

# Matthew Mabrey

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## Experience

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### Green TCNJ Environmental App

Aug. 2020 to Present

#### Full Stack Web App Developer

JavaScript, HTML, CSS, PHP, SQL | Ionic, Angular, MySQL, MariaDB, Apache

- Creating a cross platform mobile application for The College of New Jersey's environmental and recycling initiatives.
- Implementing the database and associated functionality needed for recycling material guidelines, environmental events, and relevant news.
- Building the front end mobile application and web browser admin portal to display and manage database information.

### Device Security

Sep. to Dec. 2018

#### Undergraduate Student Research

- Researched security flaws in current mobile device technology.
- Analyzed malware and virus vulnerabilities of popular mobile device operating systems.
- Assessed the mobile device security options currently available to consumers.

## Education

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### The College of New Jersey (TCNJ)

Expected Dec. 2021

#### Bachelors of Science, Computer Science

- **Cumulative GPA:** 4.0/4.0
- **Dean's List:** 6/6 Semesters
- **Honors:** Mu Alpha Theta Mathematics Honor Society
- **Clubs & Activities:** TCNJ's Game Design Club and Philanthropy Chair of Alpha Chi Rho Collegiate Fraternity
- **Relevant Courses:** Data Structures, Algorithms, Artificial Intelligence, Networking, Web Design, Computer Architecture, Operating Systems, Calculus II, Statistical Inference, Game Design

## Projects

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### Online Chat Room with Video and Text

Oct. 2020

C, HTML, JavaScript | VSCode, WebRTC, PeerJS

- Designed a low-level text based chat room program in C using a client-server model.
- Utilized HTML, JavaScript, and WebRTC to migrate the same functionality into the browser using a peer-to-peer model.
- Implemented video conferencing similar to services like Zoom or Skype.

### Demolition Derby Game

Jun. 2019 to Aug. 2020

C# | Unity Engine, Microsoft Visual Studio, Blender

- Created a fully functional independent 3D multiplayer video game with the Unity Engine.
- Utilized a networking framework to implement remote procedure calls, object-synchronization, and events to synchronize multiple clients and develop a competitive last-man-standing car game.

### AI Game Solving Agent

Mar. to May 2020

Python | PyCharm, Numpy, Pygame, Python Arcade Library

- Used Python to create a rational game solving agent that successfully completes 10 stages of an arcade game for The College of New Jersey's Artificial Intelligence course final project.
- Designed the agent to avoid obstacles and adversaries while maximizing its score through the collection of targets in as little time as possible.

### Water Level Prediction

Feb. 2020

Python | PyCharm, Numpy, Matplotlib

- Used Python to implement Kalman Filtering, a common technique used for object tracking, for an extra credit project in Artificial Intelligence course at The College of New Jersey.
- Predicted the water level of a simulated stable, filling, or sloshing water tank over time from inaccurate sensors and data.

## Skills

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**Back End Languages:** C/C++, C#, Java, Python, PHP, SQL

**Front End Languages:** HTML, CSS, JavaScript, TypeScript, JQuery

**Tools, Libraries, Frameworks, & Runtimes:** Angular, Ionic, Unity Engine, Unreal Engine, Blender, Photoshop