

Trowbridge Weed

tobyweed@gmail.com | GitHub: tobyweed

EXPERIENCE

Mathematics Research Intern

Middlebury College

Graph Theory Research - John Schmitt

Summer '21

- Reviewed and refereed papers in the theory of minimum saturated graphs and hypergraphs.
- Made progress on an open problem in extremal combinatorics.

Computer Science Research Intern

Middlebury College

Robotics & Computer Vision Research - Daniel Scharstein

Summer '19, Summer '20, Fall '20

- Implemented a robotic system to produce the next generation of the Middlebury Stereo Vision Datasets.
- Built up the system to achieve numerous production-quality, highly accurate ground truth depth maps.
- Wrote image processing, camera calibration, interprocess communication, and UI code in Swift, C++, C, and Python.
- Solved problems in a complex, interconnected software environment consisting of a UR5 robot arm, Ubuntu server, macOS server, and iOS device.
- Effectively and frequently communicated work to both technical and nontechnical parties.
- Github: <https://github.com/tobyweed/MobileLighting>

Ski Patroller

Middlebury, VT

Middlebury Snow Bowl Ski Patrol

January 2019-Present.

- Elected president Spring '21. Responsible for teaching and leading a 40-person Outdoor Emergency Care class.
- Lead on- and off-mountain training, emergency response, team-building, and logistics for 35-member student patrol.
- First responder with Outdoor Emergency Care and CPR certifications.

Software Engineering Intern

Remote

FirstTube Media

Summer '18.

- Designed and implemented a complete web app from the ground up.
- Programmed a standalone frontend using React and Redux and a backend API written with Python Flask and linked to a PostgreSQL database via a SQLAlchemy ORM layer.
- Application included customizable full-text search and a tiered permissions system.
- Deployed, linked, and maintained the two connected applications.

Other Experience

- **Projects**, September '17 - Present
 - Simulated cultural evolution with agent based models (https://tobyweed.shinyapps.io/tweed_langevo/).
 - Adapted SAT solvers to find placements to Martin Gardner's minimum no-3-in-a-line problem (github: <https://github.com/tobyweed/no3/tree/master>), writeup: (<https://www.cs.middlebury.edu/~tweed/no3.pdf>).
 - Contributed to the source code of an open-source Ethereum project (<https://kleros.io/>).
 - Designed & implemented a Java applet to explore cellular automata (<https://totalistic-cellular-automata.herokuapp.com/Automata.html>).
- **College CS Tutoring**, Middlebury College, February '19 to December '19: Tutored other students weekly in CS 201 (Data Structures) and 202 (Computer Architecture).
- **National Outdoor Leadership School**, Wind River Range, Summer '16: 28-day leadership backpacking course.

EDUCATION

Middlebury College

Middlebury, VT

Candidate for Bachelor of Arts, Mathematics

May 2022

GPA: 3.84/4.00

Activities: CS Tutoring, Student Organizations Committee, Ski Patrol, Computer Science Club.

Coursework: 12 math courses (including Real Analysis and Abstract Algebra), 7 physics courses (including Quantum Mechanics I & II and Applied Math for Physics), 3 CS courses, and 3 data science/statistics courses (including Statistical Learning).

TECHNICAL SKILLS

Programming: Java, R, Swift, JavaScript, Python, C++, CSS/HTML, OpenCV, React.js, C, Flask, Node.js.

Miscellaneous Software: LaTeX, Xcode, RStudio, Linux CLI, Microsoft Office Suite (Word, Excel, PowerPoint, Outlook), Adobe Creative Cloud (Photoshop, Illustrator).