

# Mitchell Nelson

🌐 nels4929.github.io

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## EDUCATION

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### University of St. Thomas

*BS in Computer Science - Minor in Applied Statistics*

**Saint Paul, MN**

*Expected Graduation: May 2020*

- GPA: 3.92/4.0
- President of Computer Science Club

## EXPERIENCE

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### Software Engineer Intern

*Leidos*

**Eagan, MN**

*June 2019 - August 2019*

- Improved a release up-leveling tool, used internally as well as by the FAA, to test air traffic management data
- Expanded the use cases of the tool by allowing XML to be processed in addition to binary inputs
- Implemented an XML parser that reformats custom data structures according to differences in source and target releases
- Utilized skills in C++, Boost, KornShell, Git, Linux

### Researcher

*University of St. Thomas*

**Saint Paul, MN**

*September 2018 - May 2019*

- Programmed high performance parallel code to optimize GPU performance for bit-map compression
- Developed test suites to measure execution time of code run on both a CPU and GPU
- Concluded that 85% of the GPU tests provide up to 33.25 X speedup over the parallel CPU implementation
- Utilized independent work and learning skills, CUDA, C++, Bash, GNU Debugger

### Grading Assistant

*University of St. Thomas*

**Saint Paul, MN**

*September 2018 - May 2019*

- Evaluated and graded weekly projects coded by students taking an introductory programming course

### Web Development Intern

*University of St. Thomas*

**Saint Paul, MN**

*February 2018 - August 2018*

- Developed a responsive intranet homepage geared for student productivity to be used as the default homepage for all students using on-campus computers (8,000 visits per day)
- Tested front-end code across a variety of devices and browsers spanning a wide range of screen resolutions

## SELECTED PROJECTS

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More projects available at [nels4929.github.io](https://nels4929.github.io)

### Computer Vision Drum Simulator

- Allows users to "air drum" in front of a webcam while hearing realistic drum sounds for each "hit"
- Tracks two colored drum sticks and calculates "hits" based off changes in downward movement
- Utilized knowledge in Python, OpenCV, NumPy

### Collaborative Music Creator

- Interactive web application that gives multiple users the power to create a collaborative drum beat in real time
- Syncs user interactions, such as play/pause, rhythm changes, and new sound additions across users in a session
- Utilized knowledge in JavaScript, Node.js, WebSocket, Vue.js, Git

## Skills

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**Proficient:** C++, C, Javascript, Java, CUDA, Linux, Git, HTML, CSS

**Familiar:** Python, Node.js, jQuery, SQL, R, JIRA