EGO Qual Preparation Session
Spring 2015

Presenter:
Stephen Siena

Panelists:
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Your Qual Has Three Parts

- Paper
- Presentation
- Q&A
PURPOSE OF THE QUAL
The Qual Has A Conference-Style Format

• A technical topic
• Technically competent audience
• Paper
• Presentation
• Q&A
## What Is The Qual Committee Looking For?

<table>
<thead>
<tr>
<th>Focus of presented work:</th>
<th>What They Want</th>
<th>What The Qual Is not About</th>
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<tbody>
<tr>
<td>A focused topic (similar to a conference paper)</td>
<td>A review of everything you’ve done since you came to CMU</td>
<td></td>
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<tr>
<td>Demonstrate knowledge of what you present and fundamentals in the field</td>
<td>Extensive, original research</td>
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<tr>
<td>Focused on work presented in presentation and paper</td>
<td>Everything in electrical and computer engineering</td>
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<tr>
<td>Clear explanations of thoughts, ability to handle criticism</td>
<td>Being a natural speaker</td>
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### Communication:
- Clear explanations of thoughts, ability to handle criticism
ORGANIZING YOUR STORY
Outline

You are telling a story!

Organization (for both paper and presentation)

• Beginning: Motivate and state the problem
• Middle: Highlight your contribution and show validation and results
• End: Conclude and summarize
Motivation and Problem Statement

Explain your problem – make your committee care

- Your professors are engineers – problem solvers
- Professors may often have some interest in your work

But remember!

- Faculty might be out of your field
- Do not assume they know your problem or field
Related Work / Contribution

**Distinguish** your work from the background

- What is your main contribution/discovery?
- How does this relate to the motivation?
Results / Validation

Verify/illustrate results with visuals

![Probability of Detection vs. SNR](image)
WRITING THE PAPER
Paper Guidelines

Similar to conference paper

- Shorter than most
- Related work is skewed to only your 3 papers

1.5-2 pages on introducing problem and related work

Remaining space for new contribution and results

Consensus: paper is significantly less important than presentation

- Primary significance is how it defines direction of presentation
- Write paper with a corresponding presentation in mind
PREPARING YOUR SLIDES
The Importance of Quality Slides

You are presenting your work & **yourself & your slides**

A good presentation requires preparation
Simple Guidelines

1) Try to convey one idea per slide
2) Use visuals (which add to the message)
3) Make use of animations to guide audience
4) Use proper presentation software (Powerpoint or Keynote)
5) Use words and equations sparingly
Simple Guidelines

1) Try to convey **one** idea per slide
2) Use visuals (which add to the message)
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Slide idea from Markus Püschel, ETH Zürich
Take Home Message

Convey a single, cohesive message

• Tell them what you’re going to say (Motivation)
• Say it (Results/Contribution)
• Tell them what you said (Validation/Conclusions)

Use visuals and concepts when possible

Make sure to include slide numbers!

Markus Püschel’s *Small Guide to Giving Presentations*

• Download and read this guide!
DELIVERING YOUR SLIDES
Delivering Your Slides

Most important tip: *Prepare and practice*

- Know what to say
- Time your presentation
- Be comfortable with your talk (i.e. practice)
- Practice with a diverse audience!!!
Timing

Timing is very important

• You are allotted 30 minutes to talk
• However, design presentation for less than 25 minutes, you will be *interrupted* by the committee

Material vs. time

• If you are rushing to finish on time, you’re *cramming too much in*
• After the end of your talk, create a supplemental section
  • Extra material that may be useful in for question
Practice Quals

Schedule at least two practice quals

- Invite your lab
- Invite students of committee members
- Invite your friends in other areas
- Attend other practice talks

Logistics

- Book the room for 90 minutes
- Bring food (and mention this in the invite email)
Q&A SESSION
What will they ask?

The committee wants to test your knowledge and your ability to communicate.

Questions will usually be derived from the following sources, in this order:

- Your presentation
- Your submitted paper
- Your three reference papers
- Your general area
Controlling the Scope of the Qual

In theory, the committee can ask you anything

In reality, you have a significant amount of control over what is asked

- Don’t add stuff to paper/presentation that you don’t understand
- Give them enough material to explore in the Q&A session
Throughout the Q&A

Don’t Panic! Stay Calm!

You **WILL** be kicked out of the room; this is normal

Be *respectful* of the committee

- Do not argue with the committee
- If you believe them to be incorrect, calmly make your case

Handle Interruptions

- You must respond well to interruptions
- The faculty may guide you in a collaborative way
Answering Questions

Think out loud and talk through the problem

- Walk through problems step-by-step
- Even if you are wrong, you demonstrate your ability to approach a problem

Interact with the committee

- Ask questions if you do not understand the question
- Committee members may help you out

Remember: you are not expected to know everything

- The faculty want to find the *boundaries of your ignorance*. 
THE DAY OF THE QUAL
Qual Day

Dress

• Business casual
• You want to look professional
• Comfort is important

Bring note page handouts

• One copy for each committee member
• 3 slides per page
• Do not print supplementary slides
• Include slide numbers
Qual Day

Additional tips

• Speak to your audience
• Don’t bother with laser pointers
• When interrupted, respond clearly and concisely
• Keep answers concise, there will be more time afterward

Some additional items

• Bring a bottle of water
• Check out your room beforehand to make sure it has markers, or bring your own
• Do not bring any food or “bribes” for the committee members
Quick Tips

Before the qual:

1. Study! Brush up on your fundamentals, and know every word of your presentation and paper.
2. Work problems on a whiteboard.
3. Know classic/typical problems in your field.
4. Practice your presentation to friends and get feedback. Have them ask you questions and work them out on the whiteboard.
5. Confidence is the **MOST** important thing. Know what you did, and don’t get flustered.
6. Use all your resources! Lab mates share the most similar experience with you.

After the qual:

1. Tell your advisor how it went (email them if they are out of town)
2. Forget about it!
Conclusions

Good Luck! Practice! Don’t procrastinate (too much)!

Now on to the questions!