

On Being a Research Computer Scientist

or what it's like to be a lifelong learner

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Introduction

What People Think I Do

COMPUTER SCIENCE



What my friends think I do



What my mom thinks I do



What society thinks I do



What clients think I do



What I think I do



What I really do

What I actually do

- Working to obtain PhD in Computer Science
 - With an emphasis on Big Data
 - Distributed sensor networks
 - Distributed computing
- Research Assistant for Infrasound Laboratory
 - Design and develop systems for capture, analysis, and reporting of infrasonic signals of interest

What Computer Science is *Not*

How I Got Here

Summary of My Life Until Now

- Graduated High School
 - Somerset, PA 2007
- B.S. in Computer Science (w/ minor in Theatre)
 - Slippery Rock University of PA, 2011
- M.S. in Computer Science
 - University of Hawaii at Manoa, 2015
- Ph.D. in Computer Science
 - University of Hawaii at Manoa, Present

How I Got Here

High School

- No Formal Education in Computer Science
- Some self taught Python
- Web technologies for cool AIM profiles
- Band Geek
- Theatre Geek

How I Got Here

Undergraduate Education

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Undergraduate Computer Science

- Computer Science is NOT making video games
- Computer Science *is*
 - Algorithms
 - Data structures
 - Software Engineering
 - Operating Systems
 - Artificial Intelligence
 - Math
 - *Social*

- Used genetic algorithms to *teach* a robot to pick up a ball
- Machine vision and image processing were used to find the ball
- <https://www.youtube.com/watch?v=xoBVfaHHHcI>

- Off the shelf parts

Other Undergrad Activities

- Vice-president of $\Upsilon\Pi E$
- President of Computer Technology Club
- Student Advisor to the Dean

How I Got Here

Graduate School

What is Graduate School?

- Education beyond your bachelor's degree
 - Masters, Ph.D, M.D., Ed.D., *etc*
- Generally funded through teaching/research assistantship
- Specialization of your field
- Research focused
- Expects publishing and attending conferences
- Novel contribution to the field (Ph.D.)

- Acceptance and Making the Move
- Teaching Assistantship 2011-2013
- Master

- ICS 211 - Intro. to Programming II
 - 5 Semesters
 - Run programming lab
 - Design homework assignments (sometimes)
 - Grade homework assignments
 - Run lecture (when needed)

How to get on your TA's good side?

- Show up to lab (and participate)
- Show up to office hours
- Ask questions

content...

National Labs

- Lawrence Livermore National Laboratory
 - Internship
 - National Ignition Facility
- Idaho National Laboratory
 - Got to tour a nuclear reactor
 - Took measurements at Yellowstone National Park
- Sandia National Laboratory

Conferences

- Ann Arbor, Michigan
- Honolulu, Hawaii
- Minneapolis, Minnesota
- San Francisco, California
- Raleigh, North Carolina

It's Not All Hard Work

TODO

Industry

Computer Science Fields

- Artificial Intelligence
- Computer Architecture
- Compiler Design
- Computer Graphics and Visualization
 - Augmented / Visual Reality
- Computer Networks
- Computer Security

- Concurrency
- Cryptography
- Databases
- Data Science
- Data Structures and Algorithms
- Distributed Systems
- Formal Methods

- High Performance Computing
- Human Computer Interaction (HCI)
- Image Processing
- Operating Systems
- Programming Languages
- Simulation Modeling
- Software Engineering
- Theory of Computation

Thank You!

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