Charles Preston Hill III

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EDUCATION

The University of Texas at Dallas, Richardson, TX - BSEE August 2020 – December 2024

- ⋆ Graduated: Fall 2024
- ⋆ Relevant Coursework: Signals and Systems, Electronic Devices, Electromagnetic Engineering, RF Design Principles, Systems and Controls, Telecommunications Networks, Intro to Power, Integrated Circuit Technology

Collin College, Frisco, TX - Associates of Science in Electrical Engineering May 2019 – June 2022

- ⋆ Phi Theta Kappa (PTK) Honor Society Member
- ⋆ Collin College's 2019 Dean's List

TECHNICAL SKILLS

Languages: C/C++, C# Language, Java, Python, 8051 Assembly Language, VHDL and Verilog Programming

Programs:

- ✪ AWR Microwave Office and PathWave ADS
- ✪ Digilent WaveForms Instrument Suite
- ✪ KiCAD EDA Suite
- ✪ National Instruments LabVIEW & Design Suite
- ✪ Onshape and Rhinoceros 3D CAD Software
- ✪ Cadence Allegro PSpice Analysis Utilities Software
- ✪ Keil MDK-Arm Development Tools
- ✪ MATLAB and MATLAB App Designer
- ✪ QT Design Studio
- ✪ Xilinx Vivado Design Suite

EXPERIENCE

Allegro MicroSystems January 2024 – December 2024

Software Engineer & Technical Project Lead (Senior UTDesign Project)

- ⋆ Managed and coordinated a diverse team to develop the Capacitive Coupling Analyzer, a Python-based tool that identifies and summarizes circuit design issues by analyzing top-level circuit design layouts
- ⋆ Outperformed SPICE runtime for circuits exceeding 1000 Capacitors, while maintaining near-identical accuracy

Natural Science and Engineering Research Laboratory (UT Dallas) August 2023 – December 2024

Undergraduate Research Assistant

- ⋆ Aided cutting-edge research in MEMS, nanotechnology, liquid metals, and strain sensors, contributing to innovative developments within the NSERL Micro/Nano Devices and Systems (MiNDs) Laboratory
- ⋆ Coordinated material procurement with UT Dallas vendors and analyzed data for reports presented to researchers
- ⋆ Developed embedded software in C/C++ for TI/Arduino Microcontrollers, enabling real-time data acquisition and closed-loop control for micropump/sensing systems
- ⋆ Leveraged CAD and 3D Printing tools for iterative pump prototype testing, performed device troubleshooting and reliability analyses, and ensured seamless hardware/software integration for different project objectives

SELECTED PROJECTS

Single-Stage RF Amplifiers (Lumped Element & Distributed TX Lines) | AWR Microwave Office

- ⋆ Designed two single-stage RF amplifiers utilizing lumped-element components and distributed TX lines
- ⋆ Successfully engineered RF amplifiers to surpass design specifications, achieving over 10 dB gain, input and output return losses above 20 dB, and bandwidth exceeding 10% at the target center frequency

Full-Wave Bridge Diode Rectifier PCB Design | Cadence Allegro PSpice PCB Design

- ⋆ Designed a minimal full-wave bridge diode rectifier, which smoothly converts AC signals into DC signals
- ⋆ Employed PSpice simulations of multiple PCB layouts to ensure optimal and efficient designs

FPGA Mealy Designed Finite State Machine | Xilinx Vivado (Artix-7 FPGA Family), Verilog

- ⋆ Wrote and designed Verilog code to implement a rising edge detector state machine and testbench scenarios
- ⋆ Reduced Final FPGA Resource Usage by 14% through performance benchmarking and code optimization

AFFILIATIONS

IntelliChoice (Non-profit Organization) | The University of Texas at Dallas November 2023 – Present

Volunteer Tutor

- ⋆ Aided K-12 students with tailored STEM education ensuring inclusive and differentiated support