Hello everyone – most of you know me, but for those that don’t, I’m James Tompkin, a post-doc for Hanspeter, and I work in the intersection of computer graphics and computer vision. However, very little of that is going to help today, as our task is to try and improve our presentation skills. I’m beginning the proceedings by discussing ‘how to present’. I have a little bit of experience talking at conferences and giving presentations in general, but not too much, and so I’m going to highlight a few things that I think are important, particularly from my experiences having just come back from SIGGRAPH. Then, over the hours of these two sessions, we’re going to explore more broadly through talks and through feedback sessions many of the possible issues and things to consider that are important or that arise when giving presentations.
Who has given a seminar talk before?

Any other kind of talk?
Presentation is the oral form of communication, and so first off, I just want to stress how difficult communication can be.
Any kind of communication is hard, unless there is already a prior understanding of the material. Even communicating simple ideas can be difficult sometimes. Everybody has slightly different internal models of the world, and of processes, and communication requires these models to somehow align so that the parts match and information can flow.

At a scientific conference, you are meant to be presenting a new idea, some novelty, at the edge of the knowledge of man. In this scenario, it is even harder. Many people in the room won’t be domain experts, or will know only a little of what you are talking about. There are so many factors to consider in this kind of communication – vocal presentation, vocal language, body language, appearance, organization, the skill of persuasion, supporting material like slides, which present artifacts as evidence to help convince the audience.

Great presentations are rare – all of these things have to be good. Even then, each person experiencing the presentation has their own ideas and agendas, and it’s difficult to please everyone.
So, throughout this session, we’re going to give and receive feedback about something that is difficult. Sometimes this feedback is difficult to hear, but it’s being said for self improvement. Nobody can present perfectly, for this subjective reason, but I hope that everyone can learn something about how they present, to improve their presentation skills.
Goal:
To convince
(To give background)
(To explain)
(To spur discussion)

But, within this environment, your goal is to convince people.

Usually, you’re trying to convince people to read your paper – that your idea is good and that it is worth investigating more thoroughly. You are there to advertise your ideas and provide the insight and motivation that the audience needs to further investigate your work.
So, let’s take a tangent here briefly: how long does it take for an interviewer to make up their mind about a candidate? Obviously, this question is typically posed in an interview scenario – how long until you have either convinced them or not that you are the right candidate for the job?
10 seconds?
30 seconds?
2 minutes?
5 minutes?
10 minutes?
20 minutes?

Well, conveniently all of these times fit into the length of a conference talk.
Now, for some people in the audience at a conference, say, they are looking to hire, so in that way it is part of a job interview, but most people in the audience won’t be there to hire you. So, how long does it take people to consider your work?
Here, I like to think about it in a slightly different way - I’m going to flip it upside down and say for how long do I have the audience’s attention?
Also, now we don’t have just one person, but we have a whole audience. If you like, how many people will be left listening to me at the end of the talk? You need to try and keep the attention of all these people, but as your talk progresses, more and more of them will lose attention and stop listening.

In some settings, this task of keeping everyone’s attention is very difficult – this is particularly true at larger conferences, especially those that are double track and have multiple things going on. You might be in quite a large room, and you might be a small figure barely visible against your slides. How can you keep people from getting out their phones, opening their laptops, checking their email, even just leaving the room.

At other times and events, it is much easier, like here for instance, in smaller groups, where I can see you and interact with you all.

8 minutes 30 seconds
@ Negative time (before the talk)

• Actually have something interesting to discuss
  • This part is ‘assumed’; the papers have been accepted!
  • But you might disagree... ; )

• Assess your audience
Audience

- Why and to whom are you giving this presentation?
- What do you want the audience to learn?
  - Think about this as you construct your talk
  - Everyone will have read the papers
  - ...but maybe not understood all of it
  - As the ‘topic expert’, what can you add?
  - Novelty of the results
  - How does it improve over existing methods
  - Teach the main idea
  - Find the curiosity, drive the discussion
@ Negative time (before the talk)

• Actually have something interesting to discuss
  • This part is ‘assumed’; the papers have been accepted!
  • But you might disagree... ; )

• Assess your audience

• Identify your story, or thesis
  • Insights identified in preparation beforehand.
Presentation Structure

• Basic rule
  • Say what you are going to say
    • 1-3 main points in the introduction
  • Say it
    • Give the talk
  • Then say what you said
    • Summarize main points in the conclusion
  • Don’t try to build suspense and then unveil a surprise ending

http://www.safetyoffice.uwaterloo.ca/hspm/tools/images/scaffold_star.png
Tell a Story

• Prepare your material so that it tells a story logically
  • Subject: title, authors, acknowledgements
  • Introduction / overview / motivation
  • Method/approach
  • Results/information/analysis
  • Conclusion/summary

• Guide the audience through your story
  • Your last point on one slide can anticipate the next slide

• Use examples, anecdotes, and significant details

http://www.cgd.ucar.edu/cms/ags/scientific_talk.html
The Story

• Common mistake: too much material
• You will never be able to tell the full story
• You must select pieces that are most relevant
  • Provide the most insight into the problem!
  • Remember: everyone has read it.
Rehearsing

• Practice — stand up and say the words out loud
  • You discover what you don’t understand
  • You develop a natural flow
  • You come up with better phrasings and ways to describe things
    • It is harder to explain things than you think, practicing helps you find the words
  • Stay within the time limit
  • Try speaking too loud to get a feeling where the upper limit is

• 1st practice -> 10x fold improvement
• 2nd practice -> 2x improvement
• 3rd practice -> Adds a bit of polish

@ Negative time (before the talk)

• Actually have something interesting to say
  • This part is ‘assumed’; the papers have been accepted!
  • But you might disagree… ; )

• Assess your audience

• Prepare something topical if it fits
  • Latest news
  • It’s a great ice-breaker / intro.
@ 0 seconds
It’s happening!!!
Even just old – famous TV debate of Kennedy vs. Nixon – Kennedy was due to lose, but his youth and enthusiasm shone through.
Online storage + USB key. Always have a physical backup. Cannot rely on an internet connection.
What you say is as important as how you say it.

Now that might seem backwards – James, shouldn’t it be ‘how you say it is as important as what you say’ – well, perhaps. I need convincing.

You might have the most revelatory idea at the conference, but if everyone has already switched off, then it doesn’t matter.

It’s a bit like the old philosophical jokes about trees falling in forests - “If a scientist presents a paper and everyone is checking their email, is it still novel?”
Some people don’t even test that they can be heard. Sometimes there are people on hand to boost the volume, but sometimes that’s just as loud as it goes.

This is tragic – all that work, and then half the audience can’t hear you.
Giving the Presentation

- Nervousness is normal
- Starting out is the hardest part of the talk
  - Memorize the first few lines
  - "Hello, I'm James Tompkin. Live presentation can be one of the most daunting tasks. It is a performance, and even the most seasoned performers have trouble—John Lennon famously used to throw up before every concert. Through this presentation, I will try and help by giving you hints and guidelines about how to prepare and give a scientific presentation."
Giving the Presentation

Experienced speakers:
- Speak freely and look directly at audience
- Key points and outline given by presenter

Inexperienced speakers:
- Put outline and key points on slides
- Key points there for non-listeners or visual learners

Presenter view:
- Notes are fine, but _learn them_ - bad if you seem to be simply reading the prose
Giving the Presentation

• Stand where the figures can be seen
• Look at people during presentation
• Be enthusiastic
• Don’t worry about stopping to think
• Don’t rush
  • Figure out which slide is your half-way mark and use that to check your time

Jean-Luc Doumand – legs apart, stand still
Giving the Presentation

• Don’t apologize or make comments about yourself
  • “I hope you’re not bored”
  • “I was working on this ‘til 3 am”

• Don’t overuse the pointer

• Being cute and being funny are risks
  • Can work very well if you know audience
  • Can backfire
  • Are you funny? Test the joke on a friend.
Giving the Presentation Continued

• Imagine yourself seen from the audience
  • Don’t continuously wander around the room
  • Hand gesticulation is not modern dance

• Don’t raise the pitch of your voice at the end of sentences (is everything a question?)
• Speak slower than in a normal conversation
  • During presentation you are nervous and will speak faster; force yourself to pause after some sentences
@ 2 minutes

The introduction
@ 2 minutes

- No clear explanation of problem
  - What is the problem?
  - Why is it important?
  - Who cares? When?
  - What difference would a solution make?

- Very easy for audience to not see motivation

- “This is how you should think about the problem the papers are trying to solve.”
Overview Figure

- Summary figure with major findings, or an illustration of the processes or problem
  - Consider showing it at the beginning and the end
  - Consider showing it during the talk as a guide

- You can use web sources for figures (reference source!)
- Also good for motivation: why is a problem important?

Lots of figures already in the papers! How convenient!
@ 2 minutes

- No clear explanation of problem
  - What is the problem?
  - Why is it important?

- Very easy for audience to not see motivation

- Establish goals and assumptions early on.
  - Is it real time?
  - Is it interactive with a human in the loop?
  - Are there capture constraints?
@ 5 minutes

The meat
Presenting Methods, Data, & Results

• Methods, Instrumentation
  • Instrumentation: For most talks, only present the minimum
  • Methods: core part – explain main points clearly

• Tables / Figures / Videos
  • Support structure visually → Overview
  • Support explanation of methods and technical concepts
  • They are the results – in particular in visual computing
  • Make the talk more interesting

• Math
  • Effective “language” – but use with care
Summary / Overview Figure

- Logical flow of information and main steps
- Consistent terminology throughout talk

- Variant: Block diagram

```
Input → Name of Step I → Name of Step II → Output
```
Summary / Overview Figure

- Variant: Augment blocks with explanatory pictures re-used later in the talk
Summary / Overview Figure

- Overview figure as guide shown during talk
- Tells the audience: where are we?
- Picks up people that “got lost”
- Optional: highlighting
Summary / Overview Figure

- Overview figure as guide shown during talk
- Tells the audience: where are we?
- Picks up people that “got lost”
- Optional: highlighting
Figures to Explain Technical Concepts

- Often easier to understand than text
- Often support your explanation better than text
  - Build figures up as you speak
  - Make sure you reserve enough time for it
Figures to Explain Technical Concepts

• **4 stroke engine operation**
  • *The engine four main strokes to its cycle:*
  • The first stroke, called the **intake stroke**, the crankshaft pulls down the **piston** by rotating. The **intake valve** is open at this point in the cycle, and air will be pulled through the **intake manifold** into the motor. After this is complete the **camshaft** rotates to the low spot on the lobe. This allows the **valve spring** to close the intake valve.
  • The second stroke is called the **compression stroke**. This is because it compresses the **fuel/air mixture**. While this is happening the intake and exhaust valves are closed...
Figures to Explain Technical Concepts
Always explain any figure or graph

- Step by step, walk the audience through it
- Highlight things you want people to focus on
- “As you can see....”
Results: Videos / Software

- Often actual results in visual computing
  - Make sure *before the talk* that videos / software play with the presentation equipment (projector etc.)
  - Use common codecs (MP4 H264)
  - Stay in control
    - Explain - don’t play videos and be silent
    - Speed of video should match your explanation
    - Cut videos into pieces (one per point/slide)

- Demo software – is there some? Commercial product? Show it off!
Using Math

- Equations are studied, not understood from 2 mins on a slide
  - Equations should support your explanation, not harm it

- Use them as little as possible and as much as needed
  - Common mistake: too many equations!

- Don’t use them to impress people by showing the difficulty of your problem/solution
But don’t say it, show it.
- Build equation up on slide, e.g., an error function
- Explain components on conceptual level
  - Why is that component part of the error function?
- Combine with figures for each equation element
- Still explain most important mathematical insight
@ the end
Conclusions
Concluding Your Content

• Announce the ending so that people are prepared
  • E.G., a slide titled “Conclusions”, or by saying, “So what did we discover?”
• Present big picture and summarize significance of your work
  • Extend logically beyond your limited study – **but don’t overreach!**
  • Describe future work

• Open up new perspective
  • Raise questions
  • Potential implications

Finishing Your Presentation

- Think carefully about your final words and how to finish your presentation strongly
  - Don’t just drift off ... “I guess that's all I have to say ...”
  - Memorize your ending lines, just as you do your starting points.
- Ending your talk
  - Say “Thank You” ... pause for applause ... then
  - Say: “Any questions?”
@ Q&A

The dreaded questions
Questions and Answers

• Questions after your talk can be difficult but they definitely help you in writing up your research / report
  • Identifies parts the audience did not understand
  • Focuses and adds dimension to your analysis

• You can repeat the question
  • This gives you time to think
  • The rest of the audience may not have heard the question
  • Also if you heard the question incorrectly, it presents an opportunity for clarification

http://www.erp.wisc.edu/profile/Talkhandout05.doc
http://www.firekills.gov.uk/seniors/cool/howstart/images/howstart.gif
Questions and Answers

• Keep your answers short and to the point

• Don’t say that a question is bad, or that you addressed it already
  • Rephrase it into something that you want to talk about : )

• Never demean the question or questioner
  • Even if it is an asshole question
  • The research world is small and you will encounter people throughout your career
Difficult Questions

- If you really don't know the answer
  - Say "Interesting, I will look into that" or "That's a good point, let's discuss it afterwards"
  - Don't invent an answer - you are only human and you can't have thought of everything

- If the questioner disagrees with you and it looks like there will be an argument, then back down
  - "We clearly don't agree on this point, let's go on to other questions and we can talk about this later"

Case of stereo algorithm, 'dual problem' question from Marc Levoy. Point was valid but presenter ignored the issue.

Student was under-prepared for the question; didn't understand context of work, but instead of answering politely, he disagreed with the questioner and lost the confidence of the whole audience.
Feedback
The audience is always right

- Your tendency will be to be defensive when someone claims an idea in your talk was not explained well or was not clear.

- You will find yourself turning to the relevant slide in your talk and saying “I mentioned that here”.

- The customer (the audience) is right in this situation. Sure, you might have mentioned it, but if it wasn’t understood, it’s your fault not theirs.
  - Find a way to make it more clear!

- The correct response is to turn to the appropriate slide and say:
  - “I tried to explain that idea here. And this is what I was thinking. What could I have said to make that point more clear?”

- The complainer should then work with you to explain what they interpreted instead, and offer suggestions on what information they would require to have better understood.

Kayvon Fatahalian
Would you like me to record the presentations and discussion?
Summary
General Conclusions

• Consider your audience

• Rehearse

• How you say it is as important as what you say.
  • Voice, body language crucial.

• Use your own style to your advantage.
  • Your differences are what people will remember.
Slides Conclusions

- Structure your content to build convincing story
- Focus on core aspects and insights
- Use figures / videos / maths appropriately
- Anticipate difficulties/questions and overcome them beforehand
Give me feedback!
Material Sources

• Many slides from:
  • *How to Give a Good Talk* by
    Stephanie Pfirman, Cornell University

• Also ideas from:
  • *How to give Scientific Presentations*,
    Tiffiani Williams, Texas A&M University
    [http://faculty.cs.tamu.edu/tlw](http://faculty.cs.tamu.edu/tlw)
Resources

- Luca Aceto, Aalborg University and Olivier Dany, Aarhus, Denmark
- Michigan State University Graduate Student Organization
- Susan Herzog, Eastern Connecticut State University
  - http://www.nascnct.edu/uml/library/library1/presentations.html#ppt
- Heather Heying, Evergreen
- Mark Schoebel and Brian Toon
  - http://www.ugl.ucr.edu/cms/app/scientific_speak.html
- U. John Cairns, Jr., BioScience Vol. 39 No. 9
- Condensed Water Journal Club
- Meshnick SR, Eaton JW., City College, CUNY Medical School,
- How to give a jobtalk
  - http://www.psychologicalscience.org/observer/getArticle.cfm?id=2046