Devising effective slides for your presentations

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What are slides for?

Good slides

- provide vital visual communication that enhances the verbal communication

- help you communicate more effectively

Today's seminar

1. How not to design your slides
2. Some basic features of good slide design
3. More adventurous approaches to slide design

What is visual communication?

All visual elements that help you communicate your message

Last seminar on poster design, we saw these visual elements:

1. **layout and spacing**
2. **informative graphics and figures**
3. **carefully selected text messages**
4. **good colour scheme and background design**

Should females prefer males with elaborate nests?

Bob B.M. Wong & Topi K. Lehtonen. School of Biological Sciences, Monash University, Australia

Males often build nests, not only for rearing offspring, but also for attracting mates.

We set out to investigate whether females should use nest appearance to assess male quality in a fish, the sand goby.

Male sand gobies build nests by piling sand on top of shells or rocks.

When nest quality was experimentally disentangled from other male traits, we found that female sand gobies did not prefer males with the most elaborate nests. Moreover, nest quality was an unreliable signal of male condition and, hence, male parental quality.

Behav Ecol. 2009. 20: 1015-1019

No.

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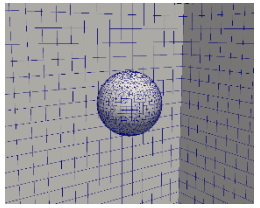
Predicting particle settling in sheared mining slurries

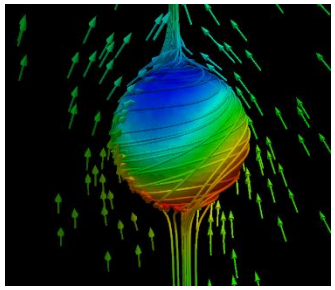


Mining slurries can contain large particles that are able to settle under shear

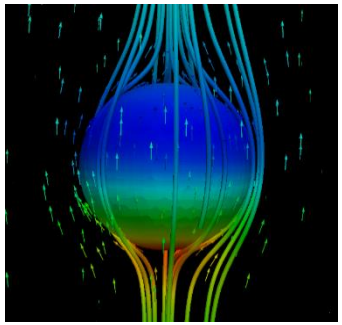
How can we quantify the settling rate?

Computational model



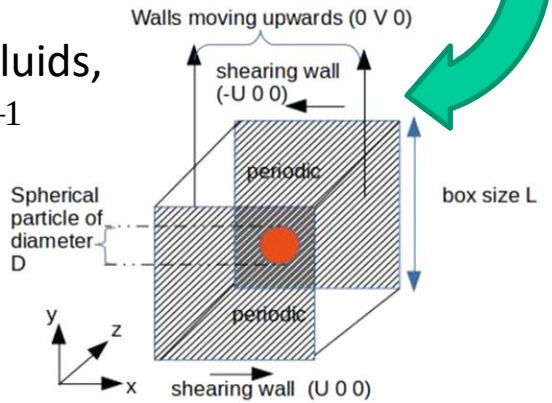
$$\delta = \frac{\dot{\gamma}_{imposed}}{\dot{\gamma}_{unsheared}}$$

Imposed shear



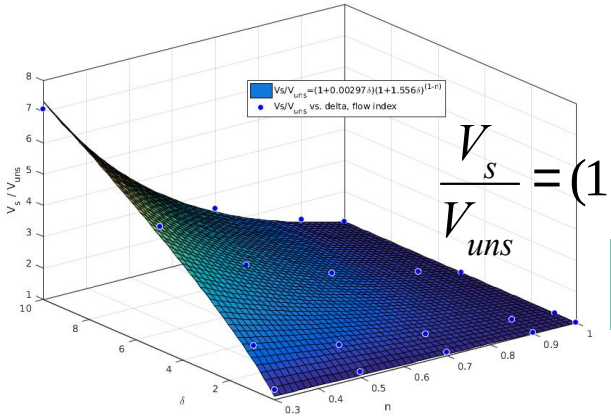
Power-law fluids,

$$\mu = k\dot{\gamma}^{n-1}$$



Predicts settling rate of particle under shear

Predicts settling rate of undisturbed particle



$$\frac{V_s}{V_{uns}} = (1+0.003\delta)(1+1.56\delta)^{1-n}$$

Future Work

Many mining slurries also exhibit a yield stress. This effect is our current focus.

Excellent visual communication in

David Epstein 2014 : TED talk

Are athletes really getting faster, better, stronger?

https://www.ted.com/talks/david_epstein_are_athletes_really_getting_faster_better_stronger#t-417756

What are some problems with slides in presentations?

Evaluate the design of the following slides …

Experimental Techniques

Particle Image Velocimetry (PIV)

Multigrid Cross –Correlation Particle Image Velocimetry (MCCDPIV)

- Adaptive and Iterative process of refining size of IW described in detail in Soria 1998

Sources of error in PIV analysis

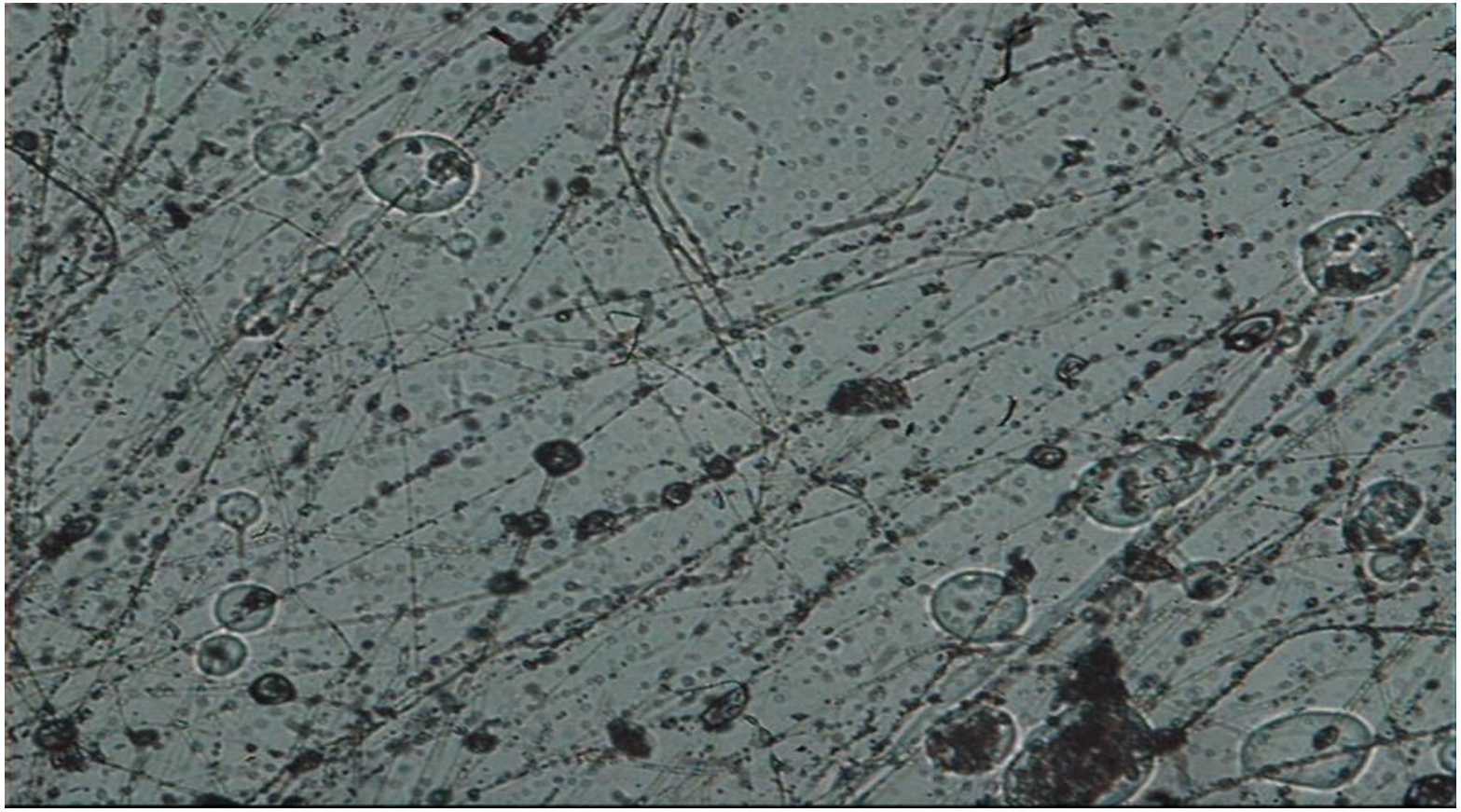
- Movement of particles out of interrogation window
- Assumes uniform displacement between laser pulses
- Areas of non-uniform seeding
- Misalignment of light sheet
- Movement of particles into and out of laser plane

To minimise these errors the raw data is passed through a vigorous data validation process.

Future uses

- Stem cells
  - Eliminates ethical Issues
  - Small source of Stem Cells needed
  - Neural Stem Cells
    - Parkinson's Disease
  - Blood Cells
    - Non-reliance on Donors
    - Replacement of cancerous bone marrow
      - » Leukemia
- Bioreactors up to 15 Litres
- We Need > 100,000 Litres!

Results



Project Goals

Enhanced production of pure, biologically active **Hev b 6 protein** by improving:

- Protein release from *E.coli* cells
- Protein solubalization
- On-column refolding

Animation effects

Animation effects can be very distracting

Do not overuse them

In summary, bad slides have no clear obvious message because:

- unhelpful slide title
- crowded, wordy, jumbled
- poor use of bullets
- too much pointless information, colour scheme, animation
- presenter's script on the slide

What is a good slide?

- A good slide has one clear message
- A good slide communicates with
  - clear graphics
  - only essential words

Features of good slides

1. balanced graphics, text and white space
2. deliberate font choice
3. helpful colour scheme
4. meaningful use of animation
5. careful use of bullet points
6. consistent formatting

Conventional slide design: using PowerPoint

Don McMillan: *Life After Death by PowerPoint*

https://www.youtube.com/watch?v=lpvgfmEU2Ck&feature=player_embedded#

In summary, Don McMillan says

1. Don’t put your talk in words on your slides
2. Don’t overuse bullet points
3. Choose the font carefully
4. Make the colour scheme work for you
5. Don’t crowd too much data on one slide
6. Don’t overdo animation effects

Conventional slide design: the mechanics

1. Amount of text

Golden rule: Reduce the amount of text!

Use

- key words and phrases
- lots of white space

Do not use

- full sentences
- large blocks of text
- PowerPoint default with many layers of subpoints

If you have to provide lots of writing:

- no more than six lines
- no more than six words per line

2. Choice of font

Use a font that makes your slides easy to read

Use

- only one font
- a sans serif font, eg Calibri
- bold and italics for emphasis

Do not use

- SHADOW LETTERING
- ALL CAPITALS
- A Mixture Of Capitals And Lower Case

Avoid this ……

Advantages of HF AC

- Drops/Fiber Are **Electroneutral**
  - The Current Does not Have Sufficient Time to Penetrate the Body
  - It Is possible to use for Respiratory Drug Delivery System
- Uses *Lower* Voltage Compared to DC
- IT IS POSSIBLE TO MAKE A MINIATURE DEVICE

3. Choice of colour scheme

Use colour

- to make your slides easy to read
- to reinforce the logical structure
- to emphasise a point occasionally
- to add impact

Choice of colour on a slide

Is your colour scheme easy to read?

Red on Blue is blurry to the eye	Easy to read
Yellow is difficult to read	Easy to read
Blue on Red is blurry to the eye	Easy to read

Source: Patti, T. *Poster Presentations at a Conference*, Monash University

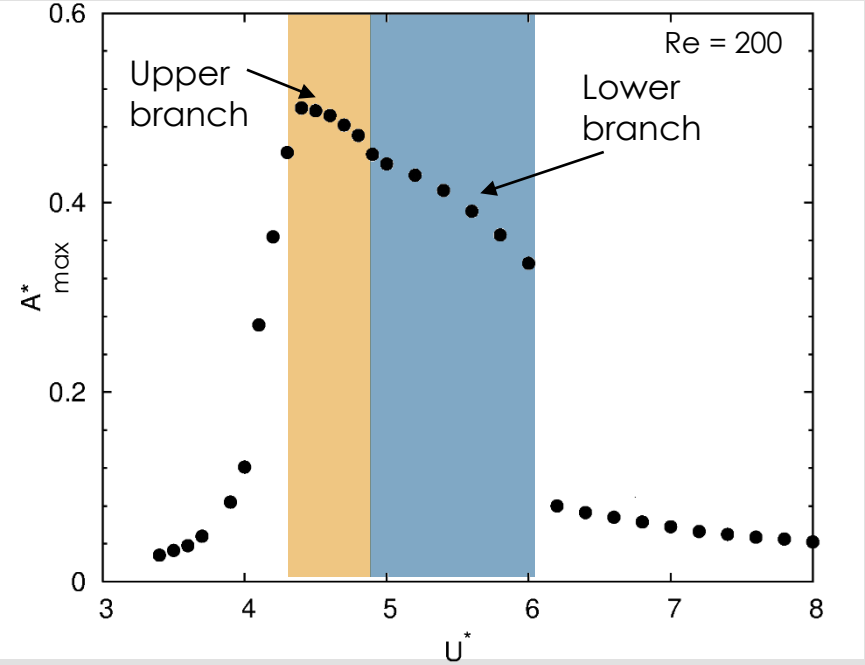
4. Use of animation

Use animation only to help communication

- to add interest
- to demonstrate a process or action

A good example ……

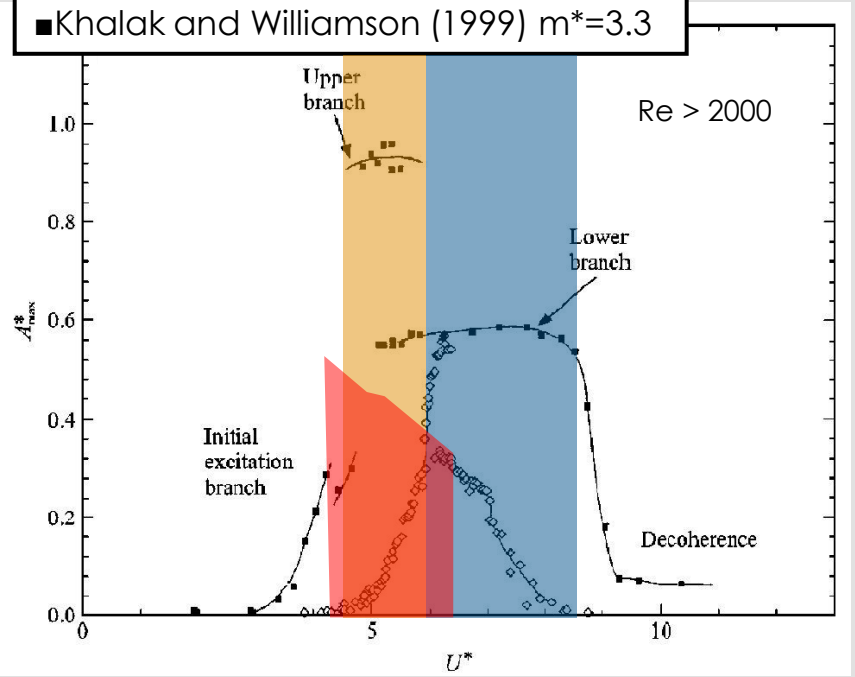
Peak amplitude response



Simulation results

◊ Feng (1968) m*=248

■Khalak and Williamson (1999) m*=3.3



From Khalak and Williamson (1999)

5. Use of bullet points

- Consciously choose to use bullet points rather than following the default design for PowerPoint slides
- Use the bullet points to communicate a logical list
- Use the same grammatical structure in each point

6. Choice of slide template

- **Choose a template that is clear and simple**
- **Do not choose a template that takes up valuable space with irrelevant information**

What do you think of the following templates? ……

Overview

- Explanation of problem setup
- Background
- Brief method
- Results and comparison with experiments
- Conclusions

Conventional Battery Systems

- **Lead-Acid** – Rechargeable, heavy and toxic (but cheap!)
- **Nickel Cadmium** – Rechargeable, toxic
- **Nickel Metal Hydride** – Expensive rare earths
- **Lithium based** – Expensive, safety concerns, low weight
- **Zinc Alkaline** – Limited power output, non-rechargeable, cheap

A more radical slide design

Assertion-evidence slides

Alley, M and Marshall, M, Engineering, Penn State University

Rethinking the Design of Presentation Slides

They argue that we need to change the conventional slide structure by

1. using the title box for a sentence assertion headline
2. using the body of the slide for supporting visual evidence

Convincing support for assertion-evidence slides

Doumont 2013 *Creating effective slides*

https://www.youtube.com/watch?v=meBXuTIPJQk

See Doumont's advice on designing Results slides:

from 32 minutes 40 secs to 42 minutes 50 secs

In summary, Doumont says

1. One slide = one message
2. Title statement = maximum of 2 lines, 12-15 words
3. Rest of slide develops your message visually
4. Title of results slides = *So what*? **NOT** = *What*?

More convincing support

Nathans-Kelly, T and Nicometo, C 2014

Slide Rules: Design, Build, and Archive Presentations in the Engineering and Technical Fields **IEEE Press**

ebook available through Monash Library

Another exciting non-linear approach

Consider devising a Prezi presentation

Example created by Mewburn, I 2012:

Getting things done: becoming a more effective researcher

In conclusion

Today we've examined ways of designing better slides

- to communicate visually
- to get your message across

Good luck with your creative adventures in slide design

References

Online resources:

1. **Excellent resources and links in *Poster and Presentation Resources***, Graduate School, University of North Carolina at: http://gradschool.unc.edu/student/postertips.html#prez

2. **Assertion-evidence approach for slide presentations, Alley,M Penn State University at** http://www.assertion-evidence.com/ with model presentations using Assertion-Evidence slides: http://www.assertion-evidence.com/models.html

4. **10 tips on how to make slides that communicate your idea, from TED's in-house expert** http://blog.ted.com/10-tips-for-better-slide-decks/

5. Doumont, J-L Stanford University Lecture, 2013 on ***Creating effective slides: Design, Construction, and Use in Science*** at: http://www.youtube.com/watch?v=meBXuTIPJQk

and resources at: http://www.principiae.be/X0800.php

6. ***Devising Prezi presentations***: https://prezi.com/the-science/ Sample Prezi by Mewburn, 2012: ***Getting things done: becoming a more effective researcher*** https://prezi.com/94fkkors6y-p/copy-of-getting-things-done-becoming-a-more-effective-researcher/

Excellent books:

1. Carter, M 2012 ***Designing Science Presentations a visual guide to figures, papers, slides, posters, and more,*** ebook available through the Monash Library, Elsevier/Academic Press

2. Frankel, F 2012 ***Visual strategies: a practical guide to graphics for scientists & engineers,*** Yale University Press

3. Nathans-Kelly,T and Nicometo, C 2014 ***Slide Rules: Design, Build, and Archive Presentations in the Engineering and Technical Fields,*** ebook available through the Monash Library, IEEE Press