Simple Rules for an Effective Research Presentation

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Overview

1. What makes an effective presentation?
2. Organization of content
3. Slide design
4. Oral delivery
What makes an effective presentation?

One that is easy for the audience to follow along & remember the central message
Design slides for the audience, not yourself.

Minimize the amount of mental work your audience has to do.
Who is your audience?

• General audience (non-specialized)

• Avoid technical terms if you can or define using in accessible language
Organization of Content

Title Slide
Motivation (background)
Research Question
Methods
Results
Conclusion
Future Directions (if enough time)
Acknowledgements (if enough time)
References (not shown)
Title of talk

Name

Affiliation

Email address (not required)
Which title slides are memorable?
Motivation

Hooks the audience in by setting up the context and purpose of your study

1. What is the problem?

2. Why is it important to solve this problem (big picture)?

3. What was already known before you started your research? (summarize KEY studies previously published)

4. What gap in knowledge still needed investigation?
 Regulation of NAD+ & Sirtuins in Aging

- People learn better from visuals & words than from words alone
- Use schematics to explain processes
- Cite source
- Interact with figure

Imai & Guarente, 2016
Don’t include material that you don’t plan to explain
Senescence: growth arrest (retirement) due to cellular stress

- oncogenic mutations
- DNA damage
- telomere shortening
- oxidative stress

If you can’t find a figure online, draw your own
Research Question

• Have a slide dedicated to only the research question

• Write an actual question!

• Give a preview of the conclusion to maintain audience attention
Methods

• What method(s) did you use and how will it address your research question?
• What experimental organism or human population did you study? Why?
• Include important variables of your sample population
• Introduce methods for each set of experiments separately
Proposed Method

Overview

Video frames

CNN Crack Patch Detection

Video Motion Estimation

Spatio-temporal Registration

Naïve Bayes Decision Making

Tubelet Clustering

Data Fusion

Crack bounding boxes

MOV_{1,i} : movement from frame 1 to frame i

Use visuals to show the overall experimental design
Results

Too many results on one slide
Results

1 main result per slide
Results

Define your variables first
You MUST give credit to your collaborators if you’re presenting their work
### Federal Healthcare Spending

- Spending on major federal healthcare programs grew from 2% of GDP in 1983 to almost 5% in 2013 and is projected to increase thereafter.

- The aging of the population and different policy shifts caused spending on Social Security and major federal healthcare programs to grow from almost 7% of GDP in 1983 to nearly 10% of GDP over 30 years.

- By comparison, spending on all of the federal government’s other programs and activities, excluding net outlays for interest, fell from 3.5% of GDP in 1983 to 2% in 2013.

### Federal Health Care Spending Increased 1983 - 2013

Spending on **major federal healthcare programs** grew from **2%** of GDP in 1983 to **5%** in 2013

**Major healthcare programs plus Social Security** grew from **6.7%** of GDP in 1983 to **9.5%** of GDP in 2013

Spending on all **other federal programs** fell from **3.5%** of GDP in 1983 to **2%** in 2013
Conclusions

• Write your conclusion statement **clearly** and **concisely**

• State the **importance** of your work (i.e. what gap in knowledge was filled in the field?)
Future Directions

• Questions that remain to be answered through future studies

• Discuss only if there is enough time
Acknowledgements

• Principal investigator
• Graduate or postdoc mentor
• Collaborators
• Funding sources


Do not bullet your references
Slide Design

• Keep text minimal

• Reduce unnecessary blank space

• Break one slide into separate simpler slides

• Don’t include material you don’t plan to explain
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Stem Cell Therapy Injections for Wellness

- Over 4 million MSCs in one treatment
- $4500 for a single treatment with no follow up necessary
- Administered intravenously
- Used as a preventative treatment for anti-aging
- Claims to target the entire body for multiple effects
- Claims no risk of cancer or risk of the body detecting the cells as foreign
- Not paired with any sort of immunosuppressant
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Mechanism of Treatment

- Mesenchymal stem cell
  - Multipotent stem cells, able to differentiate into variety of cell types
  - Invaluable in the repair of tissue and organ damage
  - Anti-inflammatory and immune-privilege potential (Gao et al., 2016)
  - "Produce paracrine factors that inhibit apoptosis, stimulate endogenous cell proliferation, and/or activate tissue resident stem cells in the site of injury" (Ischim et al., 2010)
- Isolate mesenchymal stem cells from Wharton’s Jelly of the umbilical cord and the amniotic membrane
  - Not valid under FDA as treatment is not homologous

Breakup into two slides
Text

- Keep it large and simple (size 48)
- Text size of >36 is ideal
  - 28-34 are also easy to read
  - 24 is difficult to read from the back of the room
Delivery

- Demonstrate confidence
- Know the material
- Practice! Practice! Practice!
- Don’t read (unless it is normal practice in your discipline)
- Be engaging
Thank you!