Delivering research talks
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27 February 2013

for more specific advice, examples, and templates:
http://courses.cit.cornell.edu/ew/CEE_GSA_2013_talks.htm

"maximize the signal-to-noise ratio"

Jean-luc Doumont advises engineers to "maximize the signal-to-noise ratio" when giving talks. Below is my advice about how to maximize the SNR in research talks.

Signal your primary message throughout the talk. Signal your research's motivations, conclusions and implications throughout the talk, especially in the introduction and the conclusion.

Signal your talk's structure. Your audience can't backtrack as they would in reading documents, so build a clear structure into your talk, and represent that structure visually as well as verbally. Ways to signal structure verbally include an introductory "road map"; transitions that explain how one part of the talk relates to the next; and a conclusion that emphasizes your primary message.

Rehearse to boost the signal over noise. A common cause of noise is nerves, which can cause speakers to forget words, to stumble, to use verbal filler ("um"), and to talk too fast. You may not be able to control nerves, but you can compensate by rehearsing the talk many times. Rely not only on your verbal memory, but also on your kinesthetic memory--of speaking at a slow-enough rate, looking at the audience instead of the projector screen, and so forth. You might also try constructing a visual map of the talk and memorizing the map.

If it's not signal, it's noise. That eye-catching wave of color on each slide? Noise. Blue background with a fade effect? Noise. Instead, use a high-contrast design, such as a white background and black text. Facing the projector? Noise. Reading a paper written down in a set of notecards? Noise, especially if one speaks without pausing. Instead, practice speaking conversationally with your audience, without notecards.

Signals require silences, spaces where nothing is happening. A white background creates a space for informative tables and figures. A pause at the end of your sentence gives your audience time to understand what you have said.

**design slides to show visual information**

Don't show slide after slide of bulleted text. Bullets can show only two types of conceptual relationships: lists or chronological order. If you use bullets for more complex conceptual relationships, such as cause/effect, problem/solution, and claim/evidence, you introduce noise; the bullets clash with the words. For complex conceptual relationships, replace bullets with arrows or other designs that correctly indicate the relationships between words.

Often, an even better solution is to replace words with diagrams, photographs, or other visual information. If you can visualize a complex concept for people, they’ll understand the concept more quickly. However, save the visuals for concepts that you want to emphasize. In particular, avoid using a visual to replace a single word; simply using the word is typically less noisy.

**design posters to avoid the very tiny print phenomenon**

Posters typically use the same organization as research articles, which can lead to a common mistake of poster design, the very tiny print phenomenon. Rather than thinking of your poster as a smaller version of a paper, try thinking of the poster as a visual object that will help you talk about your research to a constantly changing audience.

People may be viewing the poster from several feet away, so the typeface should be legible from that distance. People may want to read posters quickly and then ask questions, so the poster should be a synopsis that highlights the significance of your research. People may read the poster when you’re not there, so the poster should work as a standalone object.

**examples (posters, slides, videos of talks) & templates**

For examples and templates, please see the webpage on research talks at [http://courses.cit.cornell.edu/ew/CEE_GSA_2013_talks.htm](http://courses.cit.cornell.edu/ew/CEE_GSA_2013_talks.htm)

You’ll find links to several sites that offer advice specific to engineering and science research talks, including how to deliver talks, design posters, and design slide decks. The sites include examples of slides, videos of people giving talks, templates, and software recommendations.

As you apply any of this advice (including mine), keep in mind that such advice is inherently global or general. However, you’re designing a talk, slide deck, or poster in a local environment (for a specific conference, about a specific research question, etc.). Follow local conventions (e.g., the conference specifications for poster size and contents) and consult people with local knowledge.