Harrison Matthew Kaiser

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Education

BS COMPUTER SCIENCE and BS ELECTRICAL ENGINEERING | TUFTS UNIVERSITY | 2019
MS COMPUTER SCIENCE | TUFTS UNIVERSITY | 2020

- GPA 3.39
- **Computer Science**: Machine Structures and Assembly Language, Algorithms, Special Topics in Algorithms Data Structures and Graph Theory, Computational Geometry, Operating Systems, Microprocessor Architecture, Computational Theory, Computer Graphics, Information Theory
- **Electrical Engineering**: Junior Design Project, Probabilistic Systems Analysis, Linear Systems, Transistor Analog & Digital Design, Differential Equations, Linear Algebra, Discrete Math, Mathematical Modeling

Work Experience

THE MITRE CORPORATION | EMBEDDED SYSTEMS INTERN | JANUARY 2018 –

- Expanded an internal tool based on Matplotlib so that it could be used to produce new types of plots. Worked with a team to refactor the internally organically developed plotting tool for modularity and expandability. Moved the tool from Python 2 to Python 3, ensured that the team's needs were being met during the transition. Thoroughly documented the changes and ensured that team members understood the changes as they were made. Made changes such that the the tool could be expanded and used by other teams.

TUFTS UNIVERSITY | TEACHING ASSISTANT

- Operating Systems: September 2018 -
- Machine Structure and Assembly Language: January 2018 - May 2018
- Algorithms: July 2017 - May 2018
- Provided students with help in the lab on weekly basis. Help included exploring a students understanding of the topic to find problems in their understanding, helping students find bugs in their code, providing a comprehensive understanding of C code, operating systems, algorithms, and assembly programing. Graded students design documents and homework.

AXALTA COATING SYSTEMS | CONTRACTOR | JULY 2017 – AUGUST 2017

- Used Python to connect Salesforce records from one part of the company with an outside company's records. Looked for similarities between records using Levenshtein Edit Distance to match 100,000 records.
- In the process of updating the records found licences to be cancelled which saved about $1500/month and made the SalesForce system work better for the sales team.

Projects

KIRKPATRICK POINT LOCATION | DECEMBER 2017

- Developed a project to visualize the process of point location. Point location takes an input set of polygons and builds a directed acyclic graph that allows us to quickly determine the polygon a given point is inside.
- Hosted at: https://github.com/uwaces/DAGit

BINARY SEARCH TREE ANALYSIS | APRIL 2017

- Developed a project to visualize the nuances of different types of Binary Search Trees. The visualizations provided insight to the reasons behind using various trees and also showed the mathematical property of being "arboreally satisfied". The project visualized the results of a large set of operations performed on different trees including the following binary tree types: Simple, Red-Black, AVL, Weak AVL and Optimal Static.
- Hosted at: https://github.com/forsooth/BST-analysis

POLYHACK | TUFTS UNIVERSITY | OCTOBER 2015 & 2016

- Developed a programming language, Parlance, for visually impaired programmers, including a trans-compiler into C. The language was such that one could code with their voice, given the right Speech-to-Text program.
- Hosted at: https://github.com/Iguanotron/parlance