# How to read a research paper

Research papers tend to follow a certain form; for the uninitiated, this may take getting

used to. There are two types of research papers that we will look at:

• conference papers — shorter papers (typically 6–8 pages in robotics) generally subject

to peer review, written and presented in conjunction with a conference.

• journal papers — longer and more complete papers, subject to a more thorough peer

review, and published in an (archival) journal

## Questions to ask while reading a research paper

It is important that you learn to read research papers critically, so here are some questions

to ask yourself as you read and some tips on reading.

• What problem(s) are they solving? Why are these problems important?

• What did they really do? (as opposed to what the authors say or imply they did)

• What is the contribution of the work? (i.e. what is interesting or new?)

• What methods are they using?

• Would you have solved the problem differently?

• Do all the pieces of their work fit together logically?

• What were the results? Did they do what they set out to do?

## Tips on reading research papers

• You need not read a research paper sequentially from beginning to end. Here’s one

possible sequence:

– Read the title. (What is the paper about?)

– Read the abstract. (Should give you a concise overview of the paper.)

– Read the introduction. (Look for motivations, relation to other work, and a more

detailed overview.)

– Look at the structure of the paper. (What do the remaining sections address?

How do they fit together?)

– (Read the previous/related work section. (How does this work relate? What is

new or different about this work?))

– Read the conclusions. (What were their results?)

– Read the body of the paper. You may want to skip over all the equations the first

time through.

• The references won’t mean much to you if you’re not familiar with the area. Sometimes important parts of the work may be contained in the references, particularly in conference papers since space is limited. The references are very important when you are researching a topic — they point you to related research as well as the research upon which the current paper builds upon.

• Sooner or later, you will come across something that you don’t understand. What can you do? You should try to figure out what it is and how it is being used (even though you still don’t understand it). For further reading, see the references