

Ryan Andrew Taylor

May 11, 2017
Mississippi State University
Office: 330-11 Simrall Bldg. | Mississippi State, MS 39762
Email: rat56@msstate.edu | Web: ryanataylor.com

RESEARCH INTERESTS

asynchronous circuits, digital architecture, digital systems, embedded systems, engineering education, image processing, logic synthesis, parallel processing, remote sensing, sensor networks, robotics, UAVs

EDUCATION

Mississippi State University, Starkville, Mississippi

Doctor of Philosophy in Electrical and Computer Engineering, *In Progress, projected completion in Summer 2017*

Dissertation: *Investigation of a control-driven design style for a 16-bit microprocessor implementation*

Committee Chair: Dr. Robert B. Reese

Committee Members: Dr. Sherif Abdelwahed, Dr. J.W. Bruce, Dr. Bryan A. Jones

This research uses the Unified NCL Environment (UNCLE), a toolset that maps synchronous netlists to an asynchronous technology known as Null Convention Logic. UNCLE enables the user to map designs using a data-driven or a control-driven approach. This project examines the effects that the complexity of a design's control logic has on the characteristics of the design. Can this method be used to generate such a system? Are there new methods of control required when dealing with a complex control path? Does increasing the complexity of the control path increase the benefits of using the control-driven design style?

University of Alabama, Tuscaloosa, Alabama

Master of Science in Electrical Engineering, Electrical Engineering, *December 2011*

Thesis: *A Custom Printed Circuit Board Design for Microcontroller Education*

Committee Chair: Dr. D. Jeff Jackson

Committee Members: Dr. Monica Anderson, Dr. Kenneth G. Ricks

This research focused on building a development platform for an introductory microprocessors course. A platform was built to work in conjunction with the National Instruments NI-ELVIS workbench to allow students to gradually work with peripheral devices throughout the semester. A set of lab assignments was generated to be used along with the hardware platform.

Bachelor of Science in Electrical Engineering, *December 2008*

Minors: *Computer-Based Honors Program, Computer Science, Mathematics*

PROFESSIONAL EXPERIENCE

Graduate Research Assistant, Distributed Analytics and Security Institute, High Performance Computing Collaboratory, Mississippi State University	(2017 – present)
Graduate Teaching Assistant, Mississippi State University	(2014 – 2017)
Graduate Instructor, Mississippi State University	(2015)
Software Developer, Mozaik Software, Inc.	(2014)
Graduate Research Assistant, Mississippi State University	(2012 – 2013)
Graduate Instructor, University of Alabama	(2010 – 2011)
Graduate Research Assistant, <i>Freshman Engineering Program</i> , University of Alabama	(2009 – 2010)
Graduate Teaching Assistant, University of Alabama	(2009)

HONORS AND AWARDS

Member, IEEE-HKN Honor Society	(2008 – present)
Bagley Engineering Graduate Fellowship, Mississippi State University	(2012 – 2014)
Graduate Student of the Year, Electrical and Computer Engineering, University of Alabama	(2010 – 2011)

TEACHING EXPERIENCE

- Mississippi State University, Bagley College of Engineering, Department of Electrical and Computer Engineering
 - **Intermediate Electronic Circuits**, two terms as *lead instructor*, guest lecturer
 - Responsible for the preparation, lectures, grading, and administration of the second of three courses in a circuits sequence which consisted of nonlinear circuit elements including operational amplifiers, diodes, bipolar junction transistors, and MOSFET devices.
 - **Digital Systems Design**, seven terms as *lab instructor*, guest lecturer
 - Responsible for instructing students in weekly lab sections covering the design of simple registers through to complete serial transceivers. Grading and administration duties performed.
 - **VLSI Design**, four terms as *lab instructor*, guest lecturer
 - Responsible for instructing students in weekly lab sections covering small routing projects and the design and simulation of systems using Cadence Spectre Circuit Simulator. Grading and administration duties performed.
 - **Embedded Systems**, three terms as *lab instructor*, guest lecturer
 - Managed areas of PIC24 library repository and added functionality as necessary related to a small real-time operating system (ESOS). Responsible for grading and administration of lab sections. Related research publication is currently in preparation (5).
 - **Microprocessors**, one term as *lab instructor*
 - Responsible for instructing students in weekly lab sections covering introductory microprocessor topics including peripheral device interfacing. Guided students' use of PIC24 library repository and performed grading and administration duties.
- University of Alabama, College of Engineering, Department of Electrical and Computer Engineering
 - **Digital Logic**, one term as *lab instructor*, two terms as *lead instructor*
 - As lead instructor, prepared lectures, assignments, lab work, and exams for introductory digital logic concepts, such as CMOS circuits, Boolean algebra, Boolean circuits, and simple digital systems. As lab instructor, responsible for grading and administration of weekly lab sections and instruction of lab projects.
 - **Programming for Electrical and Computer Engineers**, two terms as *lead instructor*
 - Responsible for the preparation, lectures, grading, and administration of an introductory ANSI C programming course designed for engineers. Course was fairly young and consisted of over fifty students.
 - **Microcomputers**, one term as *lab instructor*, one term as *lead instructor*
 - As lead instructor, responsible for the preparation, lectures, grading, lab work, and administration of an introductory microprocessors course based around the Motorola 68HCS12 family. As lab instructor, responsible for grading and administration of weekly lab sections.
- University of Alabama, College of Engineering, Freshman Engineering Program
 - As a Graduate Tutor, I was required to administer a lab of freshman and sophomore engineering students along with multiple undergraduate and graduate tutors for several hours a week. Students were required to meet a certain number of hours. The tutoring team was available to assist with any and all freshman- and sophomore-level coursework, so the management of a cross-disciplinary team was crucial.

REFEREED JOURNAL PUBLICATIONS

1. K. G. Ricks, J. A. Richardson, H. P. Stern, R. P. Taylor, and **R. A. Taylor**, "An Engineering Learning Community To Promote Retention And Graduation Of At-Risk Engineering Students," *American Journal of Engineering Education*, vol. 5, pp. 73-90, 2014.
2. **Taylor, R. A.**; Reese, R. B., "Paired T-element design for multiple-state acknowledge dependency," *Electronics Letters*, vol.49, no.19, pp.1213,1214, Sept. 12 2013.
3. Fei Hu, Meikang Qiu, Jiayin Li, Travis Grant, **Drew Taylor**, Seth McCaleb, Lee Butler, Richard Hamner, "A Review on Cloud Computing: Design Challenges in Architecture and Security," (International) Journal of Computing and Information Technology (CIT), ISSN: 1330-1136. Vol 19, No.1, Feb 2011. Pages 25-55.

CONFERENCE PUBLICATIONS

4. (*In preparation*) J. W. Bruce, M. Jean Mohommadi-Aragh, and **R. A. Taylor**, "Career Aspirations and Perceptions of First-Year ECE Students."
5. (*Accepted for publication – June 2017*) J. W. Bruce and **R. A. Taylor**, "Using Information Gap Learning Techniques in Embedded Systems Design Education." – Under consideration for **Best Paper in Computers in Education division**.
6. **R. A. Taylor** and D. J. Jackson, "A Custom-PCB Design for Microcontroller Education," in American Society for Engineering Education Annual Conference 2012, 2012.

BOOK CHAPTERS

7. **R. A. Taylor** and F. Hu, "Collaborative Software Development Based on Socio-technical Networks," in Socio-Technical Networks: Science and Engineering Design, ed: CRC Press, 2010, p. 343.

TECHNICAL REPORTS

8. R. B. Reese and **R. A. Taylor**, "UNCLE (Unified NCL Environment)," Mississippi State, MS, 2013.

PERSONAL INFORMATION

Born December 1985 in Tuscaloosa, Alabama, USA | United States citizenship

Married Callie Donaldson (now Callie Taylor) of Grandview, TX, USA in March 2015 | No children | Excellent health

PROFESSIONAL SERVICE

Standing Officer, <i>IEEE-HKN honor society (Gamma Omega chapter)</i>	2016 – present
Graduate Student Member, <i>IEEE (membership in multiple technical communities)</i>	2010 – present

PERSONAL ACTIVITIES AND SKILLS

Running	(2012 – present)
Amateur radio (technician class; call sign: K4DRU)	(2008 – present)
Football officiating (primary positions: head linesman, line judge; secondary: field judge, side judge)	(2007 – present)
Part-time pulpit ministry	(2004 – present)
Mission work (personal study and public speaking roles) in El Valle, Panama; Mto wa Mbu, Tanzania	(2008, 2013)

REFERENCES

Dissertation advisor: Dr. Robert B. Reese
Department of Electrical and Computer Engineering
P.O. Box 9571
Mississippi State, MS 39762
reese@ece.msstate.edu | (662) 325-3154

Thesis advisor: Dr. D. Jeff Jackson
3012 SERC
The University of Alabama
Tuscaloosa, AL 35487
jjackson@eng.ua.edu | (205) 348-2919

Others available upon request.