Heming Wang

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Education:

Northwestern University — Evanston, IL
Master of Science, Electrical Engineering — Anticipated March 2021

University of Illinois — Urbana-Champaign, IL
Bachelor of Science, Electrical Engineering — May 2019
Minor, Physics

Related Coursework:

Circuit design and analysis	Analog and digital signal processing	Machine Learning
FPGA and VLSI	Control Systems	Computational Photography

Skills:

Programing Languages: C/C++, Python, SystemVerilog, VHDL
Applications: MATLAB, Simulink, Mathematica, Cadence Virtuoso, Eagle PCB, Kyma

- Skilled at graphing and digital filters implementation in MATLAB
- Experience in modeling dynamic systems in Simulink, as well as designing controllers
- Familiar with hand routing and building custom components in Eagle PCB

Master's Projects

Synthetic Wavelength Holography — February 2020-Present

- Setup and used dual wavelength interferometer to accurately capture 3D images
- Wrote Python code to synchronize and automate the lasers and lock-in camera, allowing users to acquire data more easily
- Experimenting with additional applications of the system, including seeing around the corners and through scattering media

Engineering Course Projects:

FPGA based FM Radio — January 2020-March 2020

- Implemented a hardware based digital FM radio using VHDL
- Using streaming architecture to eliminate memory address decoding and free up clock cycles
- Applied digital signal processing using FIR and IIR filters, and boost clock speed via hardware pipelining

Biometrics Class Final Project — September 2019-December 2019

- Designed a biometrics system in Python that recognizes the users based on their lip shapes
- Segment the lips of the subjects using *face-recognition* library
- Learn the features of the lip shapes with a MLP neural network

ECE 385 Digital System Laboratory Class Project — September 2018-December 2018

- Designed and implemented Flood-It using SystemVerilog on FPGA
- Set up a USB mouse driver and routed input signal from the mouse to control the game
- Drew text and symbols from the sprites stored in memory and generated colored blocks from combinational logic

Interests:

Signal processing in digital music, headphone and power amplifiers, PC Building, photography.