

# JAY BURKHARDT

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## Education

**University of Massachusetts, Boston**  
**Bachelor of Science in Computer Science**  
*Summa cum laude*

Jan 2021 - May 2022

**Middlesex Community College**  
**Associate of Science in Computer Science**

Jan 2018 - Jan 2021

**Courses:** Compilers, Advanced Algorithms, Operating Systems, Higher Level Languages, Database Management, Ethics in Computing, Computer Architecture and Organization, Theory of Computation, Graphics, Linear Algebra, Discrete Math.

## Skills

Languages: JavaScript, C, Java, Python, TypeScript, Scheme, Coq  
Technologies: React.js, Git, Vim, VSCode, IntelliJ, Jupyter  
Platforms: Ubuntu, Windows 10

## Experience

**NYU Grossman School of Medicine with UMass Boston**

Boston, MA

Undergraduate Research Assistant – Front-End Team

Sept 2021 – Present

- Created N-Tools-Browser, a front-end 3D medical visualization application for examining electrode data for clinicians, scientists, and researchers at NYU Grossman School of Medicine.
- Used the X-Toolkit, a graphics library built upon WebGL.
- Developed functionality for mapping electrode coordinates to MRI scans.
- Implemented features for editing electrode attributes and adding annotations.
- Published paper in [Frontiers in Bioinformatics – Data Visualization](#).

## Projects

**Connect-Four Minimax AI**

- Connect-four AI in React.js with TypeScript using a minimax depth-first function and normal distribution heuristic function to evaluate board positions.
- Used alpha-beta pruning to reduce the search space.

**Hamming (7, 4) RAID 2 Encoding and Decoding**

- Implemented a RAID 2 encoding in C using Hamming (7, 4) codes to encode plain text files into seven text files to simulate seven drives.
- Decodes the seven files into the original file even if one text file is corrupted.

## Other Experience

**Middlesex ACE Department**

Lowell, MA

Supplemental Calculus Instructor

Sept 2018 – Dec 2018

- Developed lesson plans and taught differential calculus to small groups of students twice a week.
- Met with students for one-on-one tutoring.
- Attended monthly training modules to improve teaching skills.