Academic Writing

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Before Writing

• Finding something to write about
  – (the Research Question?)
• What to study – timely, interesting
• Find and follow Leading Researchers in your area
  – ‘Imitate the master to become the master’
• Find Important Journals, Conferences,
  – Keep an eye on review papers, books
  – Organize Journal Clubs with a small group
• Find and know important Keywords, Taxonomy, Arxiv threads
  – If you don’t know how to search effectively, you can’t find
• Find and learn computational tools and libraries
  – Example: Interested in deep learning? Have a working copy of TensorFlow or pyTorch or Theano on your computer. Know how to use it/them
Compiling a Bibliography

• ‘The Literature is smarter than you’
  My PhD advisor to me (and his advisor to him)

• ‘Luck prefers the prepared mind’
  Louis Pasteur

• Reference managers
  – Bibtex file
  – Mendeley
  – JabRef
Preparation for Writing

• Writing text that is easy to read is notoriously hard – even in your mother tongue

• A good practice strategy: Writing short tutorials for yourself
  – Example: 3SAT problem
  – Example: Logistic Regression, Particle filtering
  – Example: A short survey for checking the correctness of Software, with an application on device drivers
  – ... You can use these in your introduction

• Keeping a log book of your computational experiments and building the habit of writing a short paragraph
  – When you revisit after your one week vacation or busy period, you have a starting point and do not have to start from scratch
Designing a study

• Start with an hypothesis – often an incremental improvement
  – A faster method
  – A modification in an algorithm/model to obtain ‘better’ results
    • Solution Quality
    • Execution Time
    • Impressive Demonstration
Types of Journal Papers

- Original Research – novel methodology
- Application papers – nontrivial application of known methodology
- Letters to Editor/Short Reports
- Review articles
Journal Paper

• A Definite Form
  – Title and Abstract
  – Introduction
  – Models/Methods/Algorithms
  – Experimental Results
  – Discussion and Conclusions
  – Appendix: Detailed Proofs, additional results, extra material that may have been omitted at a first read