CSCI 6730 / 4730: Giving Technical Presentations (and how to read)

Based on Simon Peyton's Jones Article and Presentation (see reading list)
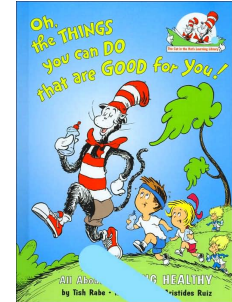
Motivation : Why is it Necessary (to present your work)?

The greatest ideas are worthless if you keep them to yourself.

- **It is good for you!**
- **Helps you to communicate better**
- **Helps you understand better**
- **Helps you *organize* information & your thoughts (if needed).**
- **Helps you convey important ideas to others!**

Pep Talk: Do it! Do It

- **Do it right: Invest Time**
- **The Secret: It is a *learned* skill – no magic!**
- **The Key to Success: Practice, practice, practice!**

Be Open Minded

The Process (and outline)

A Three Step Simple Program!

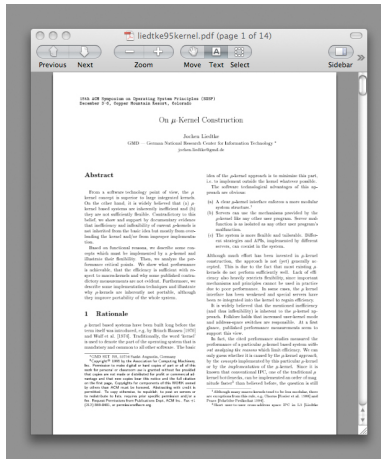- **Step 1: Get the information**
- **Step 2. Create the Presentation**
- **Step 3. Present the 'Slides'**

Step 1: Gather Information

- **Download Paper**
- **Ask you Self Questions?**
  - » **Why am I doing this?**
  - » **What is the paper about?**
  - » **What is the main idea of the paper?**
 - » **What is the solution?**

More Questions to Ask

- **How does the paper relate to the current state of the art?**
- **Is it relevant? Any key ideas that are timeless?**
- **Are *you* inspired (can you, should you be)?**
- **Does it generate new ideas? Did (does it) it inspire follow-up research?**
- **Was it convincing – what are the results?**

Step 1: Gather Information

- **Skim the paper –**
  - » **Read the abstract**
  - » **Read the bold print**
  - » **Skim the introduction**
  - » **Skim the conclusion**
  - » **Read the middle**
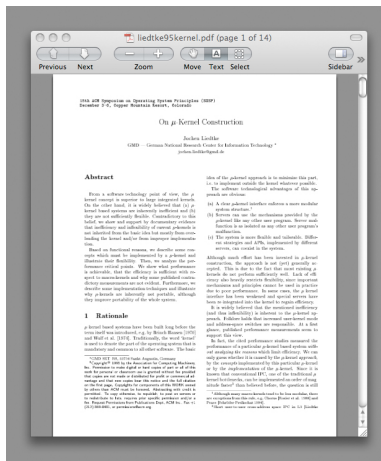
The *Second* Pass: Actively Read

- **Make a second pass! Get really into the paper.**
  - » **Highlight important points**
  - » **Take notes (in margins)**
    - – **Questions**
    - – **Examples**
    - – **Definitions**
    - – **Key Points**

After Reading

- **Collect your thoughts**
- **Write a brief summary of key points**
- **Be critical**
  - » **Assumptions**
  - » **Methods**
  - » **Reasoning**
  - » **Results**
  - » **Convincing?**
  - » **Relevance?**
- **Write a more extensive summary!**

Example Summary

- **Key idea, what is the author trying to do?**
- **What is the approach and how is it original?**
- **Reflection: limitations and assumptions**
- **What is results, impact of paper**
- **Constructive comments to presenter.**

Comments on "Scripting: Higher Level Programming for the 21 st Century"
by
Ousterhout

In this paper, Ousterhout tries to emphasize the growing advantages of script languages over system programming languages and to explain why this advantage will keep growing. His argument against system programming languages centers on several points: that scripting languages are made for gluing components together, while system programming languages are for implementing components from scratch, that script languages are weakly typed and thus more flexible, and that scripting languages do more work per statement than system languages.

For his first argument, Ousterhout notes that scripting languages usually rely on complex data structures and algorithms to be already implemented as components and just make use of these tools. He notes that the same could be done with systems programming languages if they had an extensively developed library but that almost no such libraries exist. Unfortunately, I think that here the article is dated, since currently the Java API is extremely rich and excellent frameworks exist for C++, such as Qt and wxWidgets. Ousterhout also explains that weak typing allows for more code reuse. Though this might be so, many modern systems languages include facilities such as templates to overcome this problem. Overall, though the author points out several great advantages of scripting languages, like their ability for on-the-fly creation and execution of code without a compile phase, his comparison is clearly biased towards the scripting languages.

Ousterhout admits to one shortcoming of scripting languages – they are 30-20 times slower than an equivalent program written in a systems programming language. However, he claims that scripting languages make programmers 5-10 times more efficient, and thus as computer time becomes cheaper and cheaper and programmer cost rises, eventually scripting languages will be economically viable in all situation. This is of course, not true; scripting languages rely on components written in systems programming languages. Sometimes performance is just critical and a systems language can only do the job. Ousterhout also makes the outrageous claim that the best GUI systems are the scripting-based ones, while today the Java, .NET, Qt, and wxWidgets are excellent examples of outstanding GUI frameworks based on systems languages. Overall, I agree that the popularity of scripting programming is rising because of its ease and ability for rapid development; however, scripting programming will never cross a certain threshold of usage – there are tasks, which will always require a compiled language.

The presenter this week, XXX, was great. His slides were very detailed and even included funny graphics, which managed to keep the class entertained, and thus paying attention. He cited other sources, such as Wikipedia, and seemed informed enough to answer most questions directed at him. His slides covered pretty much the whole paper, and I was very satisfied both with this depth and with this breath of coverage.

Step 2: Create the Presentation

- **How do I get started?**
- **You will need to user Power point slides or something similar! (you will need to turn an electronic copy in on what you present).**
- **Important – don't copy paste from papers**
  - » **Make it your own: "Own it."**
  - » **Easier to convey the information**

What style to Use (or Not)?

- **Use color to capture the attention of the audience, but not too much?**
- **Use color to capture the attention of the audience, but not too much?**

What are the slides for?

- **Organizes your thought, prompts you (add secret prompts, secret language)?**
- **Convey key points to your audience. Give your audience a feel about the paper and the general idea?**
- **Engage the audience, provoke them, challenge them?**
- **Notes to use after talk.**

Step 2: Create the Presentation

- **Assess your audience, Who are they?**
  - » **What do they know, what do they need to know?**
    - **They read the paper?**
      - **They read all the papers in advance?**
    - **They already took OS the year before?**
    - **Are fresh / alert and ready to learn?**

The *Truth*: The Real Audience

- **They are you - or YOU before you read the paper.**
- **They may be tired – alert them!**

Anatomy of a Talk

All good things come in three

1. **Motivate (20%)**
2. **Key Idea (80%, repeat repeat)**
3. **There is no 3.**

Motivation

- **2 minutes to engage before….**
  - » **Why should I tune it?**
  - » **What is the problem?**
  - » **Why is it interesting?**
    - – **Put yourself in their shoes!**

The Key Idea

- **You must identify a key idea.** "**What I did this summer**" **is No Good.**
- **Hierarchical –**
  - » Key ideas of talk
  - » Key idea of each slide
- **Be specific. Don't leave your audience to figure it out for themselves**
- **Be absolutely specific. Say "If you remember nothing else, remember this."**
- **Organize your talk around this specific goal. Ruthlessly prune material that is irrelevant to this goal.**

Use Example(s) and Analogies

Examples are your main weapon

- **To motivate the key ideas**
- **To convey the basic intuition**
- **To illustrate The Idea in action**
- **To show extreme cases**
- **To highlight shortcomings**

Example Outline

- **Background**
- **The SASSY system**
- **Overview of epimorphism**
- **PI-reducibility is equal to MP**
- **Benchmarks and Results**
- **Related Work**
- **Conclusion and Future Work**

But remember:
You are not presenting a mystery novel – tell the audience the most interesting stuff first (the key idea)! Why is this paper exciting!

Need an Outline – Really? Why?

- **Controversial topic!**
- **Outline – conveys near zero information before your motivation**
  - » **Put 'maybe' an outline for orientation**

Technical Detail

$$\frac{}{\Gamma \vdash k : \tau_k} \qquad \frac{\Gamma \cup \{x : \tau\} \vdash e : \tau'}{\Gamma \vdash \lambda x.e : \tau \to \tau'} \qquad \frac{\Gamma \vdash e_1 : ST\ \tau^\circ\ \tau \qquad \Gamma \vdash e_2 : \tau \to ST\ \tau^\circ\ \tau'}{\Gamma \vdash e_1 \gg= e_2 : ST\ \tau^\circ\ \tau'}$$

$$\frac{\Gamma \vdash e : \tau}{\Gamma \vdash \mathtt{returnST}\ e : ST\ \tau^\circ\ \tau} \qquad \frac{\Gamma \vdash e : \tau}{\Gamma \vdash \mathtt{newVar}\ e : ST\ \tau^\circ\ (MutVar\ \tau^\circ\ \tau)} \qquad \frac{\Gamma \vdash e : MutVar\ \tau^\circ\ \tau}{\Gamma \vdash \mathtt{readVar}\ e : ST\ \tau^\circ\ \tau}$$

$$\frac{\Gamma \vdash e_1 : MutVar\ \tau^\circ\ \tau \qquad \Gamma \vdash e_2 : \tau}{\Gamma \vdash \mathtt{writeVar}\ e_1\ e_2 : ST\ \tau^\circ\ Unit} \qquad \frac{}{\Gamma \cup \{x : \forall \alpha_i.\tau\} \vdash x : \tau[\tau_i/\alpha_i]}$$

$$\frac{\Gamma \vdash e : \tau' \to \tau \qquad \Gamma \vdash e' : \tau'}{\Gamma \vdash e\ e' : \tau} \qquad \frac{\Gamma \vdash e : ST\ \alpha^\circ\ \tau}{\Gamma \vdash \mathtt{runST}\ e : \tau}\ \alpha^\circ \notin FV(\Gamma, \tau)$$

$$\frac{\forall j.\Gamma \cup \{x_i : \tau_i\}_i \vdash e_j : \tau_j \qquad \Gamma \cup \{x_i : \forall \alpha_{j_i}.\tau_i\}_i \vdash e' : \tau'}{\Gamma \vdash \mathtt{let}\ \{x_i = e_i\}_i\ \mathtt{in}\ e' : \tau'}\ \alpha_{j_i} \in FV(\tau_i) - FV(\Gamma)$$

Figure 1. Typing Rules

# Omit Too much Technical Detail

- **Present specific aspects only; refer to the paper for the details (if it is too complicated)**
  - » **Key aspects : Do Present –yes indeed**
- **By all means have backup slides to use in response to questions**

- **Know you audience!**
- **Onion Approach works well:**
  - » **gently peel the layers of information layers, layers of interpretation, layers of meaning. Asking "Why?" and "What do you mean?" and "What else?" persistently and deeper as you go.**

Present Plots/Data

- **Say what it is and what it shows (don't assume audience can tell what is displayed)**
  - » **Tell them the metric (and why it is important to illustrate) and Variables (and why are these the important variables)**
  - » **AND What is held constant? (i.e., the assumptions)**
- **Highlight important characteristics – (bumps, trends)**
  - » **Make sure you understand the data!**

Example: Performance
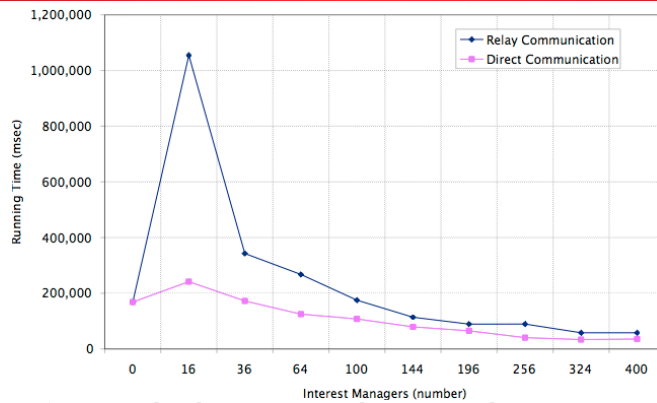
- **0 agent is time stepped approach**

Do not apologize!

- "I didn't have time to prepare this talk properly"
- "My computer broke down, so I don't have the results I expected"
- "I don't have time to tell you about this"
- "I don't feel qualified to address this audience"

Presenting your talk!

- **Go over slides the day of your talk (after practice)!**
- **Know the general outline in your head, visualize the order – and what you what to convey –**
  - » **Look at the slides!**

Be your self! We are friendly

- **Have fun!**
- **Be enthusiastic!**

Enthusiasm

- **If you do not seem excited by your presentation, why should the audience be?**
- **It wakes 'em up**
- **Enthusiasm makes people dramatically more receptive**
- **It gets you loosened up, breathing, moving around**

The Jelly Fish Effect!

- **Symptoms**
  - » **Inability to breath**
  - » **Can't stand!**
  - » **Brain is malfunctioning**

Treatment

Come back here! I'm not finished with you, bucko ... you know what you are? *Spineless!* D'you hear me?

sangrea.net

- **You are not Alone!**
  - » **Everyone gets nervous!**

Being seen, being heard

- **Point at the screen, the projector, be animated**
- **Make eye contact**
  - » **Speak to someone you know**
  - » **Speak to everyone.**
  - » **Speak to someone at the back of the room**
- **Connect with the audience – try to listen to them and their questions.**

Presenting your slides

A very annoying technique

is to reveal

your points

one

by one

by one, unless…

there is a punch line

Plan your talk and timing

**Absolutely without fail,
finish on time**

- **Audiences get restive and essentially stop listening when your time is up. Continuing is very counter productive**
- **Simply truncate and conclude**
- **Do not say "would you like me to go on?" (it's hard to say "no thanks")**

Follow the Rule!

- **What Rule?**
  - » **Only three (1) Motivate – (2) and convey the key ideas and (3) there is no three**
  - » **Repeat.**

There is hope!

The general standard is so low that you don't have to be outstanding to stand out

- **You will attend 50 x as many talks as you give. Watch other people's talks intelligently, and pick up ideas (appreciate) for what to do and what to avoid (learn, everyone makes mistakes).**