

# Ryan C Mitchell

(603) 717-8797   mitchell.rya@husky.neu.edu   812 Parker Street, Boston, MA 02120

Available: July-December 2021 -- [GitHub](#) -- [LinkedIn](#) -- [Website](#)

## Education

**Northeastern University, Boston, MA**

**Fall 2018 - Present**

Khoury College of Computer Sciences (GPA: 3.749)

Candidate for Bachelor of Science in Computer Science, May 2022

### Relevant courses:

NU-GPU 101 (NUCAR GPU Programming), Building Game Engines, Programming Languages, Computer Systems, Computer Networks, Object Oriented Design, Algorithms and Data, Discrete Structures, Embedded Design, Theory of Computation, Database Design

### Distinctions:

Honors Program, Deans List, Technology Director for Northeastern Club Esports

## Technical Knowledge

**Languages:** C, C++, Python, Java, TypeScript, JavaScript, SQL, HTML, C#

**Systems:** MAC OS X, Windows, Ubuntu

**Programs and Applications:** LLVM Compiler Infrastructure, IntelliJ IDEA, Eclipse, Visual Studio, Github, Jupyter Notebook

## Work Experience

**Fuzzing LLVM Constraint Research, Northeastern University**

**January 2021 -**

- Extracting symbolic constraints from target binaries to improve fuzzing/concolic execution.
- Instrumenting LLVM bitcode to provide compiler-time concolic execution overhead, shown to be an improvement by [SymCC](#).
- Working with a team of researchers doing adjacent research to further the field of fuzzing.

**COOP - Advanced Micro Devices (AMD)**

**January 2020 - June 2020**

- Worked on the shader compiler team to analyze shader and game performance.
- Developed a database system and performance dashboard for handling data collection and presentation across thousands of shaders.
- Integrated the continuous production of shader data, generated by existing team efforts, into my database-backed dashboard.
- Continuously created own plans and documentation for my project without prompting.
- Communicated with peers to establish mentor-mentor relationships with a feedback loop for constantly improving upon existing work.
- Quickly adapted to and absorbed many new concepts, even those unrelated to my project, which my teammates had exposed me to.
- Placed a strong emphasis on writing robust code and providing abstractions for peers - such that it was an easy task to mentor a coworker through the integration of his data from an adjacent project into his own dashboard page.

**Khoury College Computer Science Tutor, Northeastern University**

**Object Oriented Design, Fundies 2**

- Actively engages students in coursework through office hours and lab time, enhancing their class experience.
- Organized and available, both to course staff and students, 15 hours a week.
- Have learned to efficiently manage my workload so that I can be an effective employee as well as student.

## Projects and Achievements

### Your Friendly Pokedex

- Co-created a Pokedex Discord bot using Java and SQL that serves all your pokedex needs.
- Went through the design process of creating a conceptual design -> logical design -> physical design.

### SurviveVR - Virtual Reality Game

- 2 month long project made in the Unity Engine that employed the use of shaders, AI, and VR mechanics.
- A true learning experience. Going from knowing nothing to having a deliverable was a unique and fun experience.

### Homemade Drone

- Created a drone using self-designed circuitry with a raspberry pi and a 3d-printed frame, destroyed it spectacularly.
- Was an invaluable learning experience that taught me patience and diligence, I had never gotten my hands dirty to that level.

### Achievements

- Received a certificate for **Neural Networks and Deep Learning** from Coursera.
- Researched and contributed to a Python -> TypeScript transpiler with David Holmes - <https://github.com/geometryzen>
- Took an active role in organizing and inventing a robot to achieve a victory at FRC (FIRST Robotics) regionals as team captain.

**Interests:** GPU programming, Java programming, Competitive ESports, Database Design