Ryan Zurrin

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Education

University of Massachusetts Boston, Boston, MA — Dec 2023

Bachelor of Science: Computer Science, GPA: 3.89

Berkshire Community College, Pittsfield, MA — Aug 2020

Associates of Science: Computer Information Systems / Computer Science GPA: 3.74

- *Certificate in Computer Programming – Technical* — May 2020

Relevant Coursework

- Programming in Java I & II
- Data Structures with Java
- Physics 113, 114
- Programming in C
- Programming in C++ I & II
- Introduction to Algorithms
- Intermediate Computing with Algorithms
- Advanced DS and Algorithms
- Computer Architecture
- Intro. Theory of Computation
- Blockchain Technology
- Digital Circuits
- Ethics in Technology
- Calculus, Discrete Math, Linear Algebra
- Web Design
- IT Essentials

Technical Skills

- **Platforms:** Windows 3.1 - 11, Linux, UNIX, Raspberry Pi, Arduino
- **Languages:** C++98 – C++20, C99 – C11, Java (SE8 – SE11), Python 3+, R, HTML5, CSS3, JavaScript (ES6+), MATLAB (R2021a+), Bash, Coq, Latex
- **Skills:** Object-Oriented Programming, API design, algorithm analysis, web design, content management systems(CMS), bash scripting, research, learning new things, master Googler, communication, organized and very motivated
- **Development Tools:** Visual Studio/Code, JetBrains IDE's, Sublime Text, Jupyter Notebook, Anaconda, Terminal/bash, Vim, MultiSIM, NetBeans, Eclipse, Git, GitHub, working on High Performance Compute (HPC) clusters, SSH, AWS(EC2, S3).
- **Other Software:** Microsoft Office360 Suite, Google (Sheets, Slides, Docs, Drive, Teachable Machines), Overleaf, Data Robot, GIMP, Autodesk Fusion360, Slack, Teams, Discord, 3DSlicer

Project Experience

University of Massachusetts Boston, Boston MA

Developed multi-stage algorithm for detecting outliers in mammograms — Feb. 2022 - Current

- Experimented with multiple algorithms, features, and normalization combinations using unsupervised machine learning in order to find most accurate means of removing unwanted data.
- Learned about hyperparameter optimization, experiment tracking, and scientific methods for research.

Berkshire Community College, Pittsfield MA

Design and build a website — Sep. 2018 -2021

- Created GitHub account to manage personal website and coding projects.
- Experience using CMS, as well as ability to build full sites from scratch using HTML, CSS, and JS.

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 with team using a GitHub repository and maintained close communication throughout the project.

Physics Library in C++, using Object Oriented design patterns — Mar. 2020

- Built multiple class libraries containing static methods for solving complex physics problems.
- Includes custom built Matrix and Vector classes as well as use of 3rd party libraries for use of visualizations.

Work Experience

Brigham and Women's Hospital — Aug. 2022 – Present

Undergraduate researcher in the Psychiatry department

- Working on neuroimage preprocessing pipeline for cleaning and standardizing brain data for use in the Human Connectome Project.
- Working with a diverse team of researchers exploring the relationship between brain connectivity and possible psychiatric disorders.

University of Massachusetts, Machine Psychology Department Researcher — Feb. 2022 – Present

Machine Psychology Fellow, Data Science researcher

- Doing breast cancer research using machine learning. Training data which will eventually become the world's largest opensource mammography database named the Oregon-Massachusetts Mammography Database (OMAMA-DB).
- Personally responsible for building our data exploration APIs which allow us to access the remote data in a way that is simple and fast. Built a streamlined frontend ROI annotation tool which gives users a interface for connecting to the remote Dicom data. Also designed and built the API used for running the classification software, making what was a complex process into a very easy and straightforward process.
- Working closely with a team of fellow researchers and a mentor, we are all helping each other to learn as much as possible within our domain of research. We are applying modern machine learning techniques using a dual classifier setup in hopes to eventually achieve better cancer detection models. The end goal is to generate a dataset of 70,000 2D and 3D mammograms, which will be fully annotated and labeled for public use.

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
- Falconer Award – Fine Arts — Spring 2019
- CIS Program Award — Spring 2021
- Joseph H. Smith Jr. '45 Award — Spring 2021
- Robotics Club — Sep. 2018 – Apr. 2020
- Phi Theta Kappa, Communications Officer — Spring, Fall, 2019
- UMB Computer Science Club — Fall 2021, Spring 2022
- CSM Undergraduate Research Fellowship — Fall 2022
- Poster winner at HPC day at UMass Lowel — September 2022