John Edward Carrotta

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 Winner for distinguished degree completion in Interactive Media   April 2024
Candidate selected per department; 22 awarded to graduating class.

Technical Skills

Languages	C, C++, Java/C#, Python, Javascript, HTML, CSS, JSON, SQL
Tools/Platforms	React, Node.js, Svelte, JavaFX, Flask, MongoDB (NoSQL), Figma, GitHub

Work Experience

Intentional Design Studio (for WPI MME) │ Worcester, MA   July 2024 - Present

Full-Stack Programmer and UX Consultant

◇ Simplifying user and class registration for an educational Unity app + Svelte web portal.

◇ Building email/URL invite features secured by SSO (Firebase) for university class formation.

◇ Updating existing Flask (Python) API to satisfy demonstration and trial classroom use cases.

◇ Reviewing and extending transfer documentation on Flask server routes and the tech stack.

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, gleaning 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 streamline 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.