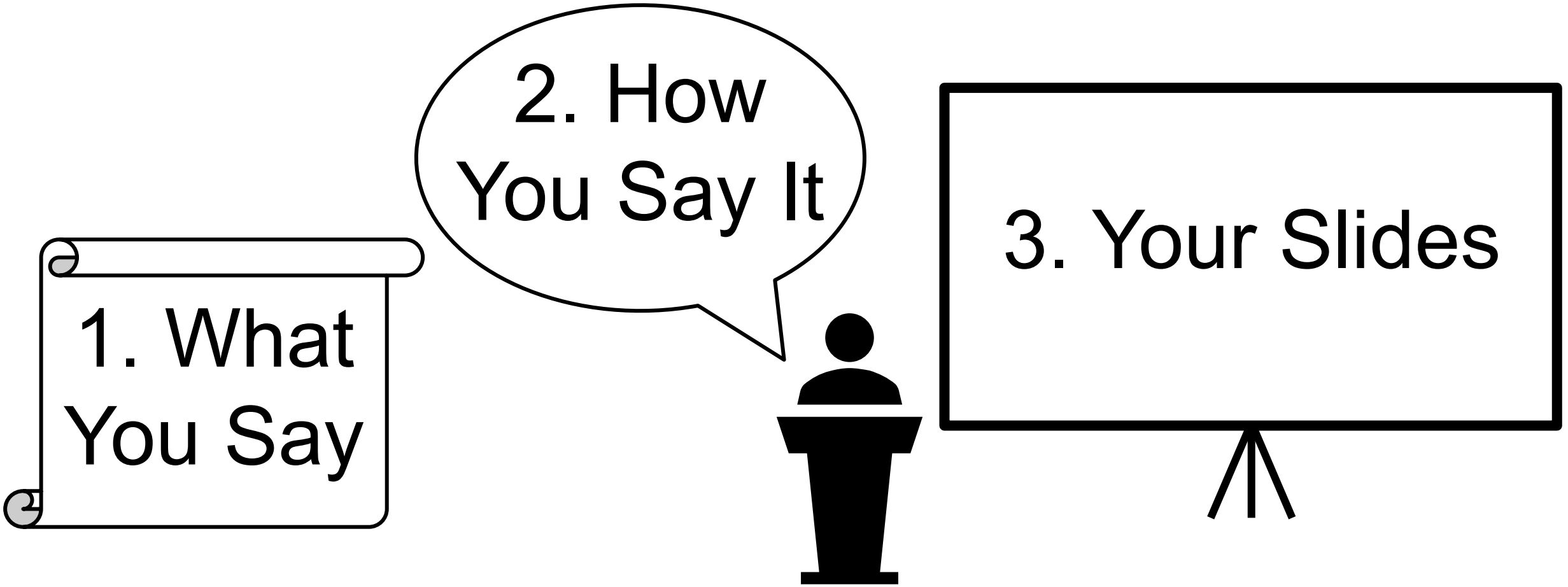
- Intended audience
  - People who are new to (or uncomfortable with) giving technical talks

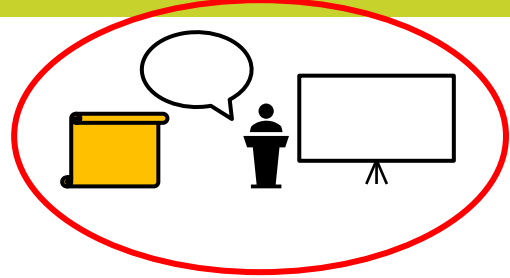
- What is covered
  - Preparation slides
  - Giving the talk

Can be applied to Zoom calls, too

- Intended outcome
  - Provide you with some tools to give more effective presentations
  - There is more than one “good” way ... You decide what works for you

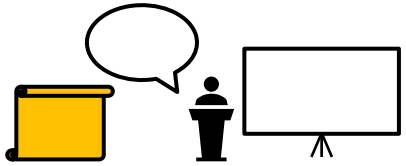
TO BE COVERED





WHAT YOU SAY

KNOW YOUR AUDIENCE

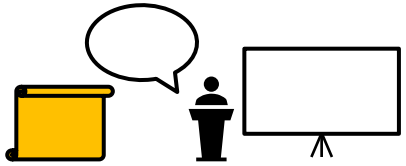


- Target your talk to the least-knowledgeable person in the audience
  - Defines amount of background required
  - Defines acronyms to be defined (good rule of thumb: all of them)

- What's the audience's attention span?
  - If presenting to an executive, show the conclusion first, then justify with data
  - Engineers want lots of detail but please do not put us to sleep

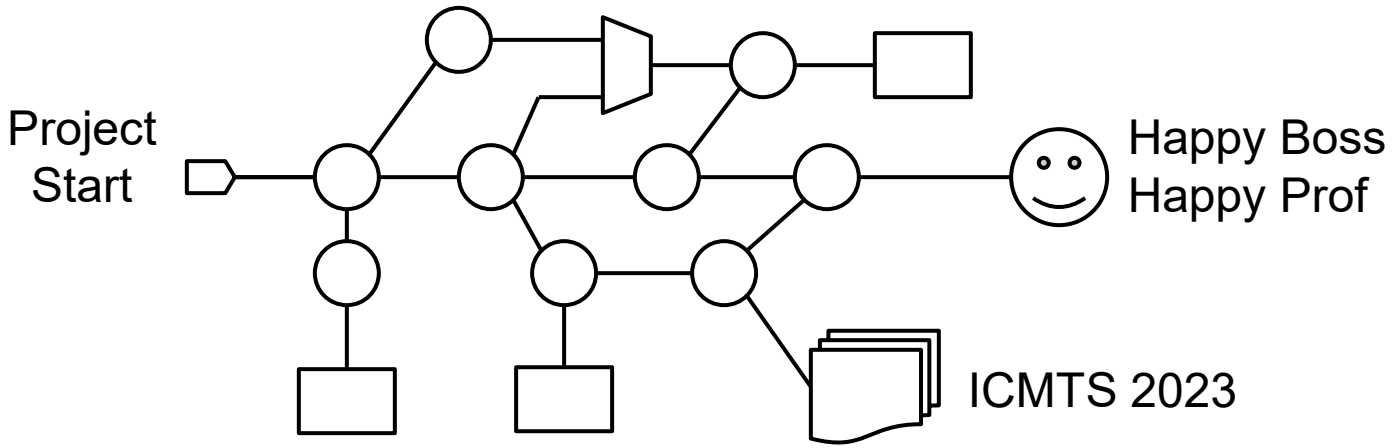
- Use humor only if you're comfortable doing so
  - Not appropriate for all audiences
  - Will be distracting if you're not relaxed doing it

KNOW YOUR MAIN MESSAGE



- What are you trying to teach the audience?
  - What 3 things should they remember from your talk?

- Present only the activities that lead to this paper
  - Not always chronological
  - Not always your original goal
  - Discard all details that don't feed your message



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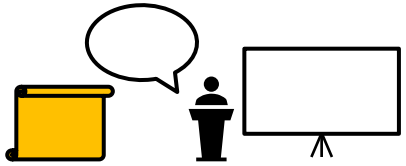

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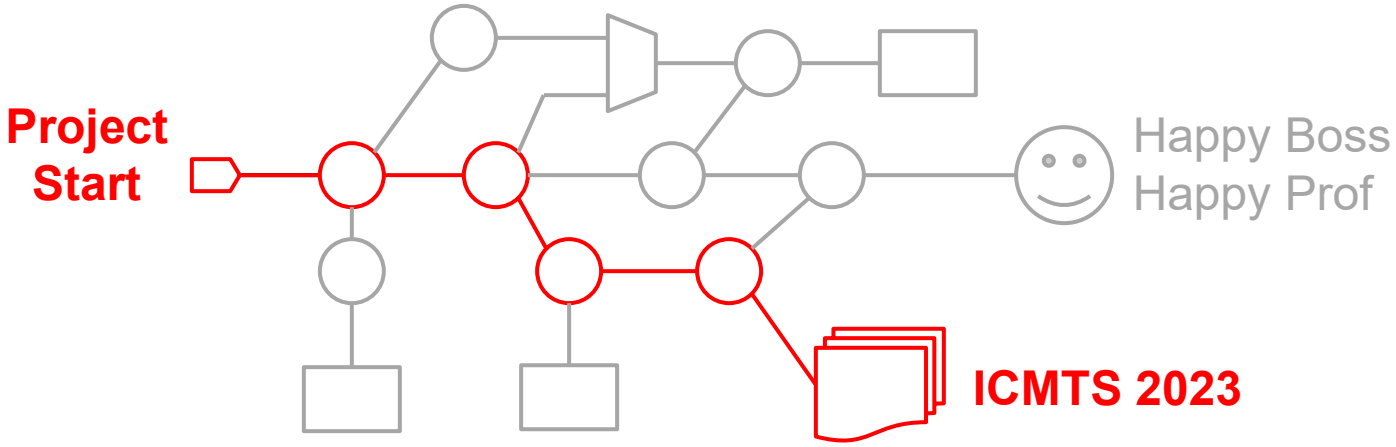

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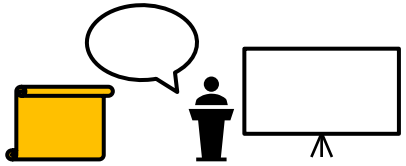

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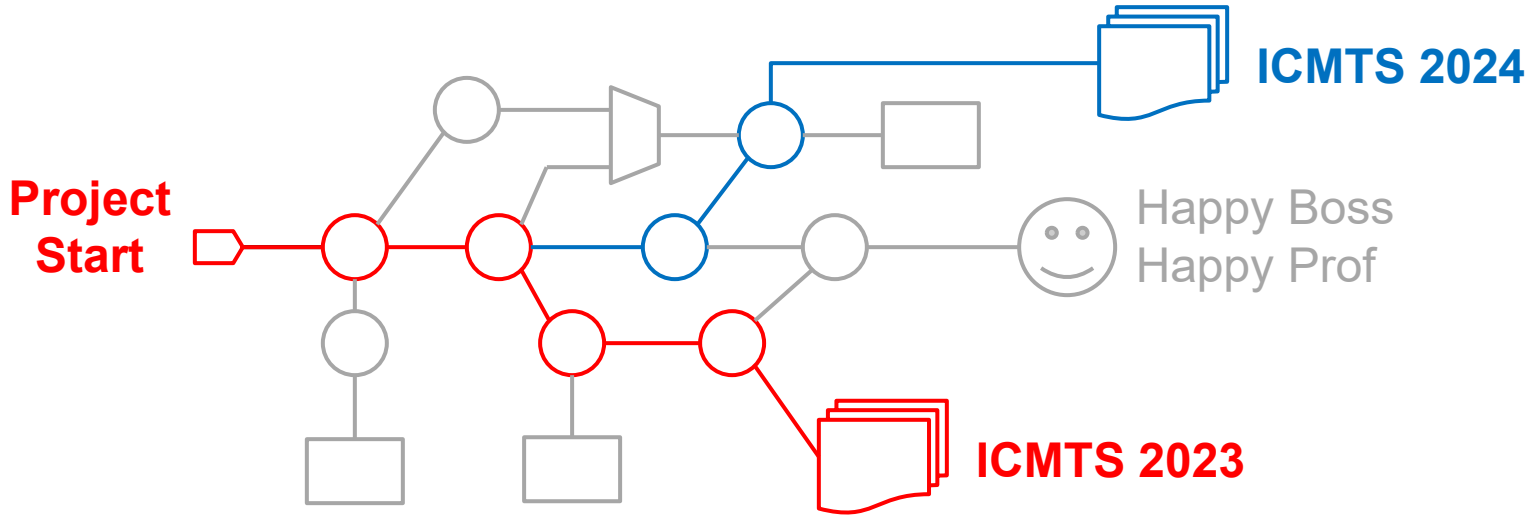
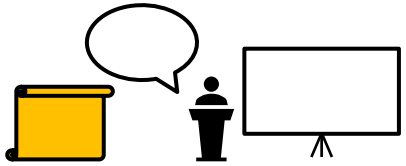


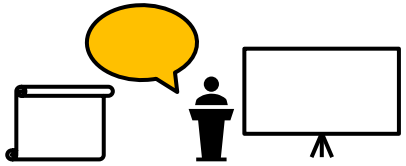
STICK TO THE PAPER



- You're presenting what's already written in the paper
  - An audience that is frantically searching the paper is not listening
  - The presentation should complement the paper

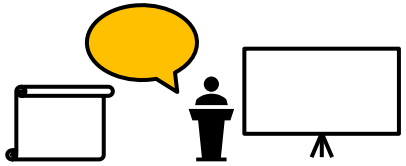
- Start with the same figures from the paper
  - Suggestion: Label the slide with the equivalent Figure number in the paper...
  - Can make intelligent use of colors to differentiate curves ... More on this later
  - Add new figures to fill in between the ones in the paper
  - If your audience doesn't know what you're trying to tell them, why are you presenting?

- Generally, follow the sequence of the paper



HOW YOU SAY IT

SPEAKING



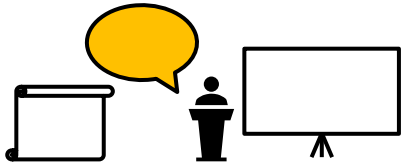
- Speak to the person in the back of the room
  - Speak loudly, clearly and slowly
  - The appropriate volume for a mic is probably a little louder than normal conversation

- Look at the audience, not the screen, not the script
  - Make eye contact or at least appear to ... Look at their hair or even the back of the room

- Keep your head pointed toward the microphone
  - When you turn your head, you probably lose the microphone

- Point with the red dot on the laptop if possible
  - PowerPoint: Control-L → laser pointer

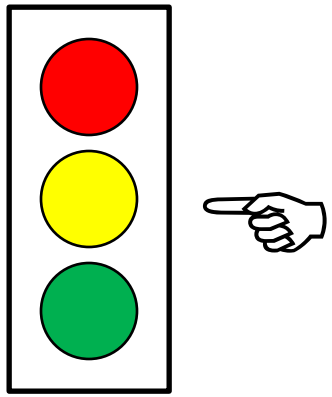
PACE / TIME LIMIT



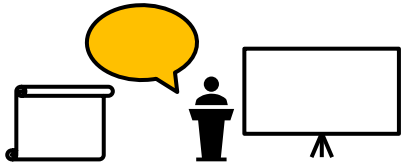
- Choose a pace that is comfortable for you and for your audience
  - Some people like no more than 1 slide per minute
  - Some people like a lot less time per slide, with less content on each slide

- Practice out loud until the timing is comfortable and within your limit
  - The voice in your head is never the same as your real voice
  - Choose some intermediate points for timing to know how ahead / behind you are

- If you start to run out of time, do not panic
  - Do not simply talk faster
  - Skip some slides to hit the main message before time runs out



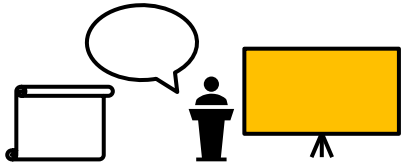
WRITTEN NOTES



- Pick a style comfortable for you

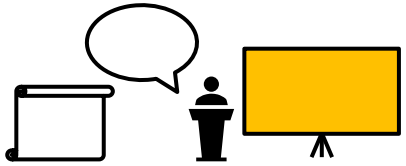
- Bullets points for each slide
  - Speak conversationally, hitting those key points

- Full script
  - Use if uncomfortable presenting in English
  - Please make it different from the paper



MAKING THE SLIDES

SLIDE DESIGN

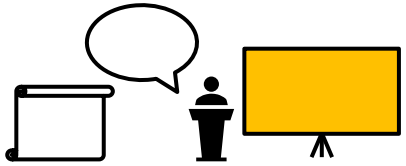


- Template
  - Your organization might have and/or require a template

- Design your slides to be visible to the person in the back of the room
  - Font size, colors, contrast, ...
  - If the audience cannot read your slides, why are you presenting them?

- Design your slides to complement what you're saying, not distract from it
  - Font size, fonts, colors, animation, ...
  - Content should match the paper
  - The audience should understand your message just seeing the slides

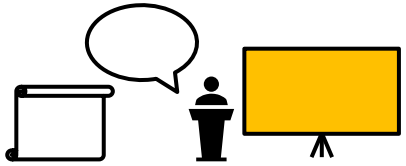
AGENDA / TABLE OF CONTENTS



- Can be helpful to use an “agenda” or “table of contents” slide
  - Tells the audience where we are in the presentation
  - Show at the beginning of each section

- Not everyone likes “agenda” slides ... They take time and add no new info

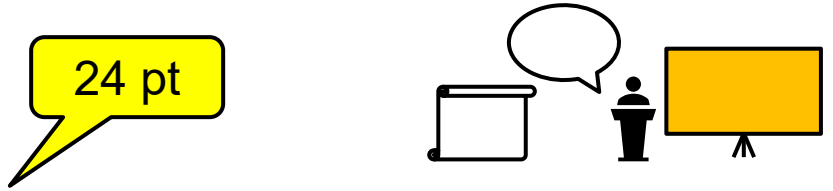
SLIDE CONTENT



- Content per slide
  - Choose how much content / time you want on each slide
  - Choose a pace that is comfortable

- Text
  - Bullets to show highlights, your speech fills in the rest
  - Full pages of text are boring, distracting and unnecessary
  - Avoid full sentences or it will be very boring for the audience to read plus they will be distracted reading your really long sentence instead of listening to you talk sort of like you reading this bullet now instead of listening to me speak even though this is the greatest speech ever given and it contains lots of really important information that you really need to hear so that you can make much better slides than this one that has an awful lot of words in it ... are you still reading??

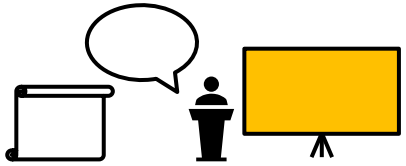
FONTS



- Minimum font size = 18 pt ... Go larger where possible
  - If your words don't fit with a large font, you have too many words
  - This can be very challenging with graphs ... More on that later
  - Font size in Windows > everywhere else
    - Windows fonts are 20% larger
    - 1 point = 1/72 inch ... Everywhere but Redmond, Washington
  - If the audience cannot read your slides, why are you presenting them?

- Choose the "appropriate" font ... Pick one that's readable
  - Sans-serif vs. Serif vs. `mono-spaced`
  - Having multiple fonts is generally distracting
    - Exception: Code should use a mono-spaced font like **`Lucinda Console`** or **`Courier`** or **`Consolas`**

FONT SIZE



This is 32 pt text ... Can you read it in the back of the room?

This is 28 pt text ... Can you read it in the back of the room?

This is 24 pt text ... Can you read it in the back of the room?

This is 22 pt text ... Can you read it in the back of the room?

This is 18 pt text ... Can you read it in the back of the room?

This is 16 pt text ... Can you read it in the back of the room?

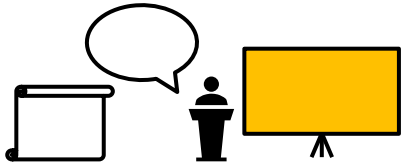
This is 14 pt text ... Can you read it in the back of the room?

This is 12 pt text ... Can you read it in the back of the room?

This is 10 pt text ... Can you read it in the back of the room?

Excel default font size is around here...

COLORS



- Colors should be used **sparingly** to emphasize a key point
  - Might also want to use **bold**
  - Highlight one thing at a time
  - Over-use of color can be very distracting
  - Projectors often look very different than your laptop screen
    - Do not rely on subtle color differences

- Use high-contrast colors
  - Dark letters on white background is safer / easier than light on dark

- If the audience cannot read your slides, why are you presenting them?
  - Can the person in the back of the room read your slides?

COLORS

Can you read this sentence in the back of the room? **Is it easier to read in bold?**

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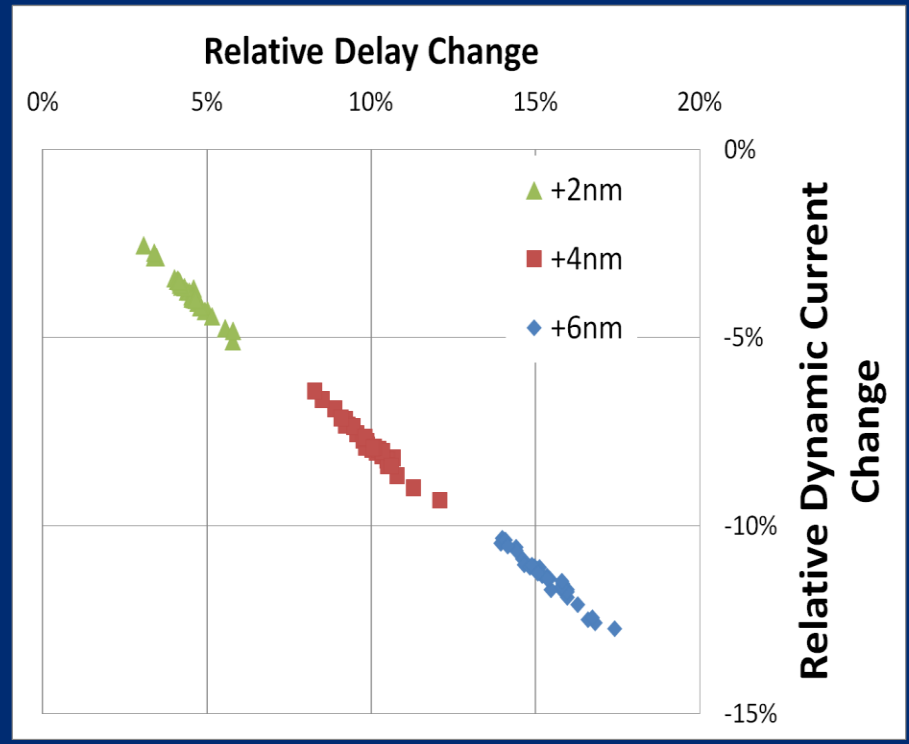
LIGHT TEXT ON DARK BACKGROUND

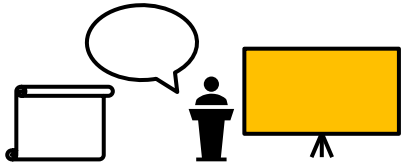
- Done properly, light-on-dark can look good
- Done poorly, it can look terrible and/or distracting
- Stick to white or yellow text, **probably bold**
- Beware things that force a white background
  - Excel graphs, screengrabs, corporate logos, ...

- Safest to stick to black text on white background



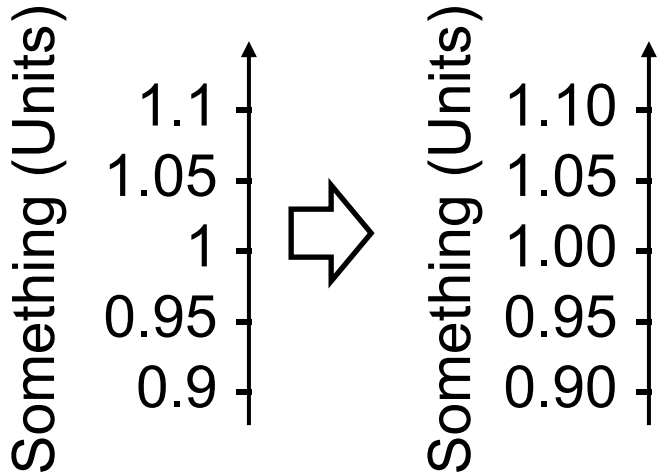
V.Kolagunta, *et al.*, ICMTS 2012

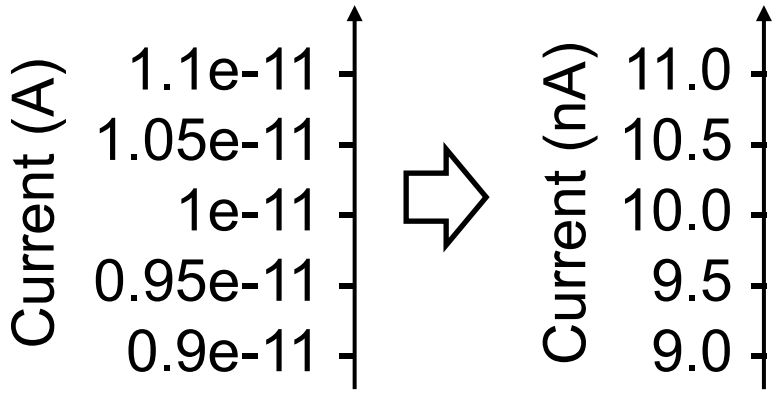
GRAPH AXES



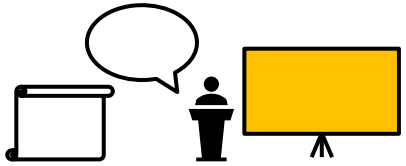
- Label all axes with large fonts
  - If the audience cannot read your slides, why are you presenting them?

- Force the number formats
  - We're engineers, should care about significant digits
  - The graphing software defaults are rarely the best looking

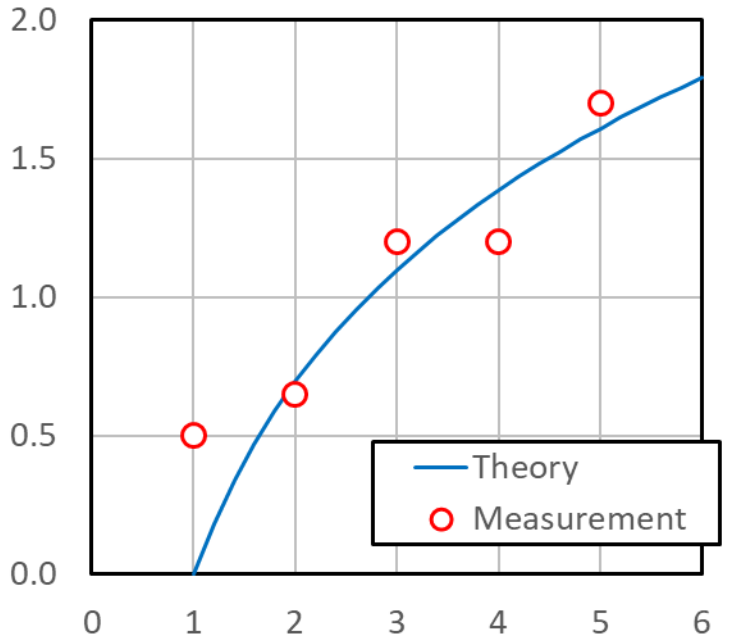




GRAPHS



- Use gridlines only if helpful
  - Must clarify, not distract
- Use color where helpful
  - Must clarify, not distract
- Clearly label simulations vs. measurements
  - Use symbols for measurements, lines for simulations
  - For simulations, fill in several values between the measured values to make a smooth curve



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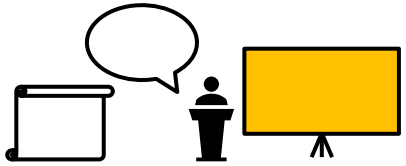
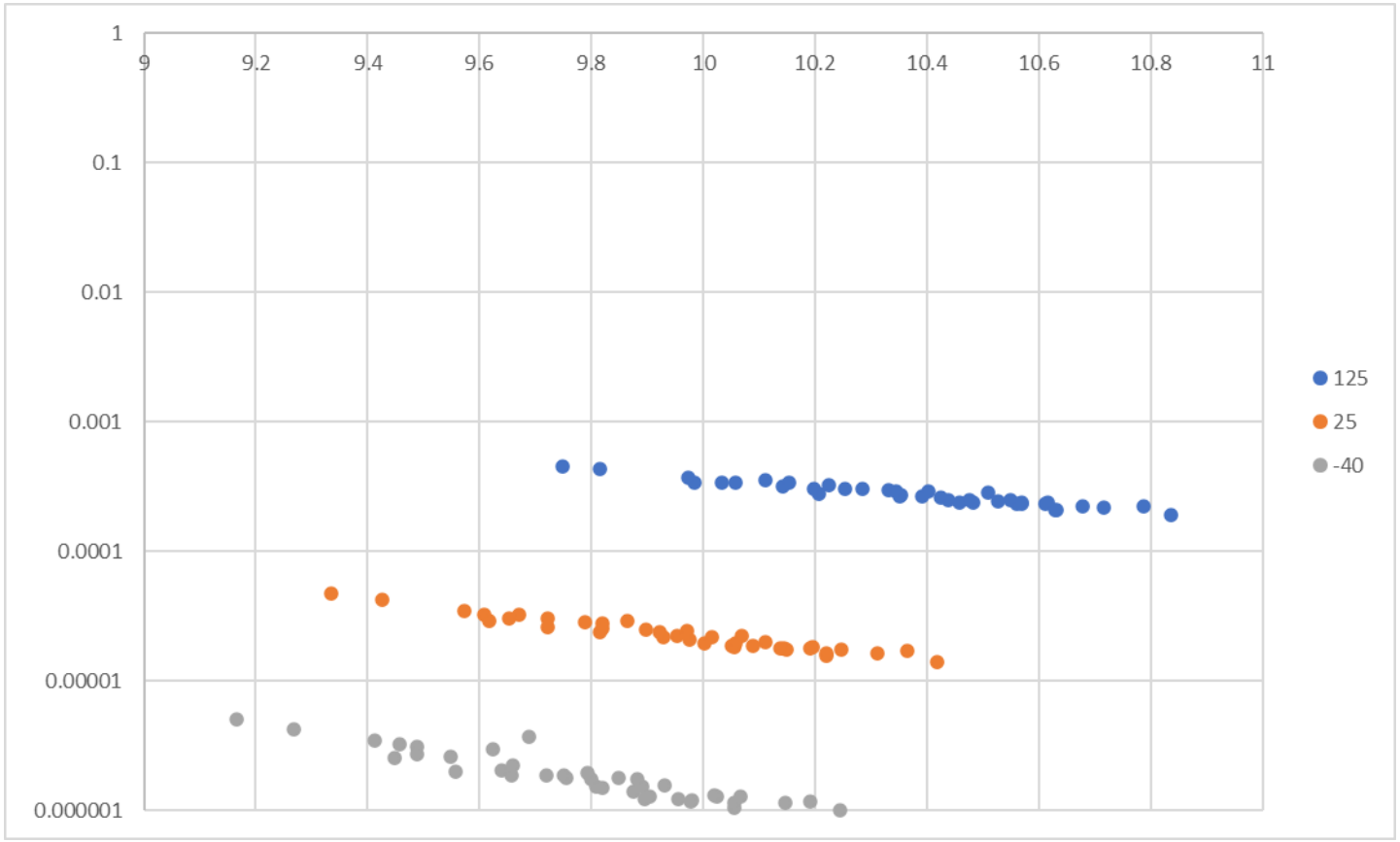


- Using Excel defaults...
  - Small font, grey color
  - Thin lines, grey color
  - Solid gridlines
  - Unhelpful number format
  - Border around the whole graph
  - No axis labels

- Fine for your personal use will not convey your message



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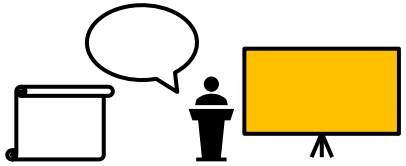
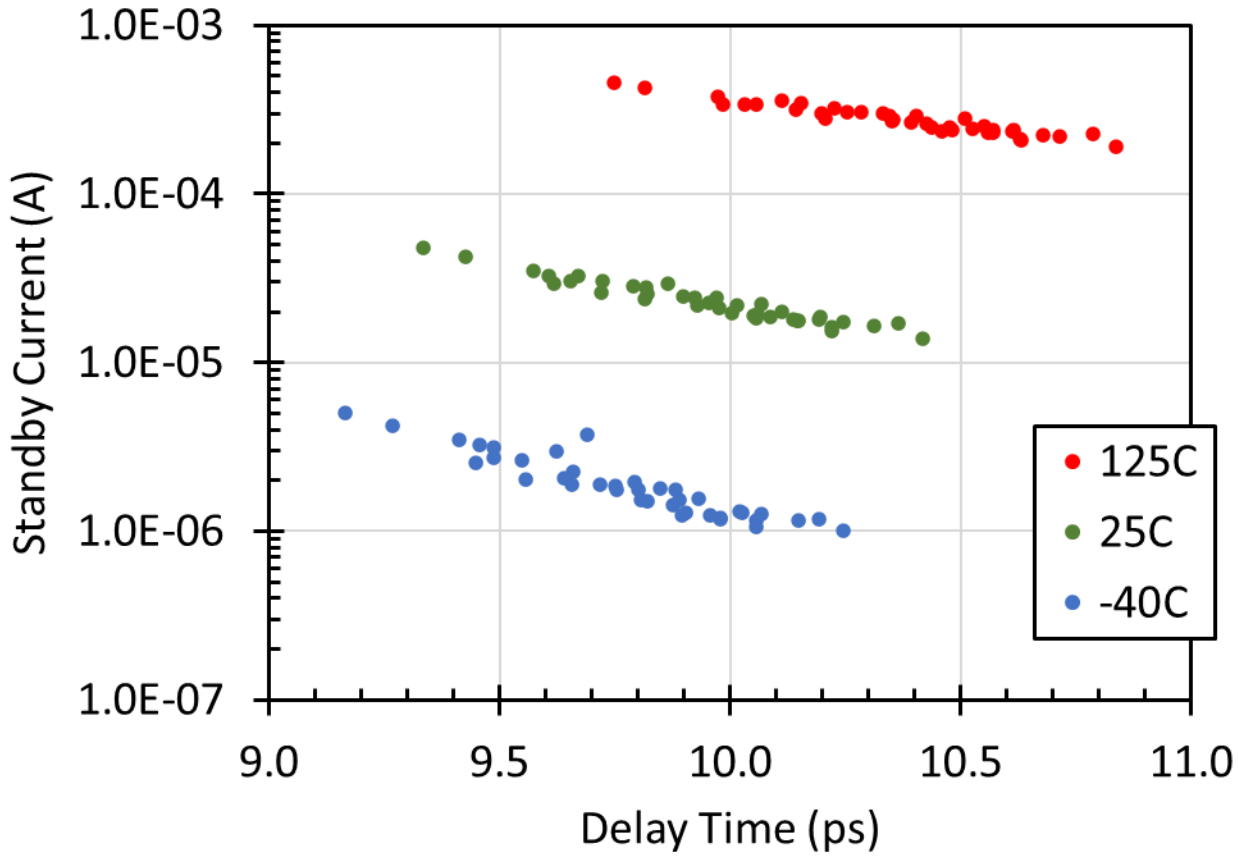
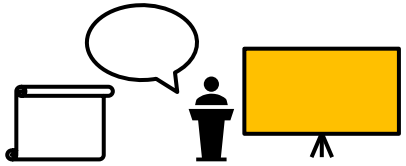


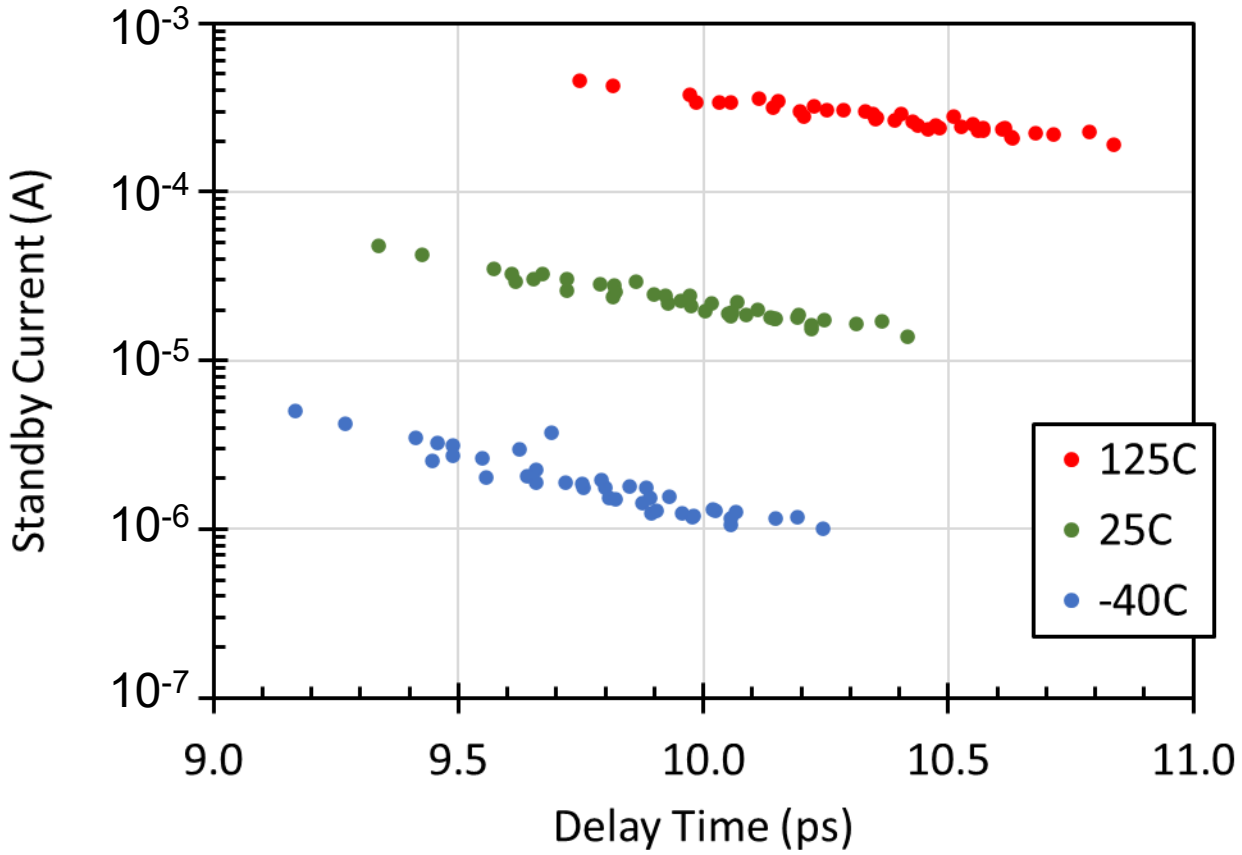
- Improved format...
  - 18 pt fonts
  - Forced number formats
  - Higher-contrast colors
    - Red=hot, blue=cold
  - Legend
    - Moved to inside graph
    - White fill, black border
  - Thicker, black lines
  - Added axis labels with units
  - Added tick marks
    - Especially helpful for log scales



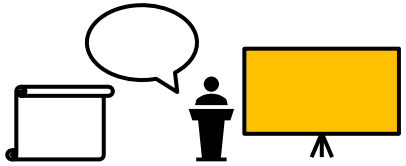
GRAPHS



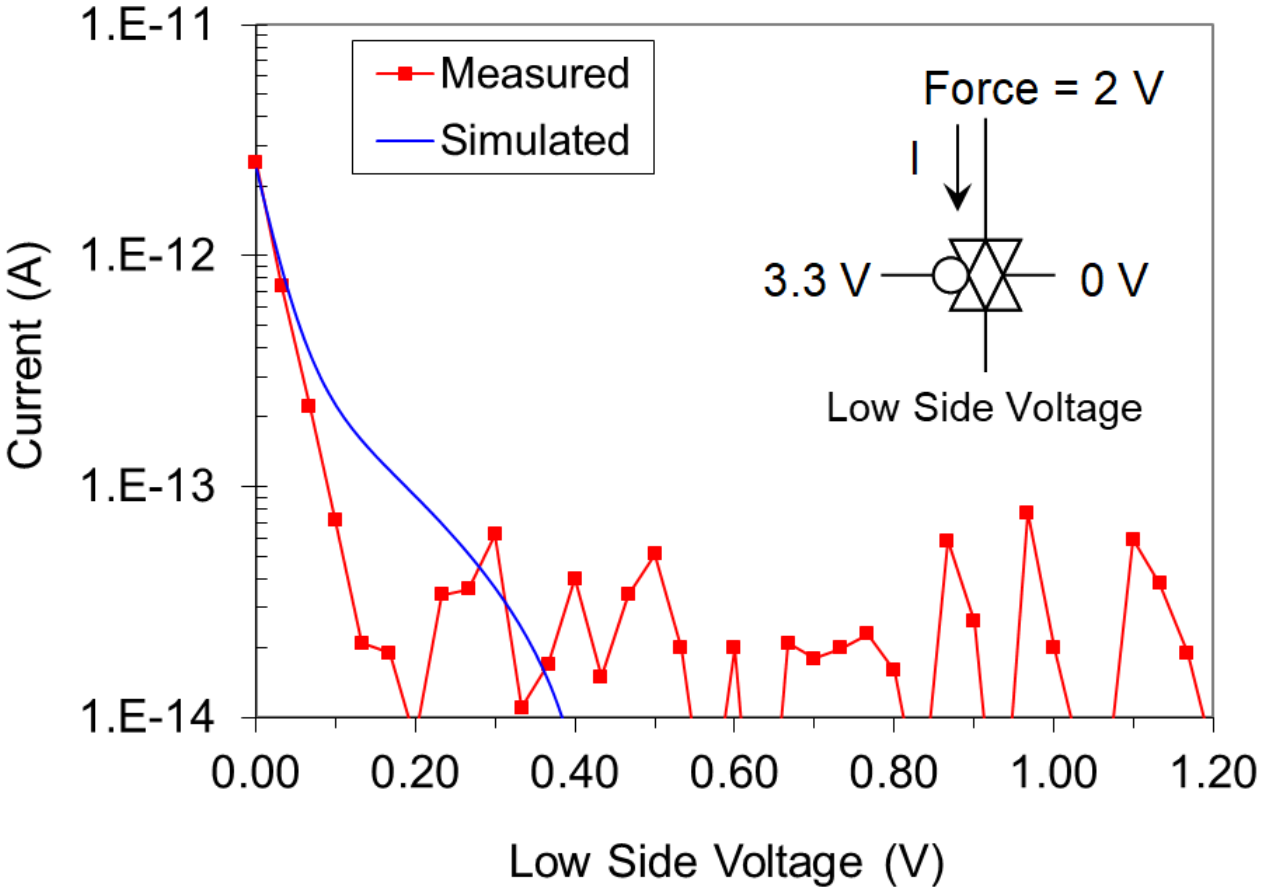
- Slightly improved format...
  - Changed Y axis labels
- Again, not one “best” way
- Graphs should feed your message, not distract from it



OVERLAYS



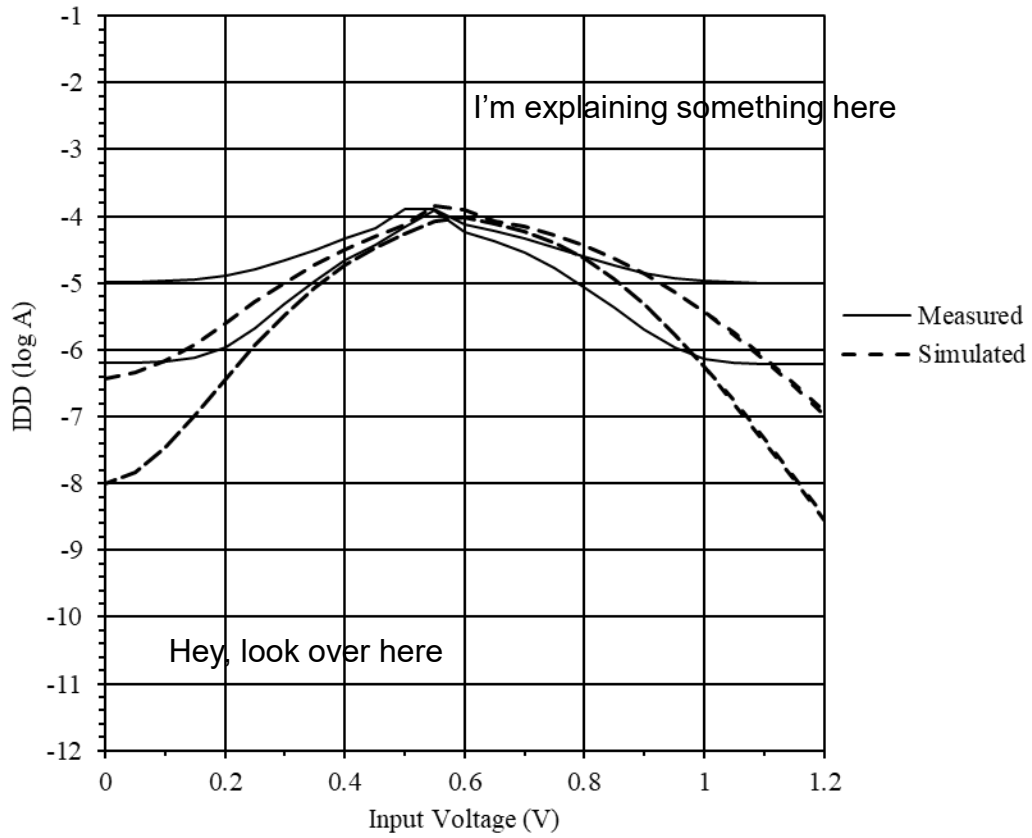
- Add an overlay to make it clear what's being graphed
- Makes graph more self-explanatory, can have more impact



B.Smith, *et al.*, ICMTS 2008

EXAMPLE OF BAD

- Small font size
- Difficult to tells curves apart
- Intrusive gridlines
- Message is completely lost

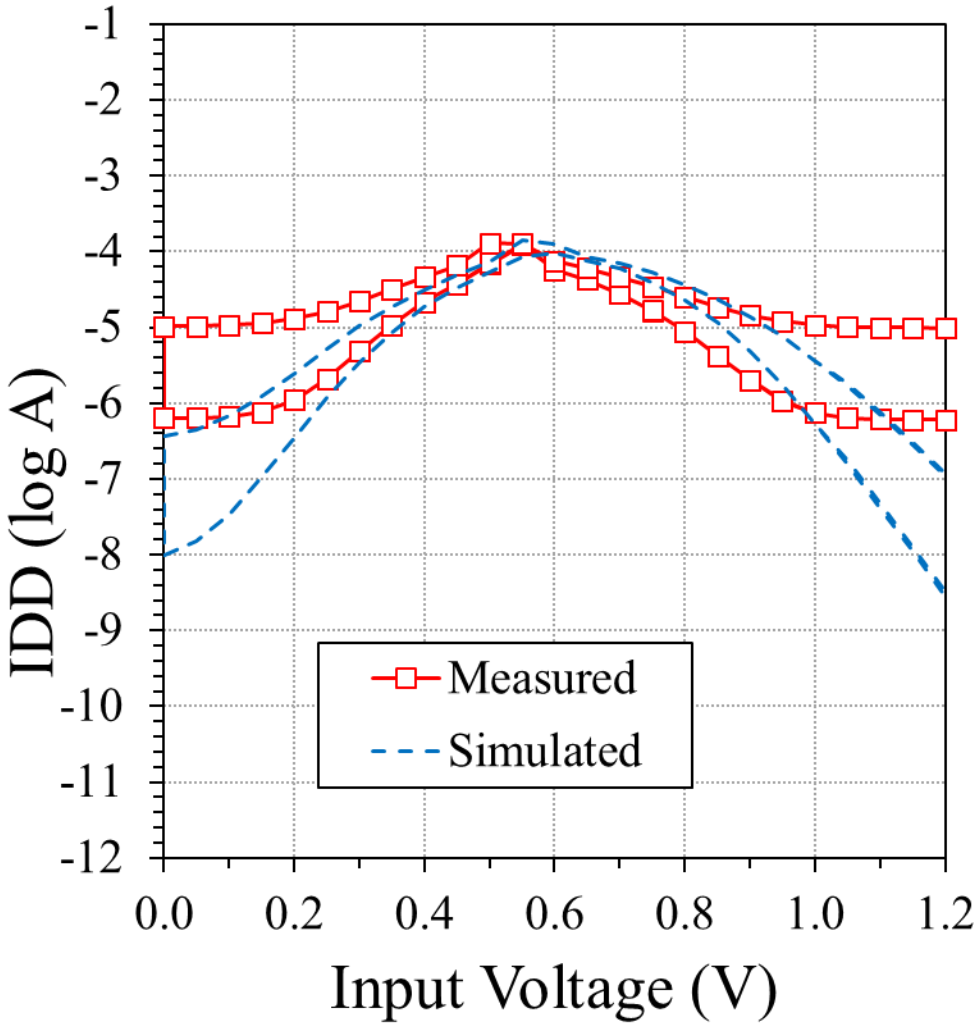


Can the people in the back read anything on the graph?

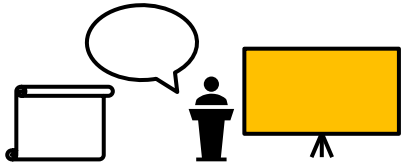
EXAMPLE OF BETTER

- Readable font size
- Subtle gridlines
- Limited colors that enhance, not distract
- Moved legend to inside the graph
- Clearly identified measured vs. simulated

- Your message can now be clear



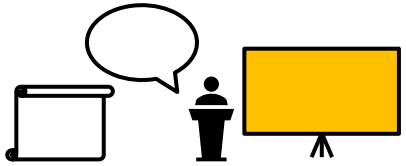
ANIMATION



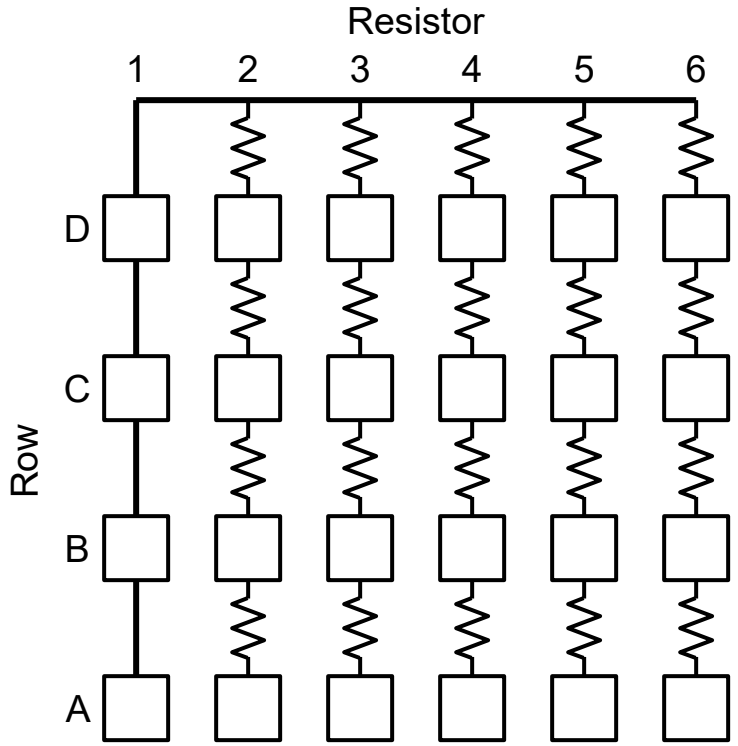
- PowerPoint can do lots of animation ... Don’t use it!
  - PDF removes animation

- Limited use of “fake animation” can be OK...
  - Sequential slides differ slightly, animation is done by changing slides
  - Done well, it can be helpful

EXAMPLE OF “FAKE ANIMATION”



- Each slide is slightly different, looks like animation when slide is changed
- The words stay the same (time to read)
- Be sure to know where it ends...



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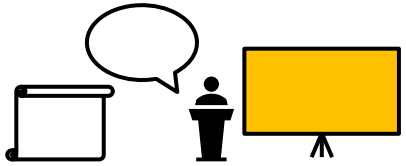

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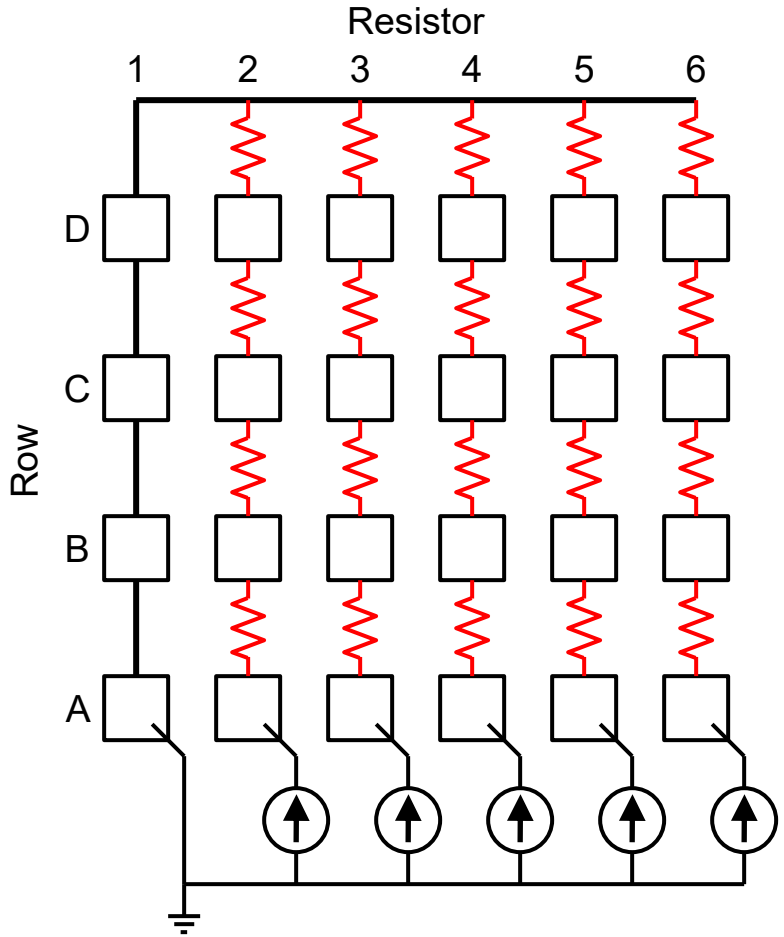

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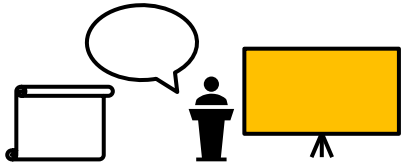

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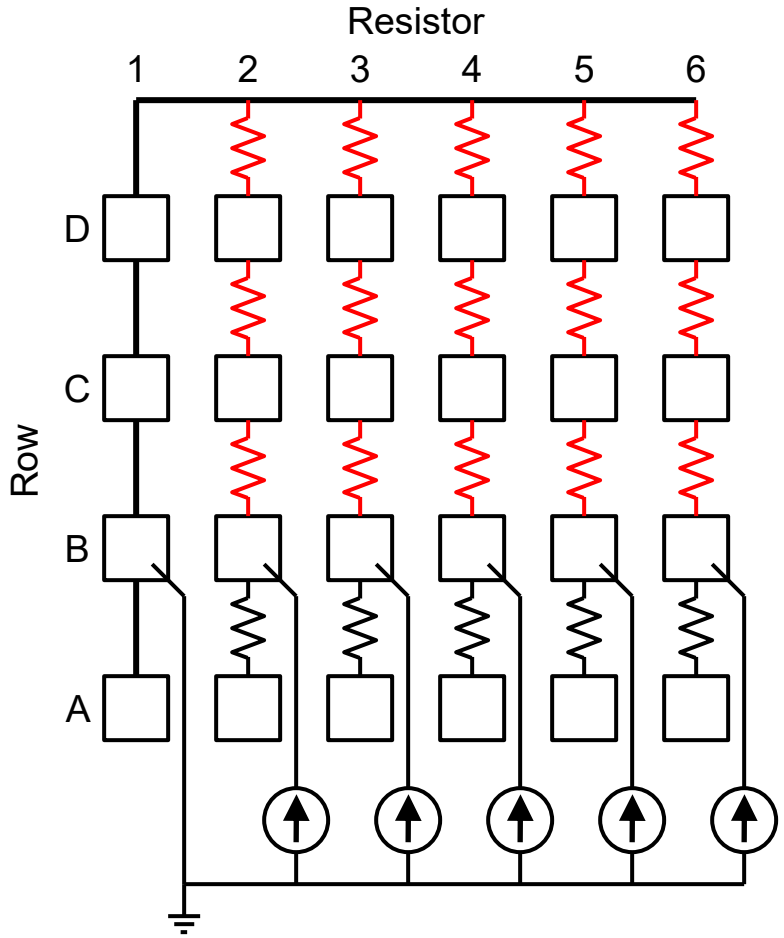

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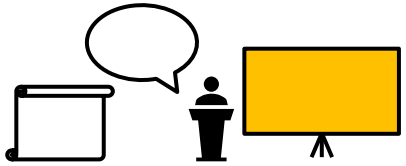

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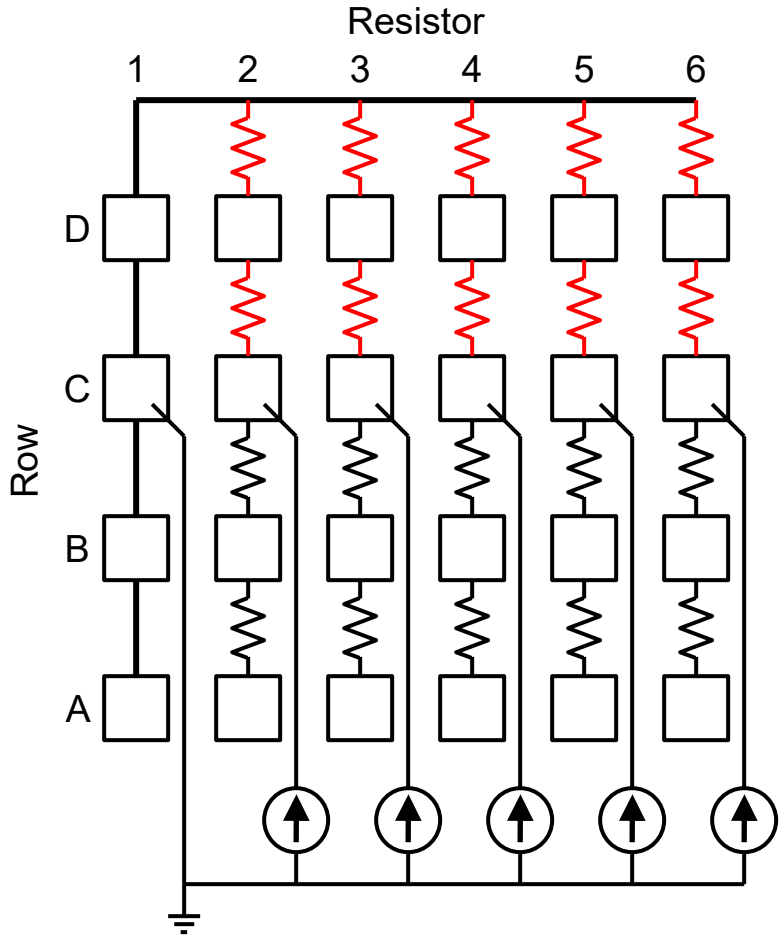

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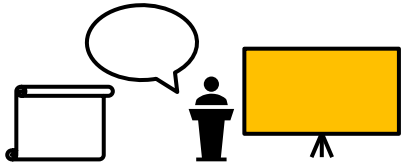

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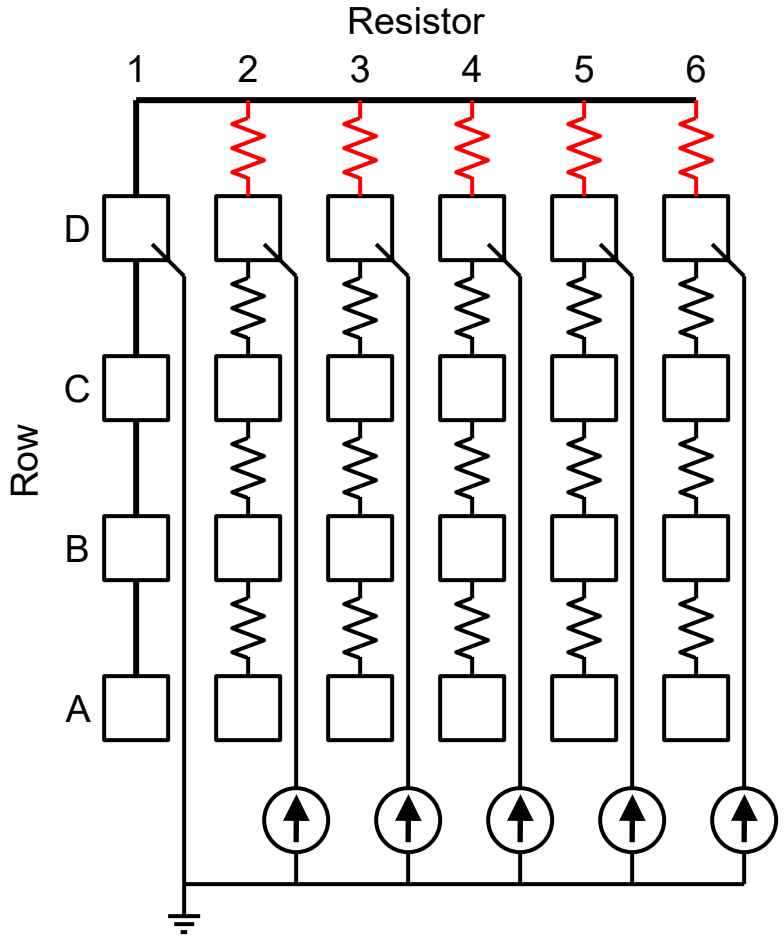

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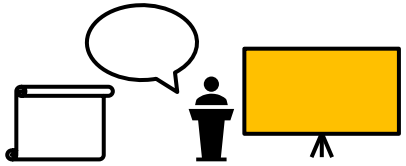
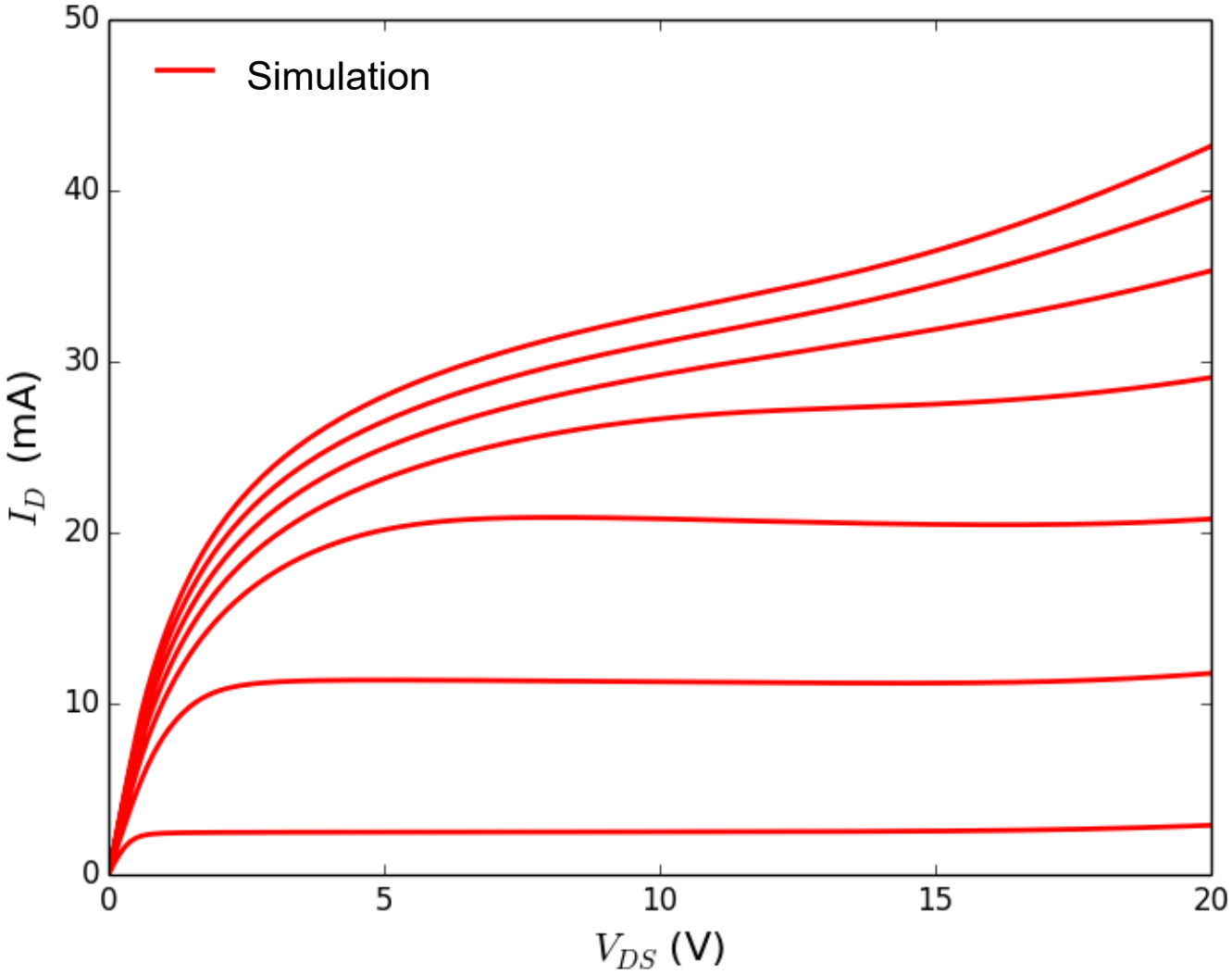


- Oops, I’ve gone one slide too far...
- And now you’re distracted

EXAMPLE OF “FAKE ANIMATION”

- Can use fake animation to separate overlays in a graph

- Exact placement = pretty transition



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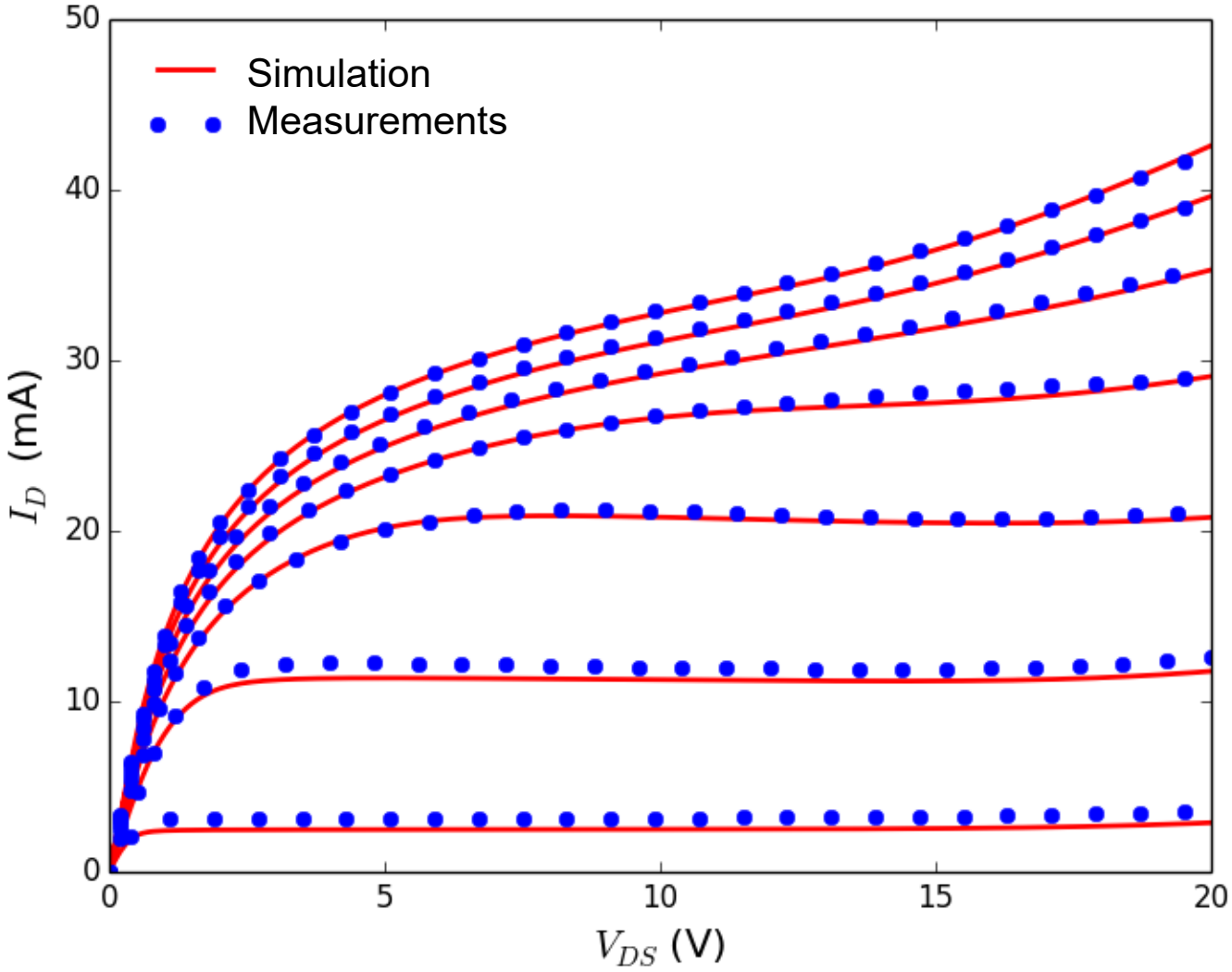
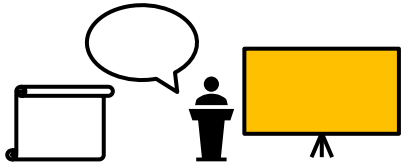


TEST YOUR SLIDES



- View your slides on a projector in the biggest room you can find
  - Likely to look differently than on your laptop
  - Every projector is different

- Make a slide to test how different font sizes, colors, *etc*. look on a projector from the back of the room
  - We are at a conference on test structures, after all.....

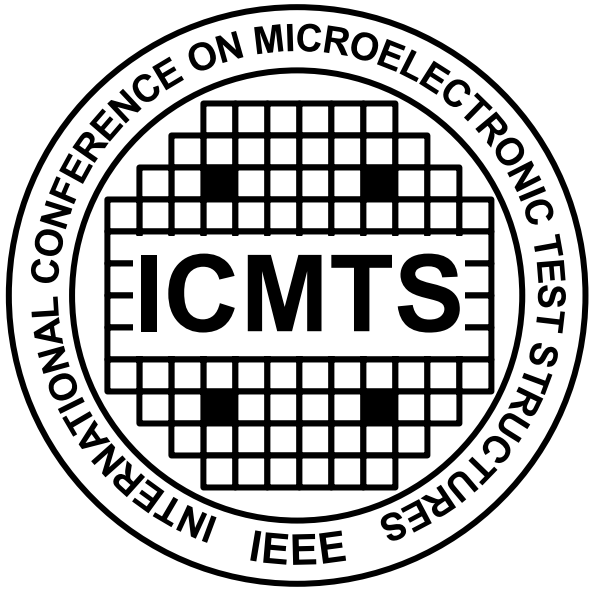
- Practice with an audience, get their feedback
  - Use an auditorium if possible

SUMMARY

THREE THINGS TO RETAIN FROM THIS TALK

1. Visibility Visibility Visibility
   - 18+ pt fonts, high contrast colors, ...
2. Stay on Message
   - Do not distract with colors, fonts, animation, ...
3. Get comfortable speaking
   - Practice Practice Practice

THANK YOU!


INTERNATIONAL CONFERENCE ON MICROELECTRONIC TEST STRUCTURES
ICMTS
IEEE

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