# Seminar High-Performance Computing with FPGAs

## How to Read? What to Read?

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- maximize benefits obtained from reading a scientific paper (or similar document)
    - organize reading process
    - set clear goals

- acknowledgement:
    - presentation (very closely) follows a presentation by Holger Karl which in turn follows:
    M. J. Hanson, D. J. McNamee, *Efficient Reading of Papers in Science and Technology*, http://www.cs.columbia.edu/~hgs/netbib/efficientReading.pdf

# Why Read?

- what is the reason causing you to read a specific document?
  - need an overview?
  - need to present it to others?
  - extract very information?

- how to select which specific papers to read?
  - what did the authors do? → look at title, abstract
  - decide: read, file for later, or drop it

# Reading for Breadth: Get an Overview

- a quick pass through the paper
  - read the introduction, section headings and conclusions
  - read the definitions and theorems
  - look at the tables and graphs to see what they say and read the captions
- consider the credibility of the article
  - who are the authors? are they well-known?
  - what biases might they have as a result of their employer?
  - where was the article published? was it refereed? reputation of journal?
  - when was it written? might it be outdated or superseded?
- skim the bibliography
  - how extensive is it?
  - are the authors aware of current work?
  - does it reference classic papers in this field?
  - have you read any of the papers that are referred to?
  - do you know relevant research that isn't cited?

# Reading for Depth: Challenge What You Read

- be critical, not every publication is trustworthy

- examine the assumptions
  - do the results rely on any assumptions about trends or environments?
  - are these assumptions reasonable?

- examine the methods
  - did they measure what they claim?
  - can they explain what they observed?
  - did they have adequate controls?
  - were tests carried out in a standard way?

- examine the statistics
  - were appropriate statistical tests applied properly?
  - did they do proper error analysis?
  - are the results statistically significant?

- examine the conclusions
  - do the conclusions follow logically from the observations?
  - what other explanations are there for the observed effects?
  - what other conclusions or correlations are there in the data that they did not point out?

# Taking Notes: React to What You Read

- make notes as you read

- highlight major points

- note new terms and definitions

- summarize tables

- construct your own examples

- write a summary – relate it to what you already know


- organize your note taking
  - put all notes in a consistent place
  - link your notes with bibliographic information about a paper
  - recommendation: put notes into a BibTeX entry for each paper

- sources of information
  - primary sources: refereed conferences/journals
  - secondary sources: textbooks
  - sources of questionable value: web, Wikipedia (quality is sometimes decent, often terrible)

- which conferences/journals?
  - see website for a selection of relevant conferences and journals
  - follow the citations in papers you have read

- use specialized search engines
  - Google Scholar http://scholar.google.com
  - ACM Portal http://portal.acm.org