Bennett James

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EDUCATION

NC STATE UNIVERSITY
MS in Computer Engineering
May 2021 | Raleigh, NC

NC STATE UNIVERSITY
BS in Computer Engineering
May 2020 | Raleigh, NC
College of Engineering
Cum. GPA: 3.558 / 4.0

LINKS

LinkedIn:// **bennett-james**
YouTube:// **Bennett James**

RELEVANT COURSES

GRADUATE COURSES
ECE560 - Embedded Systems Design
ECE561 - Embedded Systems Optimization
ECE563 - Micro-architecture
ECE564 - FPGA/ASIC design w/ Verilog

UNDERGRADUATE COURSES
ECE302 - Mircoelectronics
ECE306 - Intro to Embedded Systems
ECE309 - Data Structures and OOP
ECE310 - Complex Digital Systems
ECE492 - Java

SKILLS

PROGRAMMING
Proficient:
Verilog • C • C++ • Embedded C
Familiar:
Python • Java • Assembly • SQL

OTHER SKILLS
Embedded Systems Design • Embedded Systems Optimization • RTOS • ARM Cortex Processors • FPGA Design and Simulation (ModelSim) • Synthesizing FPGAs (Synopsys) • MIPS Pipelining • BFSK •

AWARDS

Deans's List (x5)
Simon Brown Woolard Scholarship - 2018
USMC Distinguished Athlete Award - 2016

EXPERIENCE

ROVISYS BUILDING TECHNOLOGIES | Systems Intern
May 2019 - Aug 2019 | Holly Springs, NC & Charleston, SC

- Designed HMI for a large data center to show and maintain precise measurements of all necessary specifications.
- Programmed PLCs using Ladder Logic.
- Commissioned systems to be turned over to client.

PROJECTS

G(T) GATE FOR AN LSTM | ECE564
Sep 2019 – Nov 2019
Designed and implemented g(t) gate within an LSTM using Verilog. This includes performing multiplication of 16 bit signed binary matrices, performing tanh on the resultants and interpolating for increased accuracy.

5 STAGE MIPS PIPELINE | ECE563
Jan 2020 – Feb 2020
Designed 5 stage pipeline in C++ designing the functions for handling asm files to read and perform respective instructions. Accounted for data hazards, structural hazards, and control hazards. Achieved full accuracy on integer and floating point pipelines.

ACCELEROMETER OPTIMIZATION | ECE560
Sep 2019 – Oct 2020
Using the FRDM-KL25Z's onboard accelerometer, optimized code for accelerometer updates. Optimization was done by looking at I2C communications and debug signals to determine where optimization could be insterted. Added a FSM to remove blocking code allowing control to be given back to the scheduler instead of being occupied in wait functions.

TOUCHSCREEN DISPLAY SHOWING LED CURRENT | ECE560
Nov 2019 - Dec 2019
Shared ADC between the Buck LED and touchscreen using message queues. Then added code to draw current from buck LED on a shield installed on a FRDM-KL25Z board. Buck LED was controllable from touchscreen to adjust certain parameters such as brightness, duty cycle, and flash period.

IOT ENABLED MINIATURE CAR | ECE306
Jan 2019 - Apr 2019
Small vehicle with capabilities to be controlled from phone or laptop. Functionality includes being able to navigate through a course following a black line and receiving directional commands from a user.

GPS OPTICAL COMMUNICATIONS | ECE484/485 Senior Design
Aug 2019 - Apr 2020
Tasked with implementing a method for communicating GPS data using optical means. Within a group used BFSK modulation on GPS data and transferred over an IR led. Personal responsibilities included modulating the GPS data and the mechanical enclosure.