Zachariah Santangelo **santangelozach@gmail.com 971-337-7991 LI**:/zachariah-santangelo/ **GH**:/Qazzzie **WebSite**:github.io/Qazzzie/

Education

Bachelors of Science: Computer Science & *Chemistry: Biochemistry, Physics Minor* ▼ Portland State University 3.52GPA 6/2022

▼ Center for Advanced Learning *(CAL) Certificate in CS and Security* 6/2015

Skills

Software Development • Team Leadership • Algorithms • Data Structures • Machine Learning • Supervised and Unsupervised Classification • Computer Vision • Numpy • OpenCV • C++, Python, Javascript/JSX, MySQL • React.js • Agile, DevOps, Scrum master • Design Criteria • Full Stack Web Development • Operating Systems • Continuous integration/development • Computer Vision • Data Analysis and Visualization • Linux/Debian • Bash • Git • System Verilog • Excel/MSoffice • Inquisitive • Goal Driven • Creative Adaptable Problem Solver • Self Aware, Patient, Emotionally intelligent • Time Management • Negotiating • Collaborative Leader • Communication • Teamwork

Software Projects

JamShare: **Team Lead**. *12/1/2021-6/12/2022* Successfully led 7 SDE's, developed, deployed, and delivered to sponsor a full stack React app that allows musicians to remotely play with others and sync their live music audio together in a sharable session ID into one output file in Firefox. Drove the overall technical design decisions and stack while prioritizing processes and design requirements (low latency, Scalability, synced audio, and User experience) with a mediator behavior pattern and RESTful client/server communications architecture. Researched, designed, implemented, and managed application. Organized, clarified, and deliberate assignable tasks in scrum meetings. Promptly coordinated negotiations with sponsor expectations and timeframes. Documented and improved product design and feedback. Accelerated productivity by mentoring other SDE's on tech stack and improvements in scrum retrospective. Reviewed code and managed merge conflicts in CI/CD pipeline. Motivated SDE performance while inspiring collaboration via a personable approach. Successfully created and managed time map of project. Automated development server functionality and installation. Javascript, React.js, Node.js, socket.io, Heroku, AntMediaServer, Postgresql, Axios, CSS, HTML5, WebAudioAPI, NPM+NPX, Trello, Git, Selenium, Mocha, Linux, bash scripting, streaming network latency architecture, CI/CD, REST

Deobfuscator: A blurred text reverser. Unblurs text by comparing blurred letters with an offset and providing best guesses. Python, OpenCV (cv2), Numpy, skimage, vscode python debugger

Panorama Image stitcher: Combines two images into one via SIFT to extract keypoints and RANSAC to compute the homography for warping and blending the images together. Python, OpenCV (cv2), Numpy

Frame Interpolation: Generated high resolution intermediate image frame between two images given the flow file from a calibrated camera. Filled pixel holes in ocular flow via outside in strategy, estimated (and then blurred) occlusions mask followed by forward warping resulting flow field. Forward warped flow via bilinearly interpolated splatted pixels before warping to target time frame. Python, OpenCV (cv2), Numpy, Pickle

Color Transferer: Combines two images into one via SIFT to extract keypoints and RANSAC to compute the homography for warping and blending the images together. Python, OpenCV (cv2), Numpy

Celestial Body Classifier: Experimental report of accuracy comparing a Random Forest (100% accuracy), NN, SVM (SVC), and NiaveBayes Star classifiers into spectral classes. Python, Sklearn, Numpy, Matplotlib

Spam Mail Classifier: Produced a Receiver Operating Characteristic (ROC) Curve via the supervised Naive Bayes probability classification results on a mean centered collection of mail data that was labeled as 'spam' or 'not spam' and reported on the effects of assumptions, means, spread, and standard deviations of the classes in the data on the ratio of false positives vs true positives. Python, Sklearn, Numpy, Matplotlib, csv

MNIST handwritten letter classifier: Designed, optimized, and trained an accurate supervised Multi Level perceptron to classify MNIST letter dataset to assess hyperparameter influence on confusion matrix classification. Python, Sklearn, Scipy, Numpy, Matplotlib, csv

K-Means Classifier: Unsupervised model for grouping 2D points into separate classes from random starting initialization points as centroids that selects solutions with lowest sum of squares error. Python, Sklearn, Numpy, Matplotlib, csv,

BattleCode: Achieved first place in early sprints and placed higher than more than half the other teams in the finale. Abstracted robot scanning functionalities to optimize big O performance, streamlined and tested continuously integrated robot strategies in four competitive sprints with a team of 4 versus other dev teams. Robots battled every sprint. Java, Gradle, Intellijay IDE + Complexity analyzer, Trello, Github CI + automated testing, Mockito, CI/CD

PlaThyme: React platform simplifying the creation of multiplayer browser native games. Backend logic for Draw The Word and solved compatibility issues on Linux, added portable packages for future card games. Javascript, React.js, Socket.io, VScode, Heroku, CI/CD, Craco, REST

XV6 Kernel: Implemented improvement upgrades such as lazy memory allocation, mapping a page table per process, and new secure kernel system calls via device interrupts. C, GDB, assembly, XV6 kernel, Linux.

Service Plus Medical Billing Website: Determined and guided optimal tech structure for client's short long term needs of website purpose and style. Google sites

- Other Experiences

Researcher Willamette Riverkeeper Environmental Defense Grant Capstone Project December 2020

- Researched and revised $300,000 grant proposal on behalf of the Willamette Riverkeeper 501(3)(c) for habitat protection and restoration.