Taylor Cox, Software Engineer

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PROFILE

Results-driven software engineer with a proven track record in developing and implementing software and hardware solutions for diverse businesses. Proficient in designing and deploying a wide range of applications, including desktop software, embedded systems, AI-powered APIs, websites, hypervisors, and offering hardware consulting expertise. Experienced in leading small to medium-sized teams, effectively collaborating to deliver high-quality software solutions. Skilled in the entire software development life-cycle, from development and testing to documentation and monitoring. Adept at engaging with business executives and product owners to understand requirements and ensure the delivery of robust software solutions. Seeking junior-level software engineering positions to contribute my expertise and passion for creating innovative solutions.

EMPLOYMENT HISTORY

Mar 2021 — Oct 2022

Developer / Researcher, ASSISTments

Worcester, MA

LIVE-CHART

- Led the revitalization of a web application dedicated to evaluating in-class assignment progress, leading to improved efficiency and enhanced functionality.
- Optimized both front-end and back-end components to facilitate seamless interaction between teachers and students, and produced solution for real-time communication between client and server, resulting in a marked increase in in-class teacher productivity.
- Employed a robust technology stack, including jQuery, JSP, Java Spring, and PostgreSQL, to deliver a reliable and scalable solution.
- Collaborated closely with stakeholders to understand their requirements and implemented innovative features to enhance the user experience and overall application performance.
- Contributed to the web application's success by revitalizing its code base, resulting in improved efficiency, enhanced functionality, and seamless teacher-student interaction.

Student Gaming, Affect, and Mastery Service

- Designed and developed a robust REST API and user-friendly website, empowering data scientists to effortlessly upload and compare machine learning algorithms using ASSISTments student data.
- Led a dedicated team to implement dynamic visualization of algorithm output on anonymized student data, enabling researchers to compare two algorithms swiftly.
- Implemented an advanced technology stack which included Python, Flask, psycopg2, JavaScript (React), HTML, CSS, D3.js, and Linux Docker containers, facilitating seamless deployment on an AWS EC2 instance.

BKT (Bayesian Knowledge Tracing) Service

- Architected and implemented a robust REST API for the BKT service, enabling seamless addition of teachers and their classes to an opt-in platform. This service provided interested parties with skill mastery probability data.
- Employed caching mechanisms to optimize data retrieval by leveraging a local PostgreSQL container. This approach resulted in a significant tenfold increase in data acquisition efficiency and facilitated streamlined research processes.
- Developed the solution utilizing Python, pyBKT, Flask, Postman, and Docker, ensuring a reliable and scalable deployment on an AWS EC2 instance.
- Contributed to the success of the BKT service by delivering a high-quality API solution, empowering teachers and enhancing the accuracy of skill mastery predictions for interested parties.

Jan 2022 — Mar 2022

Web Developer / Embedded Programming (Contract), eSki

Worcester, MA

WordPress Website

- Conceptualized and launched a dynamic WordPress website with a focus on facilitating pre-orders, subscription tracking, and critical public outreach initiatives.
- Achieved remarkable results, driving a significant increase in website traffic, with a notable 1,000 visitors within the first three months. Furthermore, implemented retention strategies resulting in a fivefold increase in user engagement.
- Leveraged the power of Google Cloud Platform Compute Engine to create a scalable and reliable website infrastructure, ensuring seamless performance and optimal user experience.
- Collaborated closely with stakeholders to understand their objectives and implemented innovative design elements to enhance user engagement and conversion rates.
- Contributed to the organization's growth and success by delivering a visually appealing and functionally robust WordPress website that effectively fulfilled mission-critical objectives.

Temperature Chamber Controller

- Developed and implemented low-level code for Arduino Uno to effectively read sensor information and generate precise control signals based on the temperature chamber state, specifically for the battery management system's critical components.
- Collaborated closely with the hardware team to understand the specific requirements and seamlessly integrated the Arduino Uno into the system architecture.
- Utilized expertise in programming and hardware interfacing to create a robust and reliable codebase that accurately interpreted sensor data and generated appropriate control signals.

Jun 2014 — Sep 2018

IT Technician / Developer (Seasonal), Aquatecture

Point Pleasant Beach, NJ

Overhead Calculator

- Developed a powerful Overhead Calculator leveraging QuickBooks data, enabling business executives to efficiently calculate expenses, overhead, and profit margins through an intuitive interface.
- Implemented an innovative solution that significantly reduced time-to-calculation, streamlining critical decision-making processes for executives.
- Utilized Python programming language, along with tkinter for building the user interface, pyautogui for automation, and pyinstaller for compiling the application.
- Collaborated closely with stakeholders to understand their specific requirements and integrated advanced functionalities to enhance usability and accuracy.
- Contributed to operational efficiency and informed decision-making within the organization by delivering a cutting-edge Overhead Calculator that transformed complex calculations into a user-friendly interface.

Hypervisor for Internal Services

- Successfully implemented the XCP-NG hypervisor to virtualize a range of operating systems, enabling efficient file management, system administration, and granting accountants virtual access to the company's QuickBooks profile.
- Utilized the XCP-NG hypervisor to seamlessly virtualize operating systems such as Windows 10, Windows Server 2019, and various Linux distributions, ensuring a versatile and comprehensive virtual environment.
- Collaborated closely with stakeholders to understand their requirements and optimized the hypervisor configuration to align with their specific needs.
- Contributed to enhanced productivity and streamlined access to critical resources by implementing the XCP-NG hypervisor, providing a secure and efficient platform for file management, system administration, and accountant virtual access to the QuickBooks profile.

Automated Project Generation Program

- Designed and developed a comprehensive program to automate the process of generating new projects, seamlessly adding default files and directories to the appropriate location on the NAS (Network-Attached Storage), significantly reducing the risk of errors.
- Implemented the program using Python programming language, leveraging the intuitive tkinter library for creating a user-friendly interface.
- Collaborated closely with stakeholders to understand their specific requirements and incorporated advanced functionalities to streamline the project creation process.
- Contributed to increased efficiency and accuracy within the organization by delivering a robust automated project generation program, eliminating manual errors and ensuring consistent file and directory structures for new projects.

EDUCATION

2018 — 2022

Bachelor's Degree (Computer Science), Worcester Polytechnic Institute

Worcester, MA

Beta Theta Pi (Communications, Vice President, Finance, Chorister, Recruitment)

Cyber-Security Club

Deans List (AB 2018, AB 2019)

Undergraduate Research

SKILLS

Python (Flask, FastAPI, Django)

Javascript (Vue, React, jQuery)

Java (Spring Boot)

Systems Languages (C / Rust)

SQL (PostgreSQL, MongoDB)