

# MATT DEMBICZAK

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## EDUCATION

### Pennsylvania State University

B.S. in Computer Science, B.D in Digital Arts & Media Design

Aug 2020 – May 2025

University Park, PA

- 3.97 GPA
- ACM DevPSU Learning Captain, Teaching Assistant for DART 315: Game Studio

## EXPERIENCE

### Software Engineer Intern

Khan Academy

May 2024 – Aug 2024

Remote

- Led the development of a speech-to-text feature launch for Khanmigo, an AI-powered tutor, by implementing a custom React hook to manage microphone access and interface with a REST endpoint that transcribes binary audio data using OpenAI's Whisper API
- Drove an architecture decision document discussing ways of ensuring datastore consistency when new fields are added to models, resulting in a decision that affects the entire engineering organization
- Streamlined the process of enabling language support for Khanmigo by consolidating logic into the backend and adding a GraphQL endpoint for retrieving the list of supported languages
- Collaborated on the generation and handling of over 20,000 image descriptions for images missing alt-text using computer vision by parsing the generated data and uploading it to a production datastore
- **Skills:** Go, GraphQL, React, Typescript

### Systems Software Engineer Intern

Hewlett Packard Enterprise

May 2023 – Aug 2023

Durham, NC

- Overhauled block storage nightly integration testing by containerizing testing environments
- Reduced nightly testing setup time by 90%, saving 80+ hours per day of testing time across all systems, by implementing a Continuous Integration pipeline that automatically builds and distributes Docker images capable of running integration tests
- Adapted a full stack web application responsible for running and managing integration tests by modifying both the frontend and backend infrastructure to add support for containerized testing
- **Skills:** Docker, Vue.js, Python, MongoDB, Continuous Integration

### Research Assistant

Pennsylvania State University

Apr 2023 – May 2023

State College, PA

- Designed and implemented software interactions for Textural Threshold, an interactive exhibition on display at Venice Architecture Biennale 2023 in collaboration with professors at Penn State University
- Automated the exhibition by interfacing a Python script with various hardware components and displaying exhibition results on a local web application using Flask
- **Skills:** Python, Flask, Arduino

### Research Programmer

University of Pittsburgh PHDL

May 2021 – Aug 2022

Remote

- Collaborated on a Python project that creates synthetic populations by interacting with the US Census API to retrieve and manipulate population data for iterative proportional fitting
- Contributed to a C++ project that simulated epidemiological dynamics by reducing log file size using a modular class-based logging system
- **Skills:** Python, C++, Object Oriented Programming, REST APIs

## PROJECTS

### RGB | JavaScript, WebGL, Three.js | GitHub Repo

2023-2024

- Developed a creative web application that investigates how computers store and interpret images as data
- Utilized Three.js and WebGL to filter a random image's color values and display them independently in a 3D UI
- Displayed the project in the Golumbic Scholarship Exhibition as one of eleven students in the College of Arts and Architecture selected to create an installation