Seth A. Fancher

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EDUCATION

University of Michigan, College of Engineering - Ann Arbor, MI *Expected Graduation: May 2023*

- B.S.E. in Computer Science and Engineering *Cumulative GPA: 3.95*
- Relevant Coursework: Data Structures and Algorithms, Computer Organization (Currently enrolled)

EMPLOYMENT

Introduction to Computers and Programming (ENGR 101) - *Teaching Assistant* *Aug 2020 - Present*

- Led weekly office hours and interactive labs to aid 600 first year engineering students in projects and crucial programming principles using both C++ and MATLAB
- Produced short video lectures in order to convert content to a remote format during the COVID-19 pandemic
- Collaborated with other staff members to proofread, proctor, and grade virtual student examinations

Multidisciplinary Design Program - *Software Research Fellow* *May 2020 - Sep 2020*

- Implemented computer vision algorithms for use on video research datasets at the University of Michigan Transportation Research Institute on team DEVIATE (Data Elements from Video using Impartial Algorithm Tools for Extraction) in an agile environment utilizing daily scrum meetings
- Constructed and tested a tree-like data structure in Python containing video objects, along with their children and attributes, in order to track and save user-bounded objects throughout video frames
- Helped to create a poster and abstract to showcase the team's software design at the MDP Design Exposition

PROJECTS - *github.com/sethafancher*

SQL Relational Database (C++, SQL) *Nov 2020*

- Constructed a relational database with an interactive interface based on a modified subset of SQL
- Used hash tables, BSTs, and optional user generated data indices to efficiently retrieve, edit, and join databases based on user console input

Go Fish, Euchre (C++) *Feb 2020 - Jul 2020*

- Designed and implemented a card game console application able to play both Go Fish and Euchre with optional human or AI players using object oriented programming principles and hash tables
- Created intelligent AI players that make sensible decisions based upon their current hand and information gained from previous cards played in the game

Personal Portfolio Website (HTML5, CSS3) - *sethafancher.github.io* *May 2020 - Jun 2020*

- Published an untemplated portfolio website that includes a resume, projects, and contact information

Piazza Post Classifier (C++) *Apr 2020*

- Constructed a multivariate Bernoulli naïve Bayes classifier for posts on the Piazza student forum
- Used natural language processing and machine learning techniques to allow the algorithm to learn and predict categories for given posts on the forum

Content Aware Image Resizer (C++) *Jan 2020*

- Implemented a console application that performs content aware resizing of images
- Used the seam carving algorithm and basic computer vision principles to remove pixel paths in a given image while maintaining photorealism

Whirlpool Innovation Challenge (SOLIDWORKS) *Sep 2018 - Feb 2019*

- Collaborated with a team to engineer and market a new Stand Mixer accessory for KitchenAid
- Used SOLIDWORKS to create and print a functional alpha prototype of the product after analyzing the results of multiple surveys
- Presented a business plan and prototype to a team of Whirlpool executives, placing in top ten of 31 teams

SKILLS AND TECHNOLOGIES

Programming Languages: C++, MATLAB, Python, HTML5, CSS3, SQL, GNU Bash
Tools, Applications: Git, Ubuntu (Linux), Visual Studio, Android Studio, SOLIDWORKS