

ZANER COCHRAN

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EDUCATION

DOCTORATE OF PHILOSOPHY – HUMAN CENTERED COMPUTING Aug 2013 - Present
Georgia Institute of Technology » Atlanta, GA

- » Completed courses focusing on human-computing interaction, industrial design and human-centered computing.
- » Research focused on developing wearable technology, educational technology and interactive computing for developing countries.
- » Conducted research, produced prototypes and competed in design competitions as part of the Interactive Media Design Center, Augmented Environments Lab, Interactive Product Design Lab, and Culture and Technology Lab.

NON-DEGREE SEEKING, COMPUTER SCIENCE Aug 2011 - May 2013
Berry College » Mount Berry, GA

- » Completed computer science and mathematics curriculum including courses in programming languages (C, Java and Racket), Data Structures, Algorithms, Computer Architecture, Operating Systems, Web Programming and Calculus I and II.

BACHELOR OF SCIENCE, PUBLIC RELATIONS Graduated Aug 2006
University of Texas at Austin » Austin, TX

- » Graduated with high honors (3.55 GPA). Studies included an emphasis in communication, writing, public speaking, web design, graphic design and interactive technology.

EXPERIENCE

CLINICAL INSTRUCTOR Jun 2015 – Present
Creative Technologies, Berry College » Rome, GA

- » Developed and taught courses in prototyping, design, and creative problem solving.
- » Directed eight student lab assistants in research and development projects.
- » Coordinated STEM educational outreach efforts to K-12 schools in Rome and Floyd County.

FOUNDER, DIRECTOR Mar 2014 – Present
HackBerry Lab, Berry College » Rome, GA

- » Conducted research and developed functional prototypes in conjunction with Berry undergraduate students and Georgia Tech graduate students.
- » Procured development grants for continuing research through Georgia Tech and Berry College research programs.
- » Co-organized Georgia Power development grant to create 12 month Maker Academy program with Berry College and Rome City, Floyd County and Calhoun City schools.

DEPARTMENT CHAIR OF ENGINEERING, GEORGIA GOVERNOR'S HONORS PROGRAM
Georgia Governor's Honors Program, GOSA » Rome, GA May 2017 – Aug. 2017

- » Prepared curriculum and conducted classroom sessions for EDU 221 course.
- » Organizing group of undergraduate students during EDU 222 Maymester trip to Norway.

CO-DIRECTOR, EXPLORATIONS IN DIVERSE CULTURES
College of Math and Natural Sciences, Berry College » Rome, GA Jan 2015 – Present

- » Prepared curriculum and conducted classroom sessions for Technology Study Abroad course.
- » Organizing group of undergraduate students during Maymester trip to Norway.

DIRECTOR, MAKER ACADEMY Oct 2014 – April 2016
HackBerry Lab, Berry College » Rome, GA

- » Coordinated a 12-month program for 36 middle and high school students to engage in problem-based programming and prototyping.
- » Conducted training for six middle and high school teachers in 2D and 3D design tools, as well as programming environments and circuit building.
- » Organized and trained 12 undergraduate mentors (six STEM-majors and six education majors) to work as mentors for participating schools.

GRADUATE RESEARCH & TEACHING ASSISTANT Aug 2013 – Apr 2017
Interactive Computing, Georgia Tech » Atlanta, GA

- » Prepared course curriculum and lectured in mobile and ubiquitous computing courses.
- » Developed a system of mobile technologies to assist persons with disabilities during emergency.
- » Prototyped various software extensions for accessibility for Google Glass.

CREATIVE TECHNOLOGY ADVISOR Dec 2013 - May 2015
Campbell School of Business, Berry College » Rome, GA

- » Directed research agenda of Berry College's Physical Computing Lab.
- » Advised students in the development of design-based prototypes in Innovations and Prototyping course.
- » Advised the Dean in the creation of the school's Creative Technologies major.

GOOGLE GLASS EXPLORER July 2013 -
Present
Independent Development » Rome, GA

- » Developed Glassware to enable tethering between Google Glass and a DSLR camera for enhanced photography experiences
- » Developed Glassware and an Android app to allow runners to view speed, distance and pacing statistics during exercise

VISITING INSTRUCTOR May 2013 - June 2012
iLab Liberia » Monrovia, Liberia

- » Created original curriculum and taught beginner and intermediate level physical computing and Python programming classes
- » Created and executed a successful crowdfunding campaign to facilitate equipment and materials used in the physical computing course
- » Conducted research studying programming education in developing countries

RESEARCH/TEACHING ASSISTANT Oct 2011 –May 2013
Berry College » Mount Berry, GA

- » Developed modular LED displays to be used for introducing basic computing concepts to students in introductory programming courses.
- » Organized the university's physical computing lab and conducted research leading to publication and conference presentations.
- » Assisted students in the development and completion of interactive projects for the physical computing course

SENIOR ACCOUNT EXECUTIVE Oct 2005 - Aug 2010
Sommers Public Relations » Austin, TX

- » Expanded the firm's client offerings to include interactive media, website development (PHP and MySQL), HTML-enhanced email distribution and social media management
- » Developed campaign strategies for the firm's technology and non-profit clientele and directed a small group of designers and developers in executing these campaigns

CURRENT RESEARCH

MAKER-ORIENTED LEARNING

- » Enhancing STEAM education through maker-oriented activities with an emphasis on enhancing computer science education through prototyping interactive artifacts.
- » Evaluating and developing university-based makerspaces to facilitate maker-oriented learning.

ENHANCING GEOMETRY EDUCATION WITH 3D PRINTING & DESIGN

- » Developing methods for 3-8 grades to supplement traditional geometry through the use of 3D design software and 3D printing.
- » Conduct pilot studies and research sessions with 4th and 7th grade classes to gauge effectiveness of curriculum.

WEARABLE TECHNOLOGY AND INTERFACES

- » Developing diagnostic wearable compression sleeves to assist athletes from shoulder injuries during recovery.
- » Developing biometric sensors for horses and visual interfaces for humans to assist riders in monitoring performance and health.
- » Designing interfaces to enhance collaboration between designers and programmers in the construction of LED-embedded garments.

PUBLICATIONS

Zane Cochran. 2016. Kit Considerations: Material Distribution Strategies for Hands-On Making in Computer Science Classrooms. *IEEE Frontiers in Education*. 2016.

Jill Cochran, Zane Cochran. 2016. "Will it Print? Understanding Dimensions with 3D Printing". International Congress on Mathematics Education (ICME).

Zane Cochran. 2015. Building a University-Based Makerspace to Support STEM Learning in Undergraduate Education. *Frontiers in Engineering*.

Zane Cochran, Clint Ziegler, Sonia McCall. 2015. Addressing Dresses: User Interface Allowing for Interdisciplinary Design and Calibration of LED Embedded Garments. *International Symposium on Wearable Computers*.

Rachel Leroy, Arden Foster, Zane Cochran, Judith Wilson. 2015. Development of Wearable Sensors to Aid in the Training and Development of Horse and Rider. *Equine Science Society*.

Zane Cochran, Jill Cochran, Kendra Laney, Mandi Dean. 2015. Extending Geometry Knowledge to Another Dimension with 3D Printing. *Mathematics Teaching in the Middle School*.

Zane Cochran, Brianna Tomlinson, Dar-Wei Chen, Kunal Patel. 2014. LightWeight: Wearable Resistance Visualizer for Rehabilitation. *Annual Symposium of User Interface Systems and Technology*.

Zane R. Cochran. 2013. The Bit Dome: Creating An Immersive Digital Environment With a Kinect-Based User Interface. *Journal of Computing Sciences in Colleges*.

Zane R. Cochran and Nadeem Abdul Hamid. 2012. Convex hull game: a tangible context for algorithms and computer graphics concepts. *Journal of Computing Sciences in Colleges*.

NOTABLE PRESENTATIONS

International Congress of Mathematical Education Development of 3D Printing Curriculum for Elementary Geometry Education	July 2016
Confluence Innovation & Technology Conference <i>The Future of Wearable Technology</i>	Apr 2016
Georgia STEM Forum <i>Maker Academy: Building STEM Partnerships with K-12 Schools and Universities</i>	Oct 2015
Atlanta MakerFaire Speaker Series <i>Incorporating 3D Printing into K-12 Classrooms</i>	Oct 2015
International Symposium of Wearable Computing <i>PIXI: Interactive wearable interfaces and 3D modeling embedded fabric</i>	Sep 2015
Interaction Design for Children <i>Prototyping & Art: Design for Day of the Dead Puppets</i>	Jun 2015
Slingshot Sensory Overload Conference on Data Perceptualization <i>Pixi: Creating designer-friendly interfaces for wearables with ad hoc LED calibration</i>	Mar 2015
National University of Singapore CUTE Center Wearable Technology Workshop <i>Considerations when Creating a Mesh Network of Wearable Sensors</i>	Mar 2015
University of Georgia <i>Art + Technology: An Emerging Field of Interactive Design</i>	Feb 2015
University of Georgia <i>ArtBots: Influencing Elementary Art Education with Simple Robots</i>	Dec 2014
Athens-Clarke County Library System <i>3D Printing & Design in Community Libraries</i>	Nov 2014
Greater Council of Teachers in Mathematics <i>Enhancing Elementary Geometry Curriculum with 3D Printing and Design</i>	Oct 2014
Atlanta Maker Faire <i>Makers in Monrovia: Building a Mini-Makerspace in Monrovia, Liberia</i>	Oct 2014
Georgia STEM Forum <i>Enhancing Elementary Geometry Curriculum with 3D Printing and Design</i>	Oct 2014
Lyndon House Arts Center <i>Designing Gesture-Driven 3D Games with Kinect</i>	Aug 2014
Lyndon House Arts Center <i>Understanding Principles of Programming with Physical Computing and Arduino</i>	July 2014
International Society of Technology in Education Conference 2014 <i>Enriching Mathematics & Geometry Curriculum in Elementary Education</i>	June 2014

National University of Singapore CUTE Center Wearable Technology Workshop <i>On-body Electromyography and User-Centered Visualizations for Rehabilitation</i>	March 2014
Confluence Technology Symposium <i>Innovations with Google Glass</i>	Feb 2014
Consortium for Computing Sciences in Colleges Southeastern Regional Conference <i>The Bit Dome: Creating An Immersive Digital Environment With a Kinect-Based User Interface</i>	Nov 2013
Berry College - Guest Lecturer <i>Creative Computing & Image Processing</i>	Oct 2013
Digital Atlanta <i>The Future of News Delivery Discussion Panel</i>	Oct 2013
University of Georgia – Invited Speaker <i>News Delivery: Form and Function</i>	Sept 2013
iLab Liberia Special Presentation <i>The Future of Physical Computing</i>	June 2013
Mathematical Association of America Southeastern Conference 2013 <i>The Development of Digital Manipulatives on Multiple Platforms For Enhanced Student Explorations</i>	Mar
Mathematical Association of America Southeastern Poster Presentation <i>Activity Utilizing Image-Based 3D Reconstruction</i>	Mar 2013
Confluence Technology Symposium <i>Learning by Doing: The Tangible Benefits of Try-Storming</i>	Feb 2013
Consortium for Computing Sciences in Colleges Southeastern Regional Conference <i>Convex Hull Game: A Tangible Context for Algorithms and Computer Graphics Concepts</i>	Nov 2012
Mathematical Association of America Southeastern Poster Presentation 2012 <i>Computer Aided Game Play: Visually Detecting Checkerboard Game State and Game Algorithm</i>	Mar

HONORS & AWARDS

Foot Wearables Workshop Travel Grant

Received 2015 » Georgia Tech

Awarded for proposal to continue development of a network of foot-mounted sensors for monitoring horse performance.

Wearable Computing Consortium Engagement Grant

Received 2014 » Georgia Tech

Received grant to develop and engage Liberian motorcycle taxi drivers in creating wearable technology vests to increase safety and legitimacy in Monrovia.

Georgia Power Innovation Education Grant

Received 2014 » Georgia Power

Received grant to develop a yearlong Maker Academy program to engage middle and high school students in maker-based activities to learn programming, circuit design and rapid prototyping.

Donald V. Jackson Fellowship

Received 2014 » Georgia Tech

Received fellowship and recognized as the 2014 Outstanding Master's Student in the School of Interactive Computing at Georgia Tech for educational technology research conducted in Liberia.

Development of Undergraduate Research Grant

Received 2014 » Berry College

Received grant to work with Berry College faculty and students explore teaching geometry principles to 4th and 7th grade students using 3D design and printing technology.

Augmented Sensory Workshop Travel Grant

Received 2014 » Georgia Tech

Awarded for proposal to develop a system for visualizing the body's ability to sense strain to aid recovering surgery patients.

Popular Choice Award

Received 2014 » Rome Area Council for the Arts

Received award for best art installation for *Hand to Heart*, an interactive art installation that raised awareness of heart health in Rome, Georgia.

Development of Undergraduate Research Grant

Received 2013 » Berry College

Received a grant to develop an interactive touch-based sensor array using an 8x8 matrix of LEDs and to develop educational modules around the system.

First Place – Research Poster Session

Received 2012 » Mathematical Association of America Southeastern Section

Awarded first prize for developing a computer vision-based mobile application to recognize checkers game states and proposed optimal move suggestions.

High Honors

Received 2006 » The University of Texas at Austin

Academic award for scholastic achievement in undergraduate studies.

NOTABLE EXHIBITIONS

Aurora

Aurora is an interactive art installation that explores the fusion of art and technology through the combination of data from NASA's ACE satellite and photographs of the Northern and Southern Lights from various photographers. This installation captures the beauty of this natural phenomena into 40 algorithmically generated origami lamps and interactive LED animations.

Lyndon House Art Center Fall Exhibition || Athens, Georgia

Aug 2017

PIXI

PIXI is an interactive dress that is embedded with 600 LEDs capable of displaying a wide variety of colors and patterns. In addition to a series of preprogrammed animations and styles, guests are able to create their own styles using a tablet interface that allows them to sketch patterns of colors on the dress in real time.

<i>MODA On-You Exhibit Atlanta, Georgia</i>	July 2016
<i>Symposium on Design & Wearable Technology Atlanta, Georgia</i>	May 2015
<i>ZOG/Moxie Worldwide Conference Atlanta, Georgia</i>	Apr
2015	
<i>Slingshot Athens, Georgia</i>	Mar 2015

BlockHead

BlockHead is an interactive installation that captures a 3D image of visitors' heads using a unique array of cameras and instantly prints a Cubecraft-inspired sheet which users can cut and fold to create a 3D papercraft figure of themselves.

<i>Atlanta Science Festival Atlanta, Georgia</i>	Mar 2015
<i>Atlanta MakerFaire Atlanta, Georgia</i>	Oct 2015
<i>Atlanta Science Festival Atlanta, Georgia</i>	Mar 2016

Scatterfield

Scatterfield is a unique collection of interactive RGB LEDs arranged in a randomized 32 x 32 array. Totally 1,024 LEDs in all, the display is capable of producing images, animations and visualizations that are visible from one distinct point of view in the gallery.

<i>GlassCube Athens, Georgia</i>	Jul 2015
<i>MakerFest Athens, Georgia</i>	Aug 2014
<i>Digital Summer Athens, Georgia</i>	Aug 2014

The BitDome

The Bit Dome is an immersive digital environment where visitors are challenged to explore the interaction between body, light and sound. Within its spacious geodesic dome, sixty-one RGB LEDs respond to the visitor's movements and music as it executes a variety of programs ranging from music and meditation, to light simulations and games.

<i>MakerFest Athens, Georgia</i>	Aug 2014
<i>Digital Summer Athens, Georgia</i>	Jun 2014
<i>Tech Arts Festival at Georgia Tech Atlanta, Georgia</i>	Apr 2013
<i>Confluence Technology Conference Rome, Georgia</i>	Feb 2013
<i>Berry College Physical Computing Open House Rome, Georgia</i>	Dec 2012

Cortex

Cortex is designed modularly such that users can experience a variety of interactions by themselves or in conjunction with another user. The immersive visualizations are presented to users via motion graphics and images projected on the interior surface of the module's 8-foot spherical interior.

<i>Berry College Student Symposium of Research Rome, Georgia</i>	Apr 2014
<i>Slingshot Athens, Georgia</i>	Mar 2014
<i>Tech Arts Festival Atlanta, Georgia</i>	Feb 2014

s8uare

s8uare is an interactive art experience that encourages Rome pedestrians to more closely connect with Broad Street. It consists of four distinct interactions that allow visitors to explore the effects their body movements can have on the lights and sounds of the installation.

<i>MakerFest Athens, Georgia</i>	Aug 2014
<i>Digital Summer Athens, Georgia</i>	Aug 2014
<i>Confluence Rome, Georgia</i>	Sept 2014

Geek Week // Rome, Georgia

Sept 2013

Bioluminescence

Firefly Fling // Rome, Georgia

Apr 2013

Developed and presented an interactive projection during the Rome Area Council for the Arts annual fundraising gala where the installation attracted a large amount of media attention.

MAJOR SERVICE

ART + TECHNOLOGY CHILDREN'S WORKSHOP

Jul 2017

- » Conducted a week long art and technology workshop series for youth groups in Athens-Clarke County for the Lyndon House Arts Center

MAKEWEEK - THE BRIDGE ACADEMY

Jun 2016

- » STEM + Art experience for inner city youth to explore art and technology through creative explorations and prototyping

PULSE - TELFAIR ART MUSEUM

Jan 2016

- » Soldering and circuit workshop for children to build interactive LED art pieces

ARTBOTS! - TELFAIR ART MUSEUM

Jan 2015

- » Created and conducted a workshop for children to create simple art-making robots

THINK-A-THON INNOVATION COMPETITION - UNIVERSITY OF GEORGIA AT ATHENS

2014,
2015

- » Assisted students during 24 hour innovation competition by UGA School of Business
- » Judged and offered feedback to student teams regarding viability of proposed ideas

HOUR OF CODE - COMPUTER SCIENCE EDUCATION FOR MIDDLE SCHOOL STUDENTS

Dec
2013

- » Developed and organized an introductory programming activity for grades 6, 7 and 8 at Berry College Middle School as part of the National Computer Science Education Week.
- » Activity engaged students in building a 6-foot physical calculator through traditional programming and physical computing activities.

MATH TRAIL - ROBOTICS LAB FIELD TRIP FOR ELEMENTARY STUDENTS

Oct 2012 - Nov 2012

- » Created an activity to teach elementary students the fundamentals of symmetry
- » Developed software that modeled the symmetry of snowflakes and created vinyl cut prototypes
- » Organized eight undergraduate students to assist children with activity software and lab equipment

VIKING EXPLORATIONS

2013

Jun

- » Instructed 25 elementary school students in the Physical Computing Lab at Berry College
- » Worked with students to design objects in 3D software and produce them using 3D printing

MATH TRAIL - ROBOTICS LAB FIELD TRIP FOR ELEMENTARY STUDENTS

- Nov 2012

Oct 2012

- » Created a variety of activities to engage 325 elementary school students in the Berry College Physical Computing Lab on three separate visits
- » Designed a workbook for visitors to complete based on their experiences within the lab
- » Organized and trained three undergraduate students to help run activity stations in the lab

ORGANIZATIONS & AFFILIATIONS

INTERACTIVE PRODUCT DESIGN LAB » Member of Georgia Tech Industrial Design Lab Research Group

HACKBERRY LAB » Founder of Berry College Creative Technologies Innovation Space

HACKBERRY RND » Faculty Advisor for Student Research & Development Organization

THE HATCH » Special Advisor to Athens' Makerspace

7HILLS MAKERSPACE » Member of Rome, Georgia's Makerspace

LUNAR LEMON RACE TEAM » Driver, Manager of 24 Hours of LeMons Race Team