# Ryan Zurrin

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## Education

University of Massachusetts Boston, Boston, MA                                                         May 2023
  *Bachelor of Science: Computer Science, GPA: 3.3*
Berkshire Community College, Pittsfield, MA                                                              Aug 2020
  *Associates of Science: Computer Information Systems / Computer Science GPA: 3.7*
  - *Certificate in Computer Programming – Technical*

Udemy Certificates of Completion
  - Modern Artificial Intelligence with Zero Coding                                      November 2021
  - C programming language Beginner to Advanced                                          November 2021
  - C Language + Algorithms + Data Structures = Power                                    December 2021

Coursera Certificates of Completion
  - Build a website using React

                                                                October 2021

## Relevant Coursework

- Programming in Java I & II
- Programming in C
- Programming in C++ I & II
- Introduction to Algorithms
- Intermediate Computing with Algorithms
- Digital Circuits
- Data Structures
- Calculus, Discrete Math, Linear Algebra
- Web Design
- IT Essentials

## Technical Skills

- **Platforms:** Windows, Linux, UNIX, Raspberry Pi, Arduino
- **Languages:** Java (SE8 – SE11), C99 – C11, C++98 – C++20, Python 3+, HTML5, CSS3, JS ES6+, MATLAB (R2021a)
- **Skills:** Object-Oriented Programming, Algorithm Analysis, Web Design, WordPress, Google
- **Development Tools:** Visual Studio/Code, PyCharm, Sublime Text, IntelliJ, Terminal, Vim, MultiSIM, NetBeans, Eclipse, Git
- **Software:** Microsoft Office360 Suite, Google (Steets, Slides, Docs, Drive, Teachable Machines), DataRobot, GIMP Autodesk Fusion360

## Project Experience

Personal Projects

### Physics Classes for solving complex problems                                     Sep. 2020 – Current
- Built a physics library of header files that uses previous built vector classes, demonstrating modular design patterns.
- Incorporates various geometric objects which allow for computational geometry to be performed.
- Includes over 20 classes and over 15,000 lines of code in all using recent C++20 to achieve efficient algorithms.

### Various projects using my raspberry pi and Arduino's                                 2019 - 2020
- Build several small projects from basic blinking lights to more advanced things such as weather station to detect temperature, humidity, and rain.
- Using Arduino built an alarm to detect unwanted entry into my room.

Berkshire Community College, Pittsfield MA

### Design and build a website                                                          Sep. 2018 -2021
- Created GitHub account to manage all websites and coding projects.
- Integrated a third-party application for managing comments on my webpage.

### Group Project to design different card games                                         Apr. 2021
- Developed a playable card game program using C++, incorporating use of Abstract Data Type's, and Data Structure's.
- Coordinated several games into one menu-based game, allowing a user to select the game to play.
- Worked together using a GitHub repository and maintained close communication with team throughout the project.

### Command line vector and triangle calculator                                          Mar. 2020
- Devised 2D, 3D vectors, and triangle classes to allow for vector operations as well as the ability to solve triangles.
- Implemented a client program that allowed users to work with vectors and generate triangle data.

### Robotic Club                                                                     May 2019 – Apr. 2020
- Lead programmer on a team building a robot to take part in the Trinity College's International Fire Fighting Robot Contest.
- Using DFRobot microcontrollers and a variety of sensors, had to build program that allowed robot to move autonomously in an unknown environment looking for a burning candle. Once flame was detected the robot then had to position itself and turn on its fan to blow out the flame, then returning to its starting position. Ours could move and detect flame but we were never able to finish working on everything due to Covid closing everything down.

University of Massachusetts Boston
***Projects From Intermediate Data Structures Class***                                                    Sep. 2021 – Dec 2021
- *Percolation*. Implemented methods that allowed in determining if a system percolates and found the percolation threshold of a system made of a nxn grid of open and closed squares.
- *Autocomplete*. Implemented methods that would predict words that a user was about to type.
- *Puzzle*. Use of priority queues, recursion, and the A* algorithm, I was able to devise a solution which allowed the program to solve nxn puzzles of scrambled numbers, placing numbers in order and finding the fastest solution.
- *KDTrees*. Using a symbol table and 2D tree structures, I implemented methods that used recursion and pruning to find a points k nearest neighbors as well as found all the points within a rectangular section.
- *WordNet.* A semantic lexicon that used digraphs, separate chaining hashes and graph algorithms to allow a user to enter a pair of words and then the program was able to find the shortest common ancestors between the words. This program measured the semantic relatedness of two nouns, which refers to the degree to which two concepts are related.

### *Work Experience*

Freelance Web Design                                                                                          Jan. 2020 – Present
***Website Administrator***
- Designed, built, and maintain a website for local business Berkshire Builders 623.
- Produced a website to allow group members to register and purchase tickets for events and concerts. Integrated Eventbrite into site for ticket management and used WordPress as the CMS.
- Constructed tracking and scoring system used in the first annual Great Berkshire Scavenger Hunt.

Norman Rockwell Museum, Stockbridge, MA                                                          Jun. 2021 – Aug. 2021
***Technology Intern***
- Coordinated over 40 computers and mobile devices for digital experiences, including inventory and repairs.
- Wired the museum, beta-testing virtual exhibitions and setting up bug tracking software.
- Set-up and break-down A/V, 6 laptops, wireless microphones, and lightening equipment used for hybrid public/online programs each week.

Berkshire Community College, Pittsfield, MA                                                        Jan. 2018 – Apr. 2020
***IT Assistant | Computer Lab Assistant | STEM mentor | Tutor***
- Set-up campus computers for over 1000 staff and students, kept systems updated, and safe.
- Helped students navigate the school's technology and offered advice and tips.
- Mentored new STEM students and tutored for Digital Circuits and IT Essentials class.

### *Awards and Memberships*
- Dean's List – High Honors Awards                                        Spring 2019, Fall 2019, Spring 2021
- CIS Program Award                                                                                         Spring 2021
- Joseph H. Smith Jr. '45 Award                                                                         Spring 2021
- Robotics Club (lead programmer)                                                        Sep. 2018 – Apr. 2020
- Phi Theta Kappa, Communications Officer                                              Spring and Fall, 2019
- Institute of Electrical and Electronics Engineers (IEEE)                              Member since 2019