Graduate Thesis Seminar (Presenting your research)

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Plan for Success

Do rigorous research
- More research → more confidence
- More research → more passion

Know your audience
- Different event → different audience
- Regular attending conferences
- Think of your audience

Plan for time limit
- 45 min, … 15 min, 10 min, 7-5 min
- Fit under the time limit

Use available technology
- Animations in PPT, video clips, sound samples, visual components
- Basic components without them??
Program in Architectural Acoustics

Exact

300 Hz, 3 m

Plane wave excitation

Augmentation

Binaurally recorded

Binaurally augmented

Plan for Success

Shaping a solid structure
- Logical, well-organized structure
- Introduction / Outline
- Body: concise
- Conclusion/summary: very sparse!!

Rehearsal / Practice
- In front of mirror, a group of friends
- Should not memorize
- Some like to film, some not
Plan for Success

Presenter's success
Soft voice??
Monotonic voice??
Looking back to screen all the time??
Looking at the screen all the time??
Speech patterns:

Legible Slides

Legible fonts, lines
- Legible in large distance
- **Choose easily legible fonts**
- Sufficiently larger line spacing

Which one of fonts:
- **Legible in large distance** (Arial bold 36)
- **Legible in large distance** (Arial 36)
- **Legible in large distance** (Times New Roman 36)

Legibility in Large Distance
Legibility in Large Distance

Legible Fonts

Research content \( \rightarrow \) more important than fonts

Not legible content \( \rightarrow \) Nothing!

Artistic slides \( \leftarrow \rightarrow \) Clear legibility

Bad Line Spacing

Legible fonts, lines
- Legible in large distance
- Choose easily legible fonts
- Sufficiently large line spacing

You are not a waste of space
**Good Line Spacing**

Legible fonts, lines

- Legible in large distance
- Choose easily legible fonts
- Sufficiently LARGER line spacing

**Slide Background**

Dark background:
- artistic
- cool

Disadvantages:
- heavily relying on darkened room
- switch-off light → not always possible
- making audience sleepy

**Figures / Line Thickness**
Figure / Line Thickness

Model and Data

Bayesian estimation:
Mean pore size = 0.5 mm
Porosity = 0.3855
Tortuosity = 1.1665
Sds = 0.3827
Thickness = 40 mm (known)

Two-layer MPP from experiment

Ways to deliver dense graphics
Concise Slides

Key words rather full sentences

*Slide title → Key words only!*

Avoid dense texts extending multiple lines (unless delivering **WORD by WORD**)

Using animation (appear) to break long text

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Immediate Rejection

- Too poorly written to be understood
- Outside the scope of the Journal
- No sufficiently thorough literature study
- Substantially similar work to others and no clue how the work differs from others
- Not a significant contribution to the journal literature

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Abstract

Most scientists have to present important concepts, ideas and research progresses to others regularly, especially on scientific conferences. Effective presentation is one of the most important research skills — yet one many junior scientists don’t usually put a lot of effort into. This research methods seminar will provide some essential tools for learning to communicate more effectively. – N. Xiang
We want our journal to be excellent and to be perceived as such by others outside our discipline as excellent. We want those who are stimulated to write for JASA to continue to be so stimulated and we do not want them to be discouraged by the Journal's aspirations for a higher degree of excellence. Rather, we encourage them to join in what is in reality a large common endeavor with each of us prodding, pulling, and cheering the others along. We want others of kindred spirit to join us, we want them to also write excellent papers, and we want them to submit such papers to our journal.

A. Pierce
Christopher Jaffe has been recognized internationally for his innovation and leadership in architectural design. Blending the worlds of art, architecture and technology, he has consulted on more than 250 performance halls, working directly with symphony orchestras and opera, dance, and theater companies worldwide.

**Founder of the master's program in architectural acoustics at Rensselaer, he is the recipient of the Year 2000 Honor for Collaborative Achievement Award from the American Institute of Architects and the Ellis Island Medal of Honor.**

– Inducted 2003

<table>
<thead>
<tr>
<th>Evidence</th>
<th>Parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Layer 1</td>
<td>1, 1.56, 2.20</td>
</tr>
<tr>
<td>Layer 2</td>
<td>0.25, 0.202, 0.203</td>
</tr>
<tr>
<td>Layer 3</td>
<td>9.02, 4.91, 2.16</td>
</tr>
<tr>
<td>Layer 4</td>
<td>3.07, 3.22, 3.75</td>
</tr>
</tbody>
</table>

Two Levels Inference

Parameter estimation: \( H_i(\theta_i); \)

\[
p(\theta_i | D, H_i) = \frac{p(D | \theta_i, H_i) p(\theta_i | H_i)}{p(D | H_i)}
\]

Model selection:

\[
p(H_i | D) = \frac{p(D | H_i)p(H_i)}{p(D)}
\]

\( H_1, H_2, H_3, \cdots \) Occam's razor

Jasa & Xiang (JASA 2012)
**Exact Helmholtz Solution**

Neumann condition: \( r \leq r_0 \quad \omega = i \pi / \alpha \)

\[
\psi = \frac{1}{\alpha} \sum_{l \geq 0} \sum_{k \geq 0} j_{l}(kr) H_{l}^{(0)}(kr) \cos \phi_{l} \cos \psi_{l} \exp(i \omega t)
\]

Plane wave excitation:

\[
\psi = \text{Amplitude} \cdot \text{Series of \ [ \exp() \cdot \text{Bessel} \cdot \cos \cdot \cos ]}
\]

**Exact Solution: Single-Sided**

For

\[
\varphi_{0} = \alpha - \pi
\]

\[
\varphi = 0
\]

For

\[0 < \varphi_{0} < \alpha - \pi\]

Single-sided illumination

\[
\psi_{1} = \varphi - \varphi_{0} \quad \psi_{2} = \varphi + \varphi_{0}
\]

**Wave-Based Modelling**
Reference Style

At the End

A complete list??

During presentation flow

- **Show a complete list:** NO!
- **Fully complete citation?**
  - Author (Journal, year):
    - Escolano, et.al. (JASA 2010)

Upcoming Conferences

- **Zaman, K. et al.:** Cognitive loads in noise, JASA 144 (2019)
- **Weikel, S. et al.:** Spherical harmonics, JASA 144 (2019)
- **Savino, A. et al.:** Acoustic goniometer, JASA 144 (2019)
- **Miller, M. et al.:** Aerogel bending waves, JASA 144 (2019)
- **Hoeft, M. et al.:** Microslit panels, JASA 144 (2019)
- **Ritchie, K. et al.:** Porous media inversion, InterNoise 2019
- **Weikel, S. et al.:** Spherical mic arrays, InterNoise 2019
Upcoming Conferences

23rd International Congress on Acoustics, Aachen, Germany
Sept. 9-13, 2019

178th ASA Meeting, San Diego, CA, 2-6 Dec. 2019

Strong Start and End

Attractive Start
• Unusual
• Sense of humor
• Story-telling

Unforgettable Ending
• 1-2 take-home messages
• Unforgettable

Young Presenters

Technical Committee on Architectural Acoustics
- Description of the problem
- Originality of solution
- Understanding of results
- Quality of slides, graphics
- Verbal/written clarity
- Handling of questions
- Engagement of audience
- Overall organization

Technical Committee on Signal Processing in Acoustics
- Originality of Concept
- Quality of Work
- Significance of Project
RPI Architectural Acoustics

Having been around ~20 years
• Reputation by excellence of grad students
• Active faculty
• High visibility

Branding ??
• Unified presentation template
• Affiliation: Graduate Program in Architectural Acoustics, School of Architecture, RPI

Your Success → Ours

1st Prize
The Student Paper Award in Architectural Acoustics

Tay, D. et al.: High-resolution room scanning, ASA Meeting in Minneapolis, MN 2018

Concluding Remarks

We want you to conduct excellent research
We want you to present excellently
  @ our school
  @ job interview
  @ national/ intl. conferences
We want you to bring honor back