Giuseppe Di Natale

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Education

2015 **M.S., Computer Science**, *University of North Carolina at Chapel Hill*.

2010 **B.S., Computer Science**, *University of South Florida*, Summa Cum Laude.

2010 **B.S., Computer Engineering**, *University of South Florida*, Summa Cum Laude.

Skills

General C, bash, C++, C#, Latex, SQL, Continuous Integration, Linux Kernel Development, Python, git, svn, autotools.

HPC Parallel & Distributed File Systems, Cluster Configuration Management, Distributed Systems.

Security Symbolic Execution, Basic Reverse Engineering.

Digital Arts 3D Level Design (Quake 3 & Valve's Source Engine), Autodesk Maya.

Professional Experience

2015-Present **Lawrence Livermore National Labratory**, *Computer Scientist*, Livermore, CA.
- Develop and maintain LC's Parallel & Distributed File System capabilities.
- Maintainer: OpenSFS Lustre Buildbot, ZFS on Linux Buildbot.
- Contributor: ZFS on Linux, Lustre, mpiFileUtils, Maestro Workflow, others.

2002-2003 **University of North Carolina at Chapel Hill**, *Graduate Teaching Assistant*, Chapel Hill, NC.
COMP116 - Introduction to Scientific Computing

2010-2013 **Nextech Systems, Inc.**, *Senior Software Developer and Team Lead*, Tampa, FL.
Led 6 developers; Developed features and bug fixes; Performed database conversion and management.

Research Experience

2014-2015 **Networks Lab, UNC Chapel Hill**, *Research Assistant*.
Researched network traffic collection and analysis at the TCP level.

Summer 2014 **Cyber Security (Division 5), MIT Lincoln Laboratory**, *Research Intern*.
Researched use of symbolic execution to find vulnerabilities in Windows drivers.

Spring 2014 **Networks Lab, UNC Chapel Hill**, *Research Assistant*.
Researched use of Network Simulator 2 to simulate RAPID TCP.

Summer 2009 **Hardware Verification, USF**, *Undergraduate Research Assistant*.
Researched development of algorithms for the logical verification of circuits.

Summer 2009 **Sprayable Solar Panels, USF**, *Undergraduate Research Assistant*.
Researched development of methods to produce sprayable solar panels.

Open Source Software Contributions

ZFS Buildbot Maintainer of the continuous integration platform for ZFS on Linux.

Lustre Buildbot Maintainer of the OpenSFS countinuous integration platform for Lustre.

ZFS on Linux Contributor and Reviewer to the OpenZFS port to Linux.

Lustre Contributor to the Lustre File System.

mpiFileUtils Contributor to mpiFileUtils tool set.

Maestro WF Contributor to Maestro Workflow tool.

LMT Contributor to Lustre Monitoring Tools.

Awards & Honors

2017 LLNL award for organizing & leading a Super Computing Reddit AMA on r/science
2016 LLNL award for STEM outreach and participation in Expanding Your Horizons
2010 University of South Florida College of Engineering Most Outstanding Graduate Award
2008 Mozelle Beverly Scholarship
2006 Florida Academic Scholar's Award – Award for 100% tuition
2006 University of South Florida Scholastic Achievement Award
2006 University of South Florida Director's Award
2006 International Baccalaureate Diploma
2006 Derby Lane Scholarship
2006 Walmart Foundation Scholarship
2004 Outstanding Volunteer Award – Awarded by Pinellas County School Board
1997 Doorways Scholarship – Award for 100% tuition

Specialized Courses

Graduate Wireless Networks, Big Data, Distributed Systems, Compilers, Operating System Implementations, Computer Graphics, Physically Based Models & Simulation

Undergraduate Networks, CMOS/VLSI Design, Software Engineering, Simulation, Software System Development, Design Automation, Web Applications, Computer Animation, AI Robotics

Projects

2017 **Twitch Chat Bot and Notification System**, *Team of 2*,
Implemented an IRC chat bot to process and respond to Twitch chat messages. Implemented a websocket server to provide notifications to a web browser.

Spring 2014 **Operating Systems Implementation, UNC Chapel Hill**, *Team of 3*,
Implemented three custom I/O schedulers in the Linux kernel and benchmarking performance using IOZone and Bonnie++.

Fall 2013 **Wireless Networks, UNC Chapel Hill**, *Team of 2*,
Designed an experiment to observe and analyze the 802.11 channel capture effect.

Fall 2013 **Distributed Systems, UNC Chapel Hill**, *Solo*,
Converted a standard non-distributed application to a distributed application. Multiple libraries to handle RPC were used including Java NIO, Java RMI, and custom libraries which explored other synchronous and asynchronous approaches.

Fall 2013 **Big Data, UNC Chapel Hill**, *Team of 2*,
Developed a travel prediction model based on latent factors of travel. Factors learned using Batch Gradient Descent. Latent factors were the desirability of a location and a distance-time factor reflecting how far a person may travel in a given time.

Spring 2010 **Senior Project, USF**, *Team of 4*,
Designed an instruction set architecture and implemented a simulator which embodies that instruction set. Software engineering principles were used to complete this project. Project was submitted as part of the IEEE Contest 2010 upon completion.

Spring 2009 **CMOS/VLSI Design, USF**, *Team of 3*,
Designed an ASIC which would take input from a digital thermometer and output to a 7 segment display. The ASIC was to keep information such as maximum and minimum temperatures. Cadence Virtuoso was used to develop the circuit layout and hspice was used to ensure the circuit would function properly.

Spring 2009 **Networks, USF**, *Team of 2*,
Designed client software which allowed clients to send messages to "friends." Also designed server software to handle user registration and "friend" lists for clients. Both TCP and UDP protocols used.

Memberships

Honor Societies Tau Beta Pi – Florida Gamma

University Activities

Spring 2010 Vice President, USF ACM

2009-2010 Web Master, Tau Beta Pi – Florida Gamma Chapter

2008-2009 Record Keeper, Tau Beta Pi – Florida Gamma Chapter

Volunteer Experience

2016-Present **Expanding Your Horizons**, *Tri-Valley*,
Organized and hosted a workshop on how to build an MP3 player in C#.

2016-Present **Expanding Your Horizons**, *San Joaquin*,
Organized and hosted a workshop on how to build an MP3 player in C#.
Provided assistance to other workshops.

2004-2006 **Sutherland Elementary**, *Palm Harbor, FL*,
Volunteer Tutor.

2002-2004 **Sutherland Elementary**, *Palm Harbor, FL*,
Technology Lab Assistant.

Publications

Conference Papers

[1] Danielle Sikich, Giuseppe Di Natale, Matthew LeGendre, and Adam Moody. mpiFileUtils: A Parallel and Distributed Toolset for Managing Large Datasets. In *2nd Joint International Workshop on Parallel Data Storage & Data Intensive Scalable Computing Systems (PDSW-DISCS 2017)*, Denver, CO, November 13 2017.

[2] Francesco Di Natale, Giuseppe Di Natale, John Mercer, and Donald Ray. A Computer Engineering Capstone Design Project: A Harvard Architecture Assembly Simulator. In *Capstone Design Conference 2010*, Boulder, CO, June 8 2010.

Posters & Presentations

[3] Christopher Morrone and Giuseppe Di Natale. Improved Versioning, Building, Packaging, and Distribution of Lustre. In *Lustre User Group Conference (LUG 2016)*, Portland, OR, April 5-7 2016.

[4] Sarah J. Andrabi and Giuseppe Di Natale. A Study of Channel Capture Effect in 802.11. In *Computing Research Association-Women Graduate Cohor 2014*, Santa Clara, CA, April 11-12 2014.

[5] Giuseppe Di Natale, Francesco Di Natale, John Mercer, and Donald Ray. Senior Project: South Florida Instruction Set Simulator. In *Capstone Design Conference 2010*, Boulder, CO, June 8 2010.