‍‍Vanessa McHale

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Education

BA | MAY 2017 | UNiversIty Of Wisconsin-Madison

* Major: Mathematics

**Graduate coursework**

**Undergraduate 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

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  
Algorithms and Data Structures

Experience

Intern | CarngeGie InstituTIOn of Washington – Geophysical LABORATORY | June-August 2012; May-August 2013

* I studied the electrocaloric effect using molecular dynamics, with the program DLPOLY.
* I wrote python scripts for data analysis, and made edits to FORTRAN code in order to simulate the cooling potential of material under strain.
* I wrote a paper and made a presentation in LaTeX at the end, providing theoretical evidence that solid-state refrigerators could be feasible at room temperature.

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.

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.

Skills

Haskell

* I am experienced with Haskell, having used it to accelerate code on a GPU and also to write language interpreters and parsers.

VHDL

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

Python

* I wrote scripts to perform data analysis and logging; I also have experience using python for scripting.

Bash Shell

* I can write bash scripts and use the command line.

French & German

* I am fluent in French and proficient in German.