Writing for

Computer Science & Engineering

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Presentation

Introduction

- Scientists often have to talk about their work in front of an audience
  - Good preparation, careful development of materials, and familiarity with the possible pitfalls
  - A nervous researcher needs practice to become an accomplished public speaker, but with the right approach even a first talk can be successful
- The purpose of a presentation is to introduce a research program and persuade the audience that the work is significant and interesting
  - Principles of organization and presentation are quite different to those of a write-up
- Some issues such as speaking skills and good design of slides are applicable to any form of presentation

Research Talks

- Research talk, presentation, is typically a brief lecture about a particular piece of research, intended for audience of other scientist
- Another form of presentation is a poster, where work is presented as a poster that is pinned to a wall or noticeboard and explained to interested passers-by
- Research presentations are different in both audience and content to other kind of lecture, seminar, or talk
  - They are used to convey idea, observation, and discoveries.
  - The duration is usually fixed, say of 10, 30, or 60 min
  - Unlike lectures delivered to undergraduate in college or university, they are conversations between equals rather than lessons by professor
- In research talks, timing is critical while detailed explanations are in some cases unimportant; and the skills needed for management of the audience may be very different

Research Talks

- Typically, the audience is mixed. A well-designed talk will speak to all of these kinds of listener
- The style of the presentation is determined by its length
  - An hour or 45 min can have the space to motivate the work with a thorough example
  - 25 min conference-style talk is long enough to convey the key details of a piece of research
  - For 10 min talk, it is rarely necessary to have an explicit structure. There may be 6 – 12 slides, but certainly no more.
- High speed delivery is not a good solution to lack of time

Content

- Developing a talk is to design a spoken tale that should inform the audience and have a structure that keeps their attention and answers likely questions
- First step in preparation of a research talk is deciding what to cover
  - What and how much to select depends not only on the time available but also on the expertise of the audience. A workshop attended by specialists in a narrow topic would suggest a different talk to one to be given to researchers in you department
  - Papers are usually specialized, but a diverse audience may be unfamiliar with the area of your research

Content

- When constructing a talk, being by choosing the single main goal, that is, the particular idea or result the audience should learn
- Work out what information is required before the result can be understood

Content

- Gathering material for a talk
  - Every idea or point that might be of value to the audience
  - Assemble the talk by critically selecting the important points and ordering them into sequence
- A talk
  - What the audience needs to know to understand the main result
  - A talk is a discussion with peers, not a new bulletin or political speed
  - Provide the minimum of detail that allows the audience to understand the result
  - Take the time to explain why a problem is important, where it arises, or why previous approaches are unsatisfactory
  - Complex issues should be presented slowly and in stages
  - Avoid detail that the audience is unlikely to follow (internal of a system, a proof of theorem, the elements of a complex architecture)
  - A speaker who is not frank about shortcomings or difficulties, but is then exposed during questioning, can look foolish
  - Never have too much material for the allotted time

Organization

- A crucial different between a talk and a paper is that talks are inherently linear – talks must be designed within this constraint
- Typical talk is structured around the following components
  - Motivation : reviews the topic or problem
  - Overview or goals : explains where the talk is going
  - Background : review the state of the art
  - Contribution : discussion of what is proposed
  - Evaluation : the observation, experiments, demonstrations and proof
  - Conclusions : what the audience should have learnt, and what the results imply for future work
  - Much like a paper
- Preview-do-review strategy
  - "I previously showed you that…." , "I will shortly demonstrate that … but first I must explain…."
- Repetition to emphasize major points – to get the timing right

The Introduction

- Begin well. The audience's opinion of you and of the topic will form quickly and a bad first impression is hard to erase
  - The first few sentences should show that the talk will be interesting

- Many speakers begin with an outline that lists the topic to be covered.
  - At the beginning of the talk, the audience may not be familiar with the terminology, and such outlines are quickly forgotten because they have no context
  - Outline the talk's structure if you want to, but not on the first slide

The Introduction

- Before you reach the outline, make sure that the goal of the talk is clear. This is, explain where you are going before explaining how you will get there
  - This talk is about new graph data structure. I'll begin by explaining graph theory and show some data structure for representing graphs. Then, I'll talk about existing algorithms for graphs, then I'll show my new algorithms. I'll show experimental results on our cluster machine and then show why the algorithms are useful for some practical graph traversal problem
  - My talk today is about new graph data structures. There are many practical problems that can be solved by graph methods, such as the travelling salesman problem, where good solutions can be found with reasonable resource so long as an optimal solution isn't needed. But even these solutions are slow if the wrong data structures are used. I'll begin by explaining approximate solutions to the salesman problem and showing why existing data structures aren't ideal, then I'll explain my new data structures and show how to use them to speed up the travelling salesman algorithms. I conclude with example of where the new method makes a real difference

The Conclusion

- End the talk clearly, don’ t let it just fade away
  - “So, the output of the algorithm is always positive. Yes, that’ s about all I wanted to say, except that there is an implementation but it’ s not currently working. That’ s all”
- Clearly signal the end
- Use the last few moments to revise the main points and ideas you want the audience to remember, and you many also want to outline future work or work in progress.
- Consider saying something emphatic – predict something, or recommend a change of practice, or make a judgement.

Preparation

- The writing of text is fluid when spoken a lould is an art few people master
  - Even the vocabulary of written and spoken English differ
  - “do not” , “will” , and “that” –> “don’ t” , “shall” , and ‘which”
- Rehearse the talk often enough and the right words will come at the right time
  - You will only be relaxed and deliver well if you have prepared thoroughly and are confident that you have prepared thoroughly
  - Don’ t memorize your talk as a speech
  - Decide what you want to say but not every word of how you will say it
- Time the talk and note what stage you expect to reach at 5 min, 10 min, and so on to help you finish on time. An effective exercise is to rehearse in front of mirror or onto tape
- Rehearse while standing, because that is how you will deliver

Preparation

- Think about possible questions.
- Familililizre yourself with equipment
- Get someone to give you feedback and make use of it
- If one person dislikes something it is likely that others will too

Delivery

- Assembly of the content is one aspect of a successful talk. Another aspect is creation of cohesive sequence of slides. The third main aspect is presentation: speaking well, making good use of slides, and relating to the audience
- Speak clearly
  - Develop sufficient volume and project your voice without shouting
  - Use a natural tone of voice
  - Breathe deeply
  - Speak a little slower than your would in normal conversion (around 300~400 words per 3 mini)
  - Keep you head up, to help maintain volume
  - Face the audiences

Delivery

- Avoid monotony in pace and tone. Pause occasionally when you have given the audience something to think about, and pause in preference to filling gaps with noise such as “um” or “I mean”.
  - Pause to collect your thoughts before speaking rather than pausing mid-sentence
- Never read your slide to the audience- they can read faster than you can speak
  - This is the commonest mistake made by inexperienced speakers, and it is certainly one of the most irritating
- Gestures should be natural
  - Make frequent eye contact with the audience
- Swagger is worse in a talk than in a paper. Be modest

Delivery

- Too many talks begin with a disclaimer such as “the talk was only written last night” or “I haven’t had time to prepare”
  - To lower audience’s expectations and mute any possible criticism
- Beware of irritating habits
  - “Umming”
  - Consider taking off your watch
  - Don’t read directly form slides or written notes, or stand behind the projector so that your face can't be seen and you cast a shadow on the screen
  - When referring to the screen, use a stick or laser pointer rather than a computer’s mouse
  - Don’t look at your feet, face the wrong way.
  - If someone persistently interrupts, or excludes the rest of the audience by asking too many questions, offer to talk to them afterwards

Delivery

- Standing in front of an audience of your peers or superiors can be intimidating if the audience is silent
  - Silence is a good sing; it means people are paying attention

- Most importantly, remember that the audience wants to enjoy your talk – their attitude is positive. People don’ t attend talks with the intention of being bored, and welcome any sign that the talk is interesting

Question Time

- Used to clarify misunderstanding and amplify any points that listeners want discussed in more detail
  - Five or ten minutes is too brief for serious discussion
  - You need to keep answers short and avoid debating with an audience meber because it is annoying for everyone else
  - Some questions can’ t b answered on the spot: they are too complex, or the questioner has misunderstood a fundamental issue, or you simple don’ t know the answer
- Involve the audience in question time
  - Repeat the question in your own words and talk to the whole audience in you reply
  - Response positively and honestly to all questions
  - It is far better to be frank and admit ignorance
  - Important to never be rude to audience members or dismissive of their questions

Slides

❖ Point of focus for the attention of the audience

- Text on slides is a visual guide to what the speaker is saying
- Keep in mind that the focus of the talk is you, not the slides

❖ Some principles when developing a deck of sliders

- **Individual Slides**
  - Each slide should have a heading and be fairly self-contained
  - Aim for about one slide per minute
- **Slide tools**
  - Powerpoint and Latex
- **Layout**
  - Choose an effective slide design
  - Simplicity works well, while complex design and bright colors are a distraction
  - Dark backgrounds do not always work

Slides

Some principles when developing a deck of sliders

- **Animation**
  - Use for stylistic reasons such as transition between slides or transition between bullet points, quickly become tiresome
  - Animated diagrams can be an effective way of illustrating the working of dynamic systems and algorithms, but otherwise animation rarely adds value
- **Other elements**
  - Some talks include materials such as web pages, audio recording and videos
  - These materials can be valuable, but they do bring risk
- **Copyright**
  - You should only include materials that you have the right to use
- **Text on slides**
  - The text included on slides provides structure and context
  - It is usually written in point form; the points should be brief summaries in short sentences of the information you want to convey
  - Each point should be a topic to discuss not necessarily a complete statement in itself
  - Use a font of reasonable size and have plenty of white space

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Figures

- If a picture adds value to a slide, then use it
- An illustration from a paper may not be appropriate for a talk
- In a talk, a figure can be dynamically colored in a variety of ways
- Clip art, especially of stylized people, can look silly and is often ugly

Poster

- A poster session can be one of the most vibrant parts of a conference
  - Whole halls can be filled with lines of posters, with a presenter in front of each one ready to explain it to interested listeners
  - The audience glance at some, read others, or stop to talk to presenter
  - The single best opportunity for a researcher to meet new colleagues
- Well-designed poster will meet the needs of all of the people who passed by
- A good poster is a balance of several separate aims. It serves as a way of attracting the interest of people passing by, a summary of the work, a support for both brief and detailed conversations about the research, and a demonstration that the work has been undertaken in a robust way

Poster

❖ Content

- The first step in design of a poster are much the same as for design of a talk –> assembly of the content
- You first need to know what story you want to tell; this will be an overview of the research, motivation, and outcomes and not, in most cases, the detail of work itself
- For a talk, there is just one version of the narrative. For a poster, the narrative can be different for everyone you speak to, depending on their background and level of interest

Poster

- Organization
  - Laid out hierarchically rather than shown in liner order
- Steps
  - Whether landscape is available
  - Choose Authoring tool
  - Choose a couple of figures and tables
- Occasionally a presenter will have a poster that is a series of ten or twelve slides, each printed on an A4 piece of paper, pinned up in rows. This design does not communicate well and such posters fail to attract any interest

Poster

- Presentation
  - A poster presentation consists of a series of conversations with attendees, often with one conversation running into the next as the mix of listers changes
  - Develop a few mini-speeches of a minute or two each, concerning elements of the work that you expect to have to explain
- Difficult part of presenting a poster is the quite moment, when people are walking by without showing interest.
  - Run away to see other posters or to get a drink or a snack
  - Try too hard to get people' s attention – eye contact
- Have a business card or email address handy, in a form that you can pass to people without unnecessary fiddling with phones or contact lists


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