

John Edward Carrota

<https://pointbe.ing/>

Education

Worcester Polytechnic Institute (WPI) | Worcester, MA

GPA 3.84 / 4.0

Bachelor of Science in Computer Science ♦ High Distinction

May 2024

Bachelor of Science in Interactive Media Technology ♦ High Distinction

May 2024

Salisbury Prize for distinguished degree completion in Interactive Media

April 2024

Technical Skills

Languages

C, C++, Java/C#, Python, Javascript, HTML, CSS, SQL

Tools/Platforms

Unix, React, Svelte, Node.js, Express.js, Flask, MongoDB (NoSQL), Figma, Docker, GitHub

Work Experience

Intentional Design Studio (for WPI MME) | Worcester, MA

July - October 2024

Full-Stack Programmer and UX Consultant

- ♦ Streamlined user and class registration for an educational Unity app + Svelte web portal.
- ♦ Built email and URL invite features secured by SSO (Firebase) for university class formation.
- ♦ Updated existing Flask (Python) API to satisfy demonstration and trial classroom use cases.
- ♦ Implemented an admin panel to afford comprehensive app control to non-developer faculty.

Foundations of Digital Games 2024 | Worcester, MA

July 2023 - May 2024

Web Chair

- ♦ Designed and created the website for an international conference of over 140 attendees.
- ♦ Prioritized recognition while building a branded CSS stylesheet and HTML layout from scratch; adapted metaphors and symbology provided by the Bootstrap CDN for FDG use.
- ♦ Coordinated with organizers and Microsoft sponsor contacts to address emergent needs.

Intentional Design Studio (for WPI CPBL) | Worcester, MA

May - August 2023

Frontend Programmer Consultant

- ♦ Co-visualized and developed an interactive tool for institutional capacity building in React.
- ♦ Worked closely with the client to distill rich academic content into an approachable form.
- ♦ Built a procedural JSX directory with hierarchical routing and multiple visualization modes.
- ♦ Under the IUSE-EHR: Institutional Transformation Using Project-Based Learning grant. PI Kris Wobbe; NSF #2020978. Funded, \$300,000.

Projects

Major Qualifying Project (MQP) | Worcester, MA

August 2023 - May 2024

Comroddity, the Alternate Reality Game Show

- ♦ Scripted and deployed a React web app proctoring an immersive narrative experience.
- ♦ Adapted to design team Figma input while building poll, live feed, and video gallery features, iterating quickly on frontend JSX and CSS to honor visual language adjustments.
- ♦ Developed an Express.js REST API with MongoDB and Okta Auth0 security integration.
- ♦ Handled deployment of three static HTML/JS "story" sites utilizing game API requests.
- ♦ Maintained a NoSQL cloud database tracking 60+ players' contributions over four weeks.

Experiment in Engine Level AI-Driven Content Filtering | Worcester, MA

March - May 2023

- ◊ Explored theoretical usage of computer vision in seamless censoring of visual content.
- ◊ Developed a prototype telemetry plugin for flagging content in Unreal editor gameplay.
- ◊ Wrote a C++ component for modified scene capture, including an object ID pass.
- ◊ Scripted a Python module and Slate UI pane for running Google Cloud Vision analysis on game capture – used bounding boxes and the ID pass to match “offending” tags to objects.
- ◊ Created a minimal console tool to test DALL-E replacement content within bounding boxes.

Alternative Control, *Customer Copy* | Worcester, MA / National Harbor, MD

January 2023 - 2024

- ◊ Devised an experimental input/output scheme repurposing the hardware of a cash register.
- ◊ Wrote a lightweight Python engine unifying a receipt printer, scanner, and drawer in a week, and worked with a small team for three weeks to develop a “point-and-scan” game demo.
- ◊ Constructed a standalone enclosure and installed it for 72-hour usage at a games festival.
- ◊ Informally observed a subset of the 112+ unassisted trials, gleaned usability insights.

Interactive Qualifying Project (IQP) | Nantucket, MA

October - December 2022

Story Mapping Sea Level Rise for the Nantucket Historical Association

- ◊ Created an interactive web schematic of the Nantucket Whaling Museum in ArcGIS.
- ◊ Collated and visualized data capturing present and future vulnerabilities to water intrusion.
- ◊ Presented local findings at a symposium for National Parks Service climate specialists.

Image Classification Model with Python and Keras | Worcester, MA

October 2022

- ◊ Trained a simple neural network – limited to dense layers – on the CIFAR-10 image dataset.
- ◊ Experimented with sequences of activation functions to improve prediction accuracy.

Administrative Application for Brigham & Women’s Hospital | Worcester, MA

March - May 2022

- ◊ Practiced the Agile framework via full-stack development on prototype hospital software.
- ◊ Acted as Scrum Master for 11 student developers, ensuring a cohesive team process.
- ◊ Wrote Java utility classes to simplify relational database queries and CSV backup I/O.
- ◊ Composed a welcoming and intuitive UI visual/control standard in Figma and later JavaFX.

Construction and Adaptation of the *Dragonfly Engine* | Worcester, MA

January - May 2022

- ◊ Programmed a fully-featured variation of an educational ASCII game engine in C++.
- ◊ Learned and used an unfamiliar cross-platform library (SFML) for GUI rendering and input.
- ◊ Employed an object-oriented approach to safely handle arbitrary agent creation/deletion.
- ◊ Ported foundational modules to frontend JS, integrating them into the *Perlenspiel 3* web engine to drive instantiation and frame update functionality.