Giving Talks for Fun and Profit

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Some reasons for sharpening your communication skills

- Probably the single most important aspect in job hunting is your interview talk. The interview talk can make or break the interview
- Giving talks is expected in many jobs and can be a critical factor in job success
- If you're heading into academia then you'll be giving talks almost every day!

What types of talks are there?

- Job interview
- Advertise a new result, e.g. at a conference
- Status report for a project
- Argue for/against something

What is a talk?

A talk (in any of the forms) we've discussed is really nothing more than a story !

There are three key elements

- What is your message?
- Who's the audience?
- How are the pieces tied together?

The Message

What is your message ?

- Should be able to answer the question – What's your point ?
- Should be short, 2-3 sentences at most
- Should be understandable at a high level

Most common mistake is not having a clear message

Everything in your talk should support your message

- If you're not sure ask yourself once again – What's your point?
- It's incredibly easy to fall into the trap of thinking that X is just too interesting to let the audience miss
- What's my message for this talk?

The Audience

Who's the audience ?

- Would you give a talk in Spanish to an English speaking audience?
- Would you give a talk on QCD to first graders?
- Would you give a talk on the wonders of optimization theory to engineers?

Need to tune talk to the audience

- Need to be able to answer the question – Why should I care?
- Find out the demographics of an audience and why they are there
- Emphasize or de-emphasize parts of your message

Second most common mistake is using the same talk for all audiences

Putting it together

How do the pieces fit together

- It's not enough to lay out the key elements – you need to show how they fit together
- Walk the audience through your key points
- Most talks suffer from too much detail and not enough overview

Third most common mistake is to give details rather than showing the connections

Fitting the pieces together – Telling a story

- Set the stage
  - Tell the audience who the players are
  - Lay out the problem/issue
  - Why is it important
- What happened
  - How was the problem resolved
  - Only need the key ideas here
  - Don't necessarily need chronological order
- The happy ending

Some Tips and Tricks

Try to keep your points simple

- Use at most 3 points at any given time
- Most people/societies/cultures have a hard time dealing with more than 3 things at one time
- For a large part of your audience the material is new

Give examples wherever possible

- We're working on a coupled set of nonlinear partial differential equations that include Navier-Stokes, thermal, and structural dynamics equations. These equations are important for many applications including safety assessment
- Simulation of coupled sub-systems requires new methods
- The geometries and complex physics required make this a very difficult problem

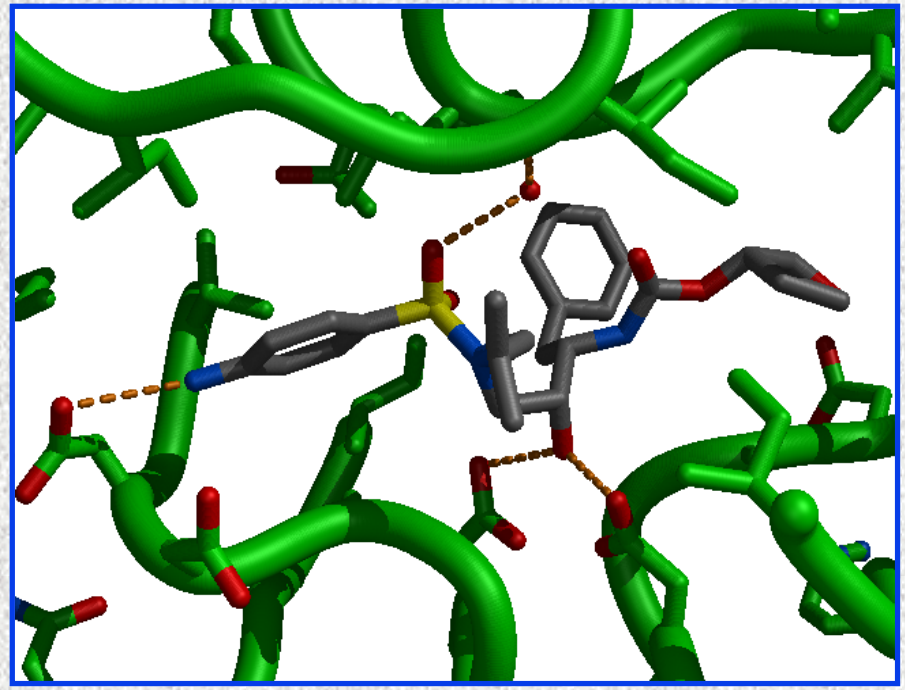
Model-based Safety Assessments Can Be Used to Simulate Accident Scenarios

- Goal is to determine the worst-case response
- Simulation of coupled sub-systems requires new methods
- Complex physics and 3D geometries make this a difficult problem

Use visualizations where appropriate

- Most audiences relate to visual information better than to written information
- You can communicate more information through a visualization
- Visualization can be used to quickly convey very complicated situations

Drug design can be viewed as an energy minimization problem in computational chemistry



HIV-1 Protease Complexed with Vertex drug VX-478

- A single new drug may cost over $200 million to develop and the design process is typically takes about 13 years
- Typically there are thousands of parameters and constraints
- There are thousands of local minima

What should you include in a seminar talk

- Why is this problem important?
  - Or - Why should I care?
- What was the outcome/product/….
  - Did you actually finish something?
- What was your contribution?
  - Avoid words like "we", "the group", "my advisor", etc.
  - Use words like
    - "This is my main result"

Believe in the story

- The audience naturally trusts someone who believes in his/her message
- You're natural passion for the subject will give you more confidence and poise

The End