Checklist for effectively presenting work in Stat-ML

Aaditya Ramdas (`aramdas@cmu.edu`), Carnegie Mellon University

Some personal suggestions (via accumulated wisdom) for my own students.

- **Jean-Luc Doumont.** Watch his videos about effective scientific communication at least once.

- **Purpose.** The level of technical depth depends critically on talk length and audience. The aim of a shorter talk is usually to convey motivation, intuition and some key ideas, leaving the rest to the paper. A longer talk can get into conceptually interesting technical details, but remember to zoom out at the end.

- **Psychology.** Creating effective talks boils down to understanding human psychology: think about what the audience will want to know, what might confuse them, what might potentially interest them.

- **Use Keynote.** Avoid Beamer unless you're an excellent speaker: the mode of creating content is through typing, and as a direct result, most (bad) math-stat speakers pack every slide with text and math formulae. I recommend Keynote (Mac): there is more freedom in visually organizing the page (rather than top to bottom in Beamer). In the latest version, Command+E allows using LaTeX within the editor (no need of LaTeXiT) in the same font as the text. Equations can have color, and can be edited by double-clicking.

- **TMI.** Don't err on the side of TMI (too much information). Your null hypothesis should be that the majority of the audience don't really care about what you do, and will not read your paper. These people just want to understand things at a high level, with glimpses of details. Explain why you're studying this problem, why your approach is sensible, how to interpret your results, etc. Don't present general-but-complex assumptions (use simpler sufficient conditions), don't present the most general theorem statement (unless it is succinct).

- **One idea per slide.** Each slide's main idea should be the title (top) or takeaway message (bottom). Have less slides than minutes—number and/or title each slide for easy reference during questioning. Titles should be full phrases or sentences (generic or nonspecific titles sometimes serve no purpose).

- **Animations** (mainly appear/disappear) are critical to control what the audience is reading, even within a single complex figure or formula. In Beamer, make use of \pause (don't display a daunting page all at once).

On the day of the talk, make sure you're physically comfortable (stretch, eat, drink) and mentally calm (breathe).

- **Setup.** For a seminar talk, have *at least* 15 minutes before the talk to set up your laptop (technical glitches are frequent), use the restroom (relax, look in the mirror) and warm up your body/voice. Always carry a clicker, charger and water bottle. Have your slides either on a pen drive or in the cloud (if your laptop fails).

- **Microphone.** Request a microphone (even if your voice is loud): it helps people stay awake, aids those who are hard of hearing, and keeps your voice louder than people who type on laptops or talk to neighbors.

- **Questions.** Encourage questions, interactive talks are more fun. However, request the audience to leave overly philosophical questions for the end. If someone (repeatedly) does not comply, respectfully say that you are happy to discuss offline. Paraphrase an audience member's question back to the them, both for the sake of others who did not hear, to make sure you understood the question correctly, and to buy thinking time.

- **Humor.** Humor lightens up the atmosphere, audiences are usually forgiving about (one or two) bad jokes.

- **Tone and pronunciation.** The word "monotonous" literally means "the same tone". Varying pauses and changing tone (when done appropriately) can increase attention spans and decrease the amount that people's minds drift away. Work on improving your pronunciation. Some people speak very quickly and others are dreary. Learn the pace at which people can understand and process all the words of your sentence.

- **Eye contact** is critical to maintain attention. Do not read from your slides, or have your back to the audience. Know your slides: do not be surprised by them, or wonder in real time what you wanted to say.

- **Be straightforward.** Avoid overconfidence, exaggeration or bragging. Over-humility or beating up on yourself or your work is also counterproductive. Be confident, direct and honest about pros and cons.