Presentation and Oral Communication Skills

Lori Pollock, University of Delaware
Jenna Wiens, University of Michigan
Welcome

Always greet your audience and tell them you are honored to talk to them!
Introduction

Lori Pollock, Alumni Distinguished Professor, University of Delaware

PhD University of Pittsburgh 1986
Rice University 1986-1989
University of Delaware 1990-present
Sabbatical consulting: ABB Inc & Army Research Lab

Research in Software Engineering, Optimizing Compilers, CS Education

Teaching
Learn by doing, not always listening
2016 SIGSOFT Influential Educator Award

Service
CRA-W
CS10K Partner4CS in Delaware
WeC4Communities
Comp Thinking in University Gen Ed
Introduction

Jenna Wiens, Morris Wellman Assistant Professor of Computer Science and Engineering, University of Michigan

- PhD MIT 2014
- University of Michigan 2014-Present

Research

- Machine Learning for Health
- Time-series analysis
- Sports Analytics

Teaching

- Introduction to ML
- (>1,000 students)
- Big Data Summer School @ UM

Service

CSKickstart at UM
Explore Graduate Studies at UM
Michigan Data Science Team
Precision Health Initiative
Machine Learning for Healthcare Conference
Why become a good communicator?

Share your ideas

Impact, Jobs, Funding, Collaborators

Opportunities
How to... Make a memorable presentation
A Story...

A Hook
The Hook

An Example
Machine Learning for Healthcare

diagnoses
medications
vitals
procedures
locations
lab results
admissions
genetics
wearables
imaging
notes

Increasing Risk
CLOSTRIDIUM DIFFICILE

Bacteria that takes over the gut

We lack an effective clinical tool for measuring patient risk
Risk of infection depends on:

Susceptibility

Exposure
C. diff is an infectious disease. So who is spreading disease? *maybe hidden carriers*
nodes = patients
corresponding connections = proximity
        (e.g., shared a room, or
        a healthcare worker)
C. diff is an INFECTIOUS disease.
So what is the purpose of the Hook?

Capture your audience’s attention

Peak audience interest

Overview & motivate your topic
One minute reflection

What is your hook for your research?

A statistic?
A compelling graph?
A story?
A picture?

…
The Middle Part

The Guts
Structure of the Story

A series of little stories

While still more research to share
hook for this little story
point 1, point 2, ... point k
summary of this little story
The Stories of Creating Good Presentations

1. Analyze your presentation context
2. Identify your stories and flow
3. Use good presentation style
Analyze Your Presentation Context

Audience
What do they know?
Why are they here?
Biases?

Purpose
To inform
To teach
To persuade
To inspire

Occasion

Time
Size

These are your constraints & opportunities!
Identify Your Stories and Flow

First story:
Context of your work

Subsequent stories can be:
What did you do?
Steps in an algorithm or process
Heuristics
Experimental study components
...
Context of Your Work

1. What is your problem?
2. Why should someone care?
3. What have others done to solve this problem? Related problems?
4. What is the gap?
5. What are your contributions?
Use Good Presentation Style

Structure
Visual aids
Speech vs words on your slides
Delivery
Related Work– Version I

“A reasonable approach to page coloring”
ASPLOS ‘06

“Another page coloring idea”
OSDI ’08

“Yet another page coloring idea”
ASPLOS ‘07
Related Work– Version II

Related Work:
- Jones et al. (OSDI ‘08)
- Smith et al. (ASPLOS ‘06)
- Focus on ISCA ‘72

The diagram shows a trade-off between required system changes and runtime overhead. The optimal solution is marked by the green box labeled "This Paper."
Quick search for $Kth$ hottest page’s hotness

$Bin[i][j]$ indicates # of pages in color $i$ with normalized hotness in $[j, j+1]$ range

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**Recoloring Procedure – Version I**

**procedure Recolor**

$budget$ (recoloring budget)

$old-colors$ (thread’s color set under old partition)

$new-colors$ (thread’s color set under new partition)

* if $new-colors$ is a subset of $old-colors$ then

* subtract-colors = $old-colors - new-colors$.

* Find the hot pages in $subtract-colors$ within the $budget$ limit and reallocate to $new-colors$ in a round-robin fashion.

* end if

* if $old-colors$ is a subset of $new-colors$ then

* add-colors = $new-colors - old-colors$.

* Find the hot pages in $old-colors$ within the $\frac{|new-colors|}{|add-colors|} * budget$ limit, and then move at most $budget$ (i.e. $\frac{|add-colors|}{|new-colors|}$ proportion) of them to $add-colors$.

* end if
Recoloring Procedure – Version II

Cache share decrease
Budget = 2 pages
The Ending

The Take Away
From Middle to Take Away

Summary

Big Picture
You Aren’t done yet!
Gotta Handle Questions

Anticipate them
Prepare slides
Practice answers
YOU are the expert
Reward questioners with something!
Aggressive questioners
Follow up
Speech vs Writing
One minute exercise

On a scale of 1 to 10, how confident do you feel right now?
Please stand and put your hands on your hips
One minute exercise

On a scale of 1 to 10, how confident do you feel right now?
Deliver & Confidence

**Practice, Practice, Practice!**

In front of a tough audience

**Monotonous voice?**

Improve articulation with tongue twisters

*Peter Piper picked a peck of pickled peppers...*
Projecting Your Voice

Let’s Try It
Learn from the best

Who inspires you and why?

Ted Talks -
   Amy Cuddy
   “Your body language shapes who you are”
Useful Resources

**Oral**
David Patterson: How to Give a Bad Talk  
http://pages.cs.wisc.edu/~markhill/conference-talk.html#badtalk
Mark Hill’s “Oral Presentation Advice”,  
http://pages.cs.wisc.edu/~markhill/conference-talk.html
CRA-W,  
http://www.cra-w.org/gradcohort  
http://www.randsinrepose.com/archives/2008/02/03/out_loud.html  
http://www.slideshare.net/selias22/taking-your-slide-deck-to-the-next-level  
http://www.presentationzen.com/

**Writing**
- Joseph Williams, “The Basics of Clarity & Style”
- Gopen & Swan “The Science of Scientific Writing”  
- Many schools provide many writing resources: Use them!  
  Writing center or tutor.
- It may be worthwhile to *pay* a writing tutor to help teach you to edit your own work

**General**
Female Science Professor blog!  
http://science-professor.blogspot.com/
Books on Making Good Talks

Resonate: Present Visual Stories that Transform Audiences (Books)
Duarte, Nancy

Resonate: Present Visual Stories that Transform Audiences (Books)
Duarte, Nancy

Illuminate: Ignite Change Through Speeches, Stories, Ceremonies, and Symbols
Duarte, Nancy
Take Away Messages

Have a hook and think about storytelling
Know your context
Plan
  Content, Delivery, Design, Practice
Great visuals are key

Exceed your audience expectations!