

PhD Viva Voce Defence Preparation: Questions for Consideration

November 3, 2015

The following PhD Viva Voce preparation questions were collected from past PhD vivas and internet sources to cover a range of topics that can arise in a viva setting. These questions are sourced from <http://ask.metafilter.com/131219/Remain-Calm-and-Carry-On-PhD-Defense-Version#1875496>.

- What's original about your work? Where is the novelty? Don't leave it to the examiners to make up their own minds - they may get it wrong!
- What are the contributions (to knowledge) of your thesis?
- Which topics overlap with your area?
- How does your work relate to X?
- What do you know about the history of X?
- What is the current state of the art in X? (capabilities and limitations of existing systems) What techniques are commonly used? Where do current technologies fail such that you (could) make a contribution?
- How does/could your work enhance the state of the art in X?
- Who are the main 'players' in X? (Hint: you should cluster together papers written by the same people) Who are your closest competitors?
- What do you do better than them? What do you do worse?
- Which are the three most important papers in X?
- What are the recent major developments in X?
- How do you expect X to progress over the next five years? How long-term is your contribution, given the anticipated future developments in X?
- What did you do for your MPhil, and how does your PhD extend it? Did you make any changes to the system you implemented for your MPhil?
- What are the strongest/weakest parts of your work?
- Where did you go wrong?
- Why have you done it this way? You need to justify your approach - don't assume the examiners share your views.
- What are the alternatives to your approach? What do you gain by your approach? What would you gain by approach X?
- Why didn't you do it this way (the way everyone else does it)? This requires having done extensive reading. Be honest if you never thought of the alternative they're suggesting, or if you just didn't get around to it. If you try to bluff your way out, they'll trap you in your own words.
- How have you evaluated your work? intrinsic evaluation: how have you demonstrated that it works, and how well it performs? extrinsic evaluation: how have you demonstrated its usefulness for a specific application context?

- What do your results mean?
- How would your system cope with bigger examples? Does it scale up? This is especially important if you have only run your system on ‘toy’ examples, and they think it has ‘learned its test-data’.
- How do you know that your algorithm/rules are correct?
- How could you improve your work?
- What are the motivations for your research? Why is the problem you have tackled worth tackling?
- What is the relevance of your contributions? To other researchers? To industry?
- What is the implication of your work in your area? What does it change?
- How do/would you cope with known problems in your field? (e.g. combinatorial explosion)
- Have you solved the field’s problem that you claim to have solved? For example, if something is too slow, and you can make it go faster - how much increase in speed is needed for the applications you claim to support?
- Is your field going in the right direction? For example, if everyone’s been concentrating on speed, but the real issue is space (if the issue is time, you can just wait it out (unless it’s combinatorially explosive), but if the issue is space, the system could fall over). This is kind of justifying why you have gone into the field you’re working in.
- Who are your envisioned users? What use would your work be in situation X?
- How do your contributions generalise? To what extent would they generalise to systems other than the one you’ve worked on?
- Under what circumstances would your approach be useable? (Again, does it scale up?)
- Which aspects of your thesis could be published?
- What have you learned from the process of doing your PhD? Remember that the aim of the PhD process is to train you to be a fully professional researcher - passing your PhD means that you know the state of the art in your area and the directions in which it could be extended, and that you have proved you are capable of making such extensions.
- Where did your research-project come from? How did your research-questions emerge? You can’t just say “my supervisor told me to do it” - if this is the case, you need to talk it over with your supervisor before the viva. Think out a succinct answer (2 to 5 minutes).
- Has your view of your research topic changed during the course of the research?
- You discuss future work in your conclusion chapter. How long would it take to implement X, and what are the likely problems you envisage? Do not underestimate the time and the difficulties, you might be talking about your own corrections