

Vanessa McHale

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Education

SEPT 2013 - MAY 2017 | UNIVERSITY OF WISCONSIN-MADISON

- Major: Mathematics

Graduate coursework

Math 721 – A First Course in Analysis
Math 741 – Abstract Algebra
Physics 711 – Dynamics
Physics 721 – Electrodynamics
Math 771 – Set Theory
Math 770 – Foundations of Mathematics

Undergraduate Coursework

Math 531 – Probability Theory
Math 567 – Elementary Number Theory
Math 551 – Elementary Topology

HIGH SCHOOL DIPLOMA | MAY 2013 | MONTGOMERY BLAIR HIGH SCHOOL

Coursework

Foundations of Computer Science
Linear Algebra
Algorithms and Data Structures

Experience

COMPILER ENGINEER | RECONFIGURE IO | JUNE 2017-

- I worked on a Go to Verilog compiler written in Haskell, fixing bugs, optimizing latches, and implementing constant saturation.
- I wrote Go code that ran linear regression on an FPGA using our compiler.

STUDENT HOURLY | CENTER FOR SLEEP AND CONSCIOUSNESS | JUNE 2015-AUGUST 2016

- I greatly improved an algorithm for the earth mover's distance with a specific metric; I also accelerated code by running it on a GPU
- The accelerated code ran comfortably on inputs 32 times the size of what was possible before, allowing researchers to study the information content or much more complex mechanisms.

STUDENT HOURLY | ERIKSSON LAB – UW PHYSICS DEPARTMENT | MAY 2014-AUGUST 2015

- I implemented Ethernet packet reception and data analysis on an FPGA, coding in VHDL.
- I designed and built a temperature and humidity monitoring system for the lab, which updated a web server that I set up using lighttpd. The system prevented equipment from overheating via email alerts.

Skills

HASKELL

- I am experienced with Haskell, having used it in language implementation. I am familiar with advanced concepts such as lenses and recursion schemes.

VHDL

- I wrote VHDL code that received Ethernet packets on an FPGA; I also wrote a driver for an analog-to-digital converter.

HASKELL + GPU

- I have used the Haskell accelerate library to run code on a GPU, including implementing the earth mover's distance on the GPU.

FRENCH & GERMAN

- I am fluent in French and proficient in German.