# EMILY GARCEAU

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## Education

**North Carolina State University** | 2023-Present
*Doctor of Philosophy in Computer Engineering* GPA: 4.0
Goodnight Doctoral Fellowship Provost's Doctoral Fellowship
University Graduate Fellowship Graduate Merit Award

**Clemson University Honors College** | 2019-2023
*Bachelor of Science in Computer Engineering* GPA: 4.0
Rhodes Most Outstanding Senior in Computer Engineering Faculty Scholars Award
President's List 2019-2023 Palmetto Fellows Scholarship

## Research

**iBionicS Laboratory** | January 2024-Present
*Supervisor: Dr. Alper Bozkurt at North Carolina State University*
Perform research on data analytics using artificial intelligence and machine learning
- Execute multimodal sensor data fusion, specializing in outlier identification and robust feature extraction to enhance data analysis accuracy
- Apply Python, R, and MATLAB machine learning and image processing libraries to develop and deploy scalable data analysis solutions

**Tracking Finger and Hand Motion Related to Eating** | January-May 2023
*Supervisor: Dr. Adam Hoover at Clemson University*
Researched different forms of wearable technology to detect eating behavior
- Custom development programming (GitHub) for obtaining sensor measurements from a smart ring to support finger-tracking research

**Data Compression - NSF REU** | January-February 2023
*Supervisor: Dr. Jon Calhoun at Clemson University*
Researched data compression methods as a National Science Foundation REU student
- Improved current state-of-the-art lossy and lossless data compression by adding logic to dynamically manage compressed data
- Evaluated data management runtime on a diverse set of proxy application and production-level applications with varying memory requirements, communication computation ratios, communication patterns, and data access patterns

## Work Experience

**Cadence Design Systems | WFO Application Engineer Intern**
*San Jose, CA | May 2023-August 2023*
- Named as one of National Intern Day's Top 100 Interns
- Collaborated with cross-functional teams to develop and execute comprehensive test plans for advanced semiconductor designs

- Designed and implemented complex SystemVerilog testbenches using Cadence's Xcelium simulation tools
- Led formal verification efforts, ensuring coverage of design specifications and reducing the risk of functional errors
- Utilized Universal Verification Methodology (UVM) to improve verification efficiency and maintainability
- Analyzed simulation results and debugged issues, consistently meeting project milestones and deadlines
- Documented verification processes, test results, and issues to facilitate knowledge sharing and project continuity
- Presented two formal design reviews to management evaluating the progress, quality, and correctness of design verification efforts

**Delta Air Lines | Simulator Engineering Co-Op**
*Atlanta, GA | January 2021-July 2022*
- Edited and debugged C and FORTRAN programs implemented using real-time simulation on Unix-based platforms
- Ensured consistent training experience across simulator fleet by altering code on different host computers and operating systems
- Improved software efficiency to optimize simulator resources and increase simulator reliability
- Communicated with departments across company and government agencies to secure documentation for simulator modifications
- Researched and interpreted aircraft wiring schematics to debug simulation software and maintain data integrity
- Crafted technical reports detailing coded software modifications
- Partnered with pilots and instructors to identify and resolve simulator discrepancies to optimize pilot training
- Successfully on-boarded, trained, and mentored a new co-op student
- Initiated and scheduled monthly meetings with members of the engineering team and leadership
- Created a collaborative cross-divisional partnership between two engineering departments
- Worked with engineers from other companies to troubleshoot and implement software corrections

**Clemson University | Undergraduate Teaching Assistant**
*Clemson, SC | August 2020-December 2020*
- Aided general engineering professor by answering questions and explaining material in class of 40+ students
- Tutored student individuals and groups using collaborative methods to provide support and strengthen understanding

## Leadership

**Learning Leadership Institute**
*Raleigh, NC | Summer 2024*
The Graduate School at North Carolina State University provides graduate students and postdoctoral scholars a way to grow and enhance their leadership skills through the "Leadership

Learning Institute (LLI)" program. LLI consists of four short courses that focus on self-awareness, communication, influence and purpose. Each short course consists of three, 2-hour sessions (12 sessions total).

**Eta Kappa Nu (IEEE-HKN) - Vice President**
*Clemson, SC | 2022-2023*
Electrical and Computer Engineering Honor Society for top 1/5 of sophomores, 1/4 of juniors, and 1/3 of seniors at Clemson University

- Organized annual career fair for 100+ Electrical and Computer Engineering students and 12 companies totaling 20+ representatives
- Planned and led monthly meetings for 40+ members and weekly meetings for executive members
- Maintained attendance records and continuing requirements for each member
- Led department-wide Operation Christmas Child donation event
- Designed and distributed exclusive HKN Zeta Iota t-shirts

**CECAS Undergraduate Student Advisory Board - ECE Representative**
*Clemson, SC | 2022-2023*
College of Engineering, Computing, and Applied Sciences at Clemson University

- Created a partnership between the college and Tigertown Graphics to design and sell custom CECAS t-shirts individualized for each major
- Developed outreach events for students in the college to enhance the undergraduate experience
- Provided feedback to the Dean's office on relevant issues to help guide or influence college-level decisions
- Attended bimonthly board meetings and represent the ECE department student body
- Communicated information about ECE department activities, policies, and processes with board members from other departments
- Distributed information to the ECE department's student body

## Honors

- **Goodnight Doctoral Fellowship** - awarded to 30 Ph.D. students each year studying STEM or education at North Carolina State University
- **Rhodes Most Outstanding Senior in Computer Engineering** for the 2022-2023 academic year in the Holcombe Department of Electrical and Computer Engineering at Clemson University
- **Faculty Scholarship Award** at Clemson University upon 2023 graduation with a 4.0 GPA
- **Eta Kappa Nu Zeta Iota** - Electrical and Computer Engineering Honor Society at Clemson University for top 1/5 of sophomores, 1/4 of juniors, and 1/3 of seniors
- Appointed to the **CECAS Undergraduate Student Advisory Board** by the chair and faculty advisor of the Holcombe Department of Electrical and Computer Engineering to serve as one of three ECE student representatives
- Invited to attend Clemson University's annual **ECE External Board of Advocates** 2022 meeting as one of five ECE students to provide undergraduate feedback to industry leaders
- **President's List** at Clemson University Fall 2019-Spring 2023

## Technical Skills

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|---|---|---|
| C/C++ ●●●●○ | Logisim ●●●●○ | Digital Works ●●●○○ |
| Python ●●●●○ | LTspice ●●●●○ | R ●●●○○ |
| FORTRAN ●●●●○ | Verilog ●●●●○ | Prolog ●●●○○ |
| MATLAB ●●●●○ | SystemVerilog ●●●●○ | OCaml ●●●○○ |
| VS Code ●●●●○ | VHDL ●●●○○ | LaTeX ●●●○○ |
| GDB ●●●●○ | UVM ●●●○○ | HTML ●●●○○ |
| Unix ●●●●○ | Xcelium ●●●○○ | CSS ●●●○○ |
| JavaScript ●●○○○ | | |

## Relevant Courses

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|---|---|---|
| Neural Networks | Electronics | Wearable Biosensors |
| Detection & Estimation Theory | Logic & Computing Devices | Digital Computer Design |
| Pattern Recognition | Computer Organization | Integrated System Design |
| Computer Vision | Signal Processing | Linear Control Systems |
| R/Python | Microcontroller Interfacing | Computer Ethics |
| Data Science | Computer Networking | Linear Algebra |
| Embedded Computing | Operating Systems | Discrete Mathematics |
| Random Signal Analysis | Applied Statistical Methods | Senior Design |
| Electric Circuits | Statistical Learning | |

## Professional Skills

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|---|---|
| Technical Writing | Project Management |
| Organizing Meetings | Research & Analytics |
| Mentoring/Tutoring | Leading Teams |