Class Introduction

Introduction

Name

Research Group/Advisor

Year(s) at UH

Undergrad institution/country/city
Why do a PhD?

Some possible reasons

Like research
Want to get a research/faculty job
Learn how to read and write
Leadership in technology
Acquire analytical and technical skills
Objective

Learn how research is done in computer science

Improve research productivity
PhD Skills?

What skills do we need to do a PhD?

– To become a good researcher
– To become an effective and productive technologist
Topics Covered

Papers: Read, write, evaluate
Presentations: create, perform, evaluate

Other topics
- Research thinking
- Graphs and visualization
- Tools
- Statistics and data analysis
- Experiment design
Guest Lectures

Other faculty and experts in research, writing, presentation will come to the class to share their ideas.

Important to understand different views and emphasis. They may be your co-advisor, peers, or thesis committee member.
Who Should Take this Course?

Ph.D. Students in early career

MS Thesis students
Administrative Information

3 credits
Can use this course in place of 6110

File a petition requesting substitution

Meet Mondays/Wednesdays at M111
Office hours Mondays 230-330pm

http://www2.cs.uh.edu/~gnawali/courses/cosc6321-s17/
Grading

Pass/Fail

To Pass

Submit all homeworks
Each homework graded 0 or 1
Average grade must be > 0.8
Participate in activities (conference, etc.)
Topics for today

PhD and Research

What skills do we need to be successful?

The concept of deliberate practice
PhD

Courses?

Research?

Networking and other activities?
Research

Research comprises "creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of humans, culture and society, and the use of this stock of knowledge to devise new applications." It is used to establish or confirm facts, reaffirm the results of previous work, solve new or existing problems, support theorems, or develop new theories.

Some research is theoretical and involves developing and analyzing new algorithms and techniques and some is more applied and involves experiments, design, implementation, and testing. In every case, research is an enterprise of intellectual exploration that seeks to advance our field.

http://conquer.cra.org/students/what-is-research-in-computer-science

https://en.wikipedia.org/wiki/Research
Skills

What skills do we need to do research?

How to create knowledge?

(Practical) How to produce output such as: paper/presentations/software?
Deliberate Practice

Observe
- Find good papers and presentations
- Study the content and style

Identify Skills
- Compare with your habits/skills/outputs
- Details (not high level like “writing”)

Practice
- Drills to challenge and improve
- Iterate with feedback
Assignment 1

Please describe two topics of interest in Computer Science, one in your area of research and one outside your area of research. Each paragraph has three components:

• Title reflecting the topic, not just area of research. You can take a look at how paper titles are constructed to get an idea on how to write the titles for your paragraphs.

• Clear and short explanation of the topic, understandable to a broader CS audience.

• A short description of the reason you find the topic interesting. The reason could be related to the impact you want to create, inspiration from the past, what you enjoy doing or thinking about, or other reasons you find the topic interesting.