

Ben Newton

Computer Science PhD – Graduating Spring 2017

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EMPLOYMENT

6 years

2011
to
present

RESEARCH ASSISTANT & INSTRUCTOR UNIVERSITY OF NORTH CAROLINA

- Taught an upper-level undergraduate programming languages course
- Designed education modules for GENI (Global Environment for Network Innovations)

summer
2015

SCALABLE ANALYSIS AND VISUALIZATION SANDIA NATIONAL LABS

- Used machine learning to analyze over 135 million aircraft trajectory points
- Developed a system to accurately predict the destination of any airplane mid-flight.

summer
2013

CYBER SYSTEMS ASSESSMENT MIT LINCOLN LAB

- Researched using probabilistic context free grammars to represent webpages.
- Developed a system to create infinitely many viable webpages from a few scraped pages.

6 years
2005 – 2011
&

summer
2012

NETWORK SYSTEMS DESIGN L-3 COMMUNICATIONS

- Software Lead for a product that autonomously forms military airborne networks.
- Conducted successful flight tests with military aircraft in Lakehurst, New Jersey.
- Implemented software to quickly predict terrain blockages along a straight line path between two military air vehicles.
- Maintained network management codebase consisting of nearly 1 million LOC.
- Technical Lead for an ad hoc network management system for military high-bandwidth communications systems
- Gained experience with GPS and Navigation information processing

6 years
1996-1997
&
2000-2005

RESEARCH & TEACHING ASSISTANT UNIVERSITY OF UTAH

- Created a real-time 3-D sound and reverb simulation system for virtual reality
- Developed a user interface to test a spoken language programming system
- Assisted hundreds of students in an introduction to Unix course
- Tutored 65 students in a Java and summer outreach classes
- Assisted in the creation of visualization models for sophisticated data sets

EDUCATION

- 1996 to 2002
- BACHELOR OF SCIENCE** GPA 3.741 **UNIVERSITY OF UTAH**
- Selected Courses:** Software Practice, Discrete Mathematics, Algorithms and Data Structures (Using Java), Models of Computation, Operating Systems, Compilers, Robotics, Networking, Programming Language Concepts, Computer Electronics, Web Programming, Senior Group Project Lab, and Robotics
- 2002 to 2005
- MASTER OF SCIENCE** GPA 3.817 **UNIVERSITY OF UTAH**
- Thesis:** Acoustic Perception of Room Size using Beam-traced Reflection Paths
Selected Courses: Ray Tracing, Image Processing, Foundations of Computer Science, Natural Language Processing, Advanced Computer Architecture, Advanced Scientific Computing, and Advanced Networking
- 2011 to 2017
- DOCTOR OF PHILOSOPHY** **UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL**
- Dissertation:** Efficient Topology Management and Routing in High-capacity Continental-scale Airborne Networks
Selected Topics: Radio Wave Propagation Research, Network Traffic Analysis Research, Parallel Computing, Computer Graphics, Computer Vision, Machine Learning, Robotics, Advanced Algorithms Analysis, Computer Networks, Wireless Networking, Distributed Topology Control Protocols

SKILLS

- C/C++
- Python
- Java
- Data Analysis
- Web Traffic Analysis
- Military Communications
- Airborne Networking
- SECRET Clearance
- NS-3 Contributor
- MANET
- GENI Network Emulation
- Quadrotor/Drones
- Teaching
- Published at ICNP, MASCOTS, and WNS3

FUN

- Programmed the control code for a robot in the SAE Walking Machine Challenge
- Competed on DIY's Robot Rivals TV program (2003)
- Four year member of the University of Utah A Cappella Choir

SERVICE

- Hurricane Matthew Clean-up Effort Volunteer – Lumberton, NC and SC – 32+ hours
- 2002 Winter Olympics Volunteer – Main Media Center Copy Center
- Missionary service in Ireland & Northern Ireland (1997-1999)
- Community theater volunteer - performer & technician (set construction, lights, sound)
- FIRST Robotics volunteer, Jr. FLL Coach, Regional Science and Engineering Fair Judge

HONORS

- Eagle Scout – Boy Scouts of America (BSA)
- High School Academic Excellence Award – 4.0 GPA (1 of top 5 students in class of ~1K)
- Outstanding Student Award for Excellence in Computer Graphics and Expert Systems.
- Undergraduate Computer Science Special Departmental Full Tuition Scholarship
- L-3 Communications Silver and Bronze Achievement Awards.