


The Technical Literature

What are the main genres?

Textbooks and scholarly books

Web resources: Wikipedia, course notes, presentations, talks, YouTube, etc.

Technical journals, conference pubs, technical reports

Comments in code

Patents, industry standard contributions

Why is it hard to read?

Written for experts; prerequisites require a long regression through references; jargon and notation; dry style; almost always irrelevant to what you want

How do we get what we want?

Begin with stuff near our level (textbooks, tutorial papers)

The four questions:

Author's purpose for writing the paper; a human wrote it, there is a bias

What are the new technical contributions? (Abstract gives a good clue)

Are they relevant to your proposed research?

Do you agree with their main points? Why or why not?

If relevant and novel, the hard work begins

Exercise: what are the most common reasons a technical paper might not actually be of interest

Solution:

Assumptions may not be all that plausible for your scenario

A technical hammer in search of a technical nail

Discussion of papers within research group is very important: develop local expertise, learn what research groups are most interesting

What are patents?

Grant by a government to sue others from selling anything that depends on the named inventions

Part of a patent

Abstract, technical description with diagrams with enough detail for an expert to implement the invention, set of claims that say what's new compared to other patents or technical literature

Can patent methods and apparatuses (algorithms, formulas for drugs, manufacturing processes, circuit assemblies, devices, etc.)

Cannot physically impossible things or stuff pre-existing in nature

Many technical innovations of companies are only described in patents: uspto.gov, European patent office

Note that often written as a defensive measure rather than going out of their way to help the reader

Exercise: when is it a good idea to do a patent search?

NOT for theory advances. Too long to practical application and thus making money

How should we document what we learn from the literature?

Take notes: if useful, write a brief summary with focus on the stuff that was hard—provides for quick recall later. Best done electronically to help with later search, or re-using notes for own paper

Discuss it: explaining it to lab-mate makes it more clear

Implement it: algorithm or experiment; have to do this to go beyond it.

Use library tools for the grand recursion of references