Matthew Dutson

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Education

University of Wisconsin-Madison   **Madison, Wisconsin**

MS/PhD in Computer Science   Fall 2018 - Present

- Interests: Computer vision, graphics, machine learning

University of Utah   **Salt Lake City, Utah**

Honors Bachelor of Science in Physics   Fall 2013 - Spring 2018

- Magnum cum laude
- Minors: Computer science, mathematics
- Thesis: Reconstruction of Cosmic Ray Geometry Using Cherenkov Backscattering

Coursework and Languages

Selected coursework	Machine learning, optimization, computer graphics, algorithms, scientific computing, linear algebra, statistics, differential equations
Most experience	C++, Python, Java, Rust
Some experience	C, C#, Perl, JavaScript, LaTeX, Linux/UNIX

Work Experience

UW-Madison Computer Sciences   **Madison, Wisconsin**

Graduate Research Assistant   Spring 2020 - Present

- Advisor: Mohit Gupta
- Developing techniques for interpreting data from single-photon visual sensors.
- Exploring theory and applications of spiking neural networks.

Graduate Research Assistant   Fall 2018 - Spring 2019

- Advisors: Jignesh Patel, Kevin Eliceiri
- Collaborator on Hustle, a scalable replacement for SQLite written in Rust.
- Wrote a Java application to generate synthetic images of biological fiber networks.

Esri   **Redlands, California**

Map Exploration Software Intern   Summer 2019

- Created tools for high-performance visibility analysis in ArcGIS Pro.
- Leveraged machine learning for detecting objects in 3D urban scenes.

University of Utah Physics & Astronomy   **Salt Lake City, Utah**

Undergraduate Research Assistant   Spring 2016 - Summer 2018

- Advisor: Douglas Bergman
- Conducted research on atmospheric cosmic ray detection techniques.
- Operated the Telescope Array observatory in Delta, Utah.

IM Flash Technologies   **Lehi, Utah**

Process Software Intern   Summer 2017

- Wrote Perl scripts to improve the efficiency of manufacturing defect sourcing.

– Improved existing software to reduce errors in process time estimation by 97 percent.

Process Software Intern   Summer 2016
– Built a C++ computer vision application for detecting equipment malfunctions.

Teaching Experience

UW-Madison Computer Sciences   **Madison, Wisconsin**

Teaching Assistant   Fall 2019
– Course: CS 559 - Computer Graphics

University of Utah School of Computing   **Salt Lake City, Utah**

Teaching Assistant   Fall 2017
– Course: CS 2100 - Discrete Mathematics

University of Utah Physics & Astronomy   **Salt Lake City, Utah**

Teaching Assistant   Fall 2016 - Spring 2017
– Fall course: Physics 2010 - General Physics I
– Spring course: Physics 2020 - General Physics II

Private Tutor   Summer 2015 - Spring 2016
– Courses: College Algebra I, General Physics I & II, Physics for Scientists I & II, Introduction to Quantum Mechanics and Relativity
– Tutored 2-3 students each semester.

Volunteer Experience

UW-Madison Student ACM Chapter (SACM)   **Madison, Wisconsin**

Event Committee Officer   Spring 2019
– Responsible for planning and marketing CS student events.

Lowell Elementary School   **Madison, Wisconsin**

CS Club Leader   Fall 2018
– Coached 4th and 5th graders in Scratch programming and computational thinking.
– Managed behavior and attention of a large group.

Salt Lake Valley Science and Engineering Fair   **Salt Lake City, Utah**

Elementary Division Judge   Spring 2016, Spring 2017
– Evaluated projects at a regional science fair for K-12 students.
– Provided advice and mentorship throughout the evaluation process.

University of Utah College of Science   **Salt Lake City, Utah**

Science Day Volunteer   Fall 2015, Fall 2016
– Offered logistical support at an annual outreach event for high school students.