Jared Kick

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SKILLS

Languages: C++, Python, C, VHDL, Rust, Java, Dart, Javascript, Typescript, C#
C++ Libraries: Boost, Qt, GLM, nlohmann/json, TCLAP, SFML, Protobuf, Spdlog, ZMQ, VOLK
Python Libraries: NumPy, Pandas, Matplotlib, OpenCV2, SQLite, threading, multiprocessing, virtualenv, PIL, asyncio, logging, re, pathlib, conda, ZMQ, Flask, Django, requests

EXPERIENCE

Full-Stack Developer, Self-employed – Cincinnati, OH June 2024 – Present

- Created a smartphone app to connect users to local small businesses for events and deals.
- Designed and implemented a frontend in Flutter (Dart) made to run on iOS and Android.
- Created a backend in Python with Django that implements a RESP API for accessing data and user information.
- Designed PostgreSQL and SQLite databases for storing persistent user and business data with Django.

Software Engineer, 3dB Labs – West Chester, OH May 2023 – June 2024

- Enhanced the company's Sceptre program, written in C++20/Qt, by adding features to improve the GUI's intuitiveness, usability, and functionality.
- Extended functionality of the Sceptre webapp by adding REST API and webhook endpoints for pulling and manipulating packet data.
- Redesigned and implemented more functional and intuitive interface options by creating custom Qt widgets.
- Resolved many different bugs in response to user feedback, ensuring a smoother and more reliable user experience.
- Collaborated with team members to plan and implement bug fixes using Jira and GitLab with 3-week sprints.

Software Engineer, Etegent Technologies – Beavercreek, OH December 2021 – May 2023

- Redesigned a complex and convoluted Python image-processing pipeline from the ground up to pre-process and rectify imagery for machine learning model training and use.
- Reorganized and cleaned up multiple Git repositories to avoid large binary files and cached files for better tracking and versioning.
- Created a multiprocessed command line program in Python to replace multiple separate scripts for manipulating and annotating images, making it easier to use and twelve times faster.
- The command line program automatically pulls and processes images from a networked filesystem and metadata from a PostgreSQL database.
- Extended and fixed bugs in the company’s PyTorch test harness for testing model accuracy.
- Debugged and enhanced a TypeScript (Angular) and C# web app for geographical data management, including expanding the REST API.

Research Engineer, KBR – Beavercreek, OH August 2019 – December 2021

- Developed RF transceiving applications in OpenCPI for ADS-B, Zigbee, and other protocols.
- Wrote components in C++17 to implement signal processing algorithms on fixed point data streams.
- Wrote corresponding components in VHDL to operate identically to the software components but on an FPGA.
- Created and tested a Python library to mimic fixed point math as it would be done in hardware for unit testing of the aforementioned components.
- Created a Python library to format and read/write the data to/from binary files for unit testing.
- Built networking components enabling data and command exchange between distributed instances via TCP, UDP, and ZeroMQ sockets.
- Implemented a GitLab CI/CD pipeline to automate building and testing of C++ and VHDL components, utilizing CentOS VMs and Docker for continuous integration on the projects, greatly speeding up the development process.
- Served as acting team manager to oversee application design and verification, as well as maintaining the Git repositories by reviewing changes and fulfilling merge requests.

PROJECTS

GUI Automation Python Library github.com/jtkick/autoui

- Recently began work on a Python library as an easy way to automate the usage or testing of GUI programs.
- Uses computer vision techniques with libraries such as numpy, opencv2, and easyocr to detect UI regions on the screen.
- Uses custom trained machine learning models, particularly COCO and YOLO, to detect elements such as windows, buttons, and action icons.

TUI Animation C++ Library github.com/jtkick/taeto

- Have been working on a 3D sprite-based game engine in C++20 to run in a terminal emulator by drawing with ASCII text.
- Makes heavy use of libraries such as Boost, SDL, SFML, GLM, spdlog, and tclap.
- Implements lighting and rendering techniques including bloom, normal mapping, high-dynamic range, and deferred lighting.

TUI Animation Rust Library github.com/jtkick/taeto-rs

- In-progress re-write of my C++ rendering engine, done in Rust.

MMORPG Bot

- Wrote a Python bot to play an online MMORPG by directly manipulating the UI.
- Wrote many specialized classes for different UI elements which use OpenCV2 to “see”.
- Communicates to a centralized hub with a ZMQ Router/Dealer connection to allow for multiple clients.
- Created a central SQLite database to track all clients’ actions.

Audiobook Organizer github.com/jtkick/granger

- A Python program written years ago that I use to organize and scrape metadata for audiobooks.
- Processes audiobooks by filename using regular expressions, and pulls data from various REST APIs.

Personal Linux Servers

- For the last decade I’ve run multiple personal Linux servers for services that I and others use daily.
- Most services are hosted using Docker containers while some are run in Linux Containers.
- Use Ansible for backups and housekeeping tasks that are run regularly across multiple networked systems.
- Have gotten plenty of experience networking machines, handling IP addresses and DNS services.

EDUCATION

Cedarville University May 2019

B.S. in Computer Engineering, Minored in Mathematics and Computer Science Cedarville, OH