# Benjamin D. Heard, PE

8124 Greywinds Drive Raleigh, North Carolina 27615 phone: 919.816.2753 email: bdheard@ieee.org

## **Work Experience:**

#### 3 Phoenix, Wake Forest, NC

2010 - Present

Systems Engineer

Leading a multi-disciplinary team (mechanical, electrical, software, and production) through the development, design, and manufacture of production level units to be delivered under contract to the US Government. The system is a photonics control system requiring complex positioning photonics sensors, their control and monitoring. The project emphasizes the use of COTS components in a modular and highly reliable system.

Responsible for contract proposal, requirements development, high level design, team scheduling and tasking, customer interaction, trade study and comparative analysis of COTS components, and providing direction for the implementation.

Ericsson, RTP, NC 2004 – 2009

Hardware Design Engineer

Participed on numerous small teams, responsible for developing and delivering IP into chip projects. Tasks include negotiating and influencing IP requirements based on market analysis, conversion of requirements to design specifications and implementation of those specifications in RTL.

Responsible for implementation of BCH error correction logic (8-bit error correction) as applied to NAND memories. Complete design responsible from scheduling with time estimates, algorithm development to RTL and verification. Verification using Mentor Graphics Open Verification Methodology, an object oriented constrained random testing environment in SystemVerilog.

#### Cipheroptics, Raleigh, NC

2001 - 2003

Hardware Engineer

Designed a high speed PowerPC management platform requiring component evaluation and selection, circuit design, and assisting PCB CAD engineer in layout. Designed, implemented, and maintained CPLD source for both Altera and Xilinx programmable logic platforms for the company's 3 products in all stages of development and manufacturing. Created and maintained boundary scan test suites using the Corelis ScanPlus IEEE 1149.1 tools.

## Ericsson, RTP, NC and Lund, Sweden

1995, 1996, 1997

Co-op Engineer for Data Accessories

Designed and implemented a platform for testing infrared transceiver characteristics as part of a feasibility study to select components for use in mobile phones. Created communications software for said platform and verified transceiver functionality using bit error ratio as a metric. Tested cellular data connections in a mobile environment.

#### **Education:**

|                             | North Carolina State University, Raleigh, NC |                              | 2000 – 2002 |
|-----------------------------|--|------------------------------|-------------|
|                             | Hours Completed: 42                          | Class: Doctorate             |             |
|                             | Major: Computer Engineering                  | Topic: Computer Architecture |             |
|                             | North Carolina State University, Raleigh, NC |                              | 1998 – 1999 |
|                             |  |                              | 1990 – 1999 |
| Degree: Master of Science   |  |                              |             |
| Major: Computer Engineering |  |                              |             |

North Carolina State University, Raleigh, NC

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1993 – 1997

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Degree: Bachelor of Science Major: Computer Engineering

Magna Cum Laude

Major: Computer Engineering
Recipient: William Cates Scholarship

#### **Teaching Experience:**

# North Carolina State University, Raleigh, NC

2009, 2010, 2011

Adjunct Instructor

In collaboration with Dr. Rhett Davis, prepared lecture notes, homework assignments, and exams for teaching a Distance Education section of ECE406, Complex Digital Systems. Included use of the WolfWare course management system.

# North Carolina State University, Raleigh, NC

2008

Adjunct Instructor

In collaboration with Dr. Eric Rotenberg, prepared lecture notes, homework assignments, and exams for teaching a Distance Education section of ECE212, Introduction to Digital Logic Design. Included use of the WolfWare course management system.

### North Carolina State University, Raleigh, NC

2001

Preparing the Professoriate Grant Recipient

Completed the NC State program including attending seminars about teaching at the university level, assembling a portfolio of work (no longer maintained), and teaching a single lecture of Parallel Processing for Dr. Greg Byrd.

#### North Carolina State University ECE Dept, Raleigh, NC

1998 - 2000, 1997

Fundamentals of Logic Design Laboratory Coordinator

Managed a group of teaching assistants teaching as many as 16 labs in a one week period. Designed circuits to teach various logic fundamentals. Created lab documentation and testing materials used by all students enrolled in the Logic Design Lab course. Wrote tools in C++ and Perl to facilitate management of the Logic Design Lab Course and grading.

# North Carolina State University CSC Dept, Raleigh, NC

1995, 1996

Computer Science Laboratory Instructor for C++

Presented material during a weekly class meeting, graded programming assignments, and tutored students needing help.

#### **Research Experience:**

#### North Carolina State University ECE Dept., Raleigh, NC

2000 - 2001

Parallel Computer Architecture Research Assistant

As an assistant to Dr. Greg Byrd in the area of High-Performance Parallel Systems, researched fault-tolerant techniques using Xilinx FPGAs and the JBits API. Researched space-based coordination languages for a collaborative project between NCSU and MCNC culminating in a document comparing the available technologies.

#### **Licensure and Clearance:**

**Professional Engineer** (# 032572)

2006

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Duly licensed Professional Engineer in the state of North Carolina

# **Classified Security Clearance**

2010

Active Classified Security Clearance hosted by 3 Phoenix, Inc.

### **Membership Activities:**

#### WaterPartners International 1997 - 2006Fundraising Event Chairperson 2006 Responsibilities included organization and execution of planning meetings and management of a dozen volunteers. The event, a charity auction and dinner, raised \$50000. Tau Beta Pi 1996 - 2000Publicity Chair 1998 - 1999Responsibilities included maintenance of group web site, mailing lists, and flyer publicity around campus. Achievements included creation of a set of web site templates for easy maintenance and upgradeability and promotion of the organization resulting in the some of the largest induction classes at NC State. 1996 Inductions Chair Responsibilities included organization and execution of inductions meetings throughout the semester, planning and execution of a hosted dinner honoring inductees, coordination of the induction ceremony, and establishing inductee

#### **Presentations:**

eligibility.

# Eastern North Carolina Region IEEE Embedded Systems Group Verilog vs. VHDL, a Comparative Analysis for use in Embedded Systems

2004

#### **Professional Membership:**

- Member of the Institute of Electrical and Electronics Engineers (IEEE)
- Member of the Tau Beta Pi National Engineering Honor Society
- Member of the Eta Kappa Nu National Honor Society
- Member of the Phi Eta Sigma Honor Society
- Member of the Gamma Beta Phi Society
- Member of the Order of Saint Patrick Engineering Honor Society
- Member of the Golden Key National Honor Society