Email: nikolag@umich.edu **Nikola Gjakovik** **Phone:** 773-962-1758

Skills

Languages: C++/C programming, Java, Python, C#, GoLang, Javascript, SQL, NoSQL, Bash

Frameworks and Technologies: Flask, .Net, React, Django, Docker, K8s

Cloud: AWS (S3, SQS, Lambda, ECS, EC2, Route53), GCP, Azure

Concepts: Multithreading/Multiprocessing, Distributed system design, Web stack, Low level networking, Virtualization/Containerization, Data structures and algorithms, Machine Learning algorithms

Education

University of Michigan - Ann Arbor Graduation: May 2021

Bachelor of Science in Computer Science **GPA**: 3.2/4.0

Relevant Experience

Evozyne June 2021 – Present

Software Engineer

- Led a greenfield machine learning pipeline infrastructure project for running high throughput sequence experimentation in Python using AWS SQS and ECS.
- Wrote a front end in React to allow users to train and use models on sequence data seamlessly with pipeline projects.
- Designed and created a custom data management and analysis platform to aid in lab experiments as well as computational experiments with Flask, React, AWS S3, ECS.
- Implemented several custom analyses and ETL pipelines for bioinformatics data with Apache Airflow.
- Worked with bioinformatics data to train and view latent space as well as generate new data with in house machine learning algorithms as well as Scikit-Learn and PyTorch.

JP. Morgan Chase June – August 2020

Software Engineering Intern

- Created a machine learning powered chatbot for non-profit organization with an intern team.
- Worked full stack using Javascript/React and Python/Flask on chatbot features such as website embedding, text parsing, chat log history storing, email and calendar management through chatbot, as well as social media sharing.
- Assisted on NLP for chatbot entity recognition and sentiment analysis with Python/Scikit-Learn/PyTorch.
- Worked on a trading platform simulation project to expand my knowledge of common trading algorithms.

Shure Incorporated May – August 2019

Software Engineering Intern

- Wrote endpoints for REST API with .Net Core, to be used by audio engineers to automate controlling multiple audio devices and configuration.
- Implemented HTTP endpoints (Post, Get, Put, Patch and Delete) for endpoint requests that include changing device's LEDs, sound polar patterns, device pairing, encryption settings, and device networking capabilities.
- Repaired memory leaks in asynchronous code in C# that interfaces with native C++ libraries for hardware level control of devices for a less error prone user experience.
- Wrote unit and integration tests aimed at HTTP endpoints controlling LEDs, encryption and networking capabilities on multiple devices.

Project Experience

University of Michigan - Ann Arbor

Distributed Search Engine January – May 2021

- Created a multithreaded and distributed search engine in C++ from scratch with no external libraries (Yes, that even means no STL).
- Crawled and indexed ~30 million pages daily while synchronizing parsing and storage across multiple nodes.
- Provided accurate ranking and retrieval for ~100 million pages across multiple nodes to provide a top 10 pages response to queries.
- Deployed using AWS and GCP VMs.

Loyola University Hospital January – March 2018

Pupil Dilation Tracker Project

- Wrote software to accurately track the patient's pupil expansion and decompression rates through 10,000-30,000 frames.
- Used Gaussian blur algorithm to smooth noise in frames and allow for easier edge detection.
- Simplex algorithm used to optimize the largest edge to center detection function after the user has chosen the center of the pupil manually.
- Kalman filter implementation to estimate center of pupil based on initial user input throughout multiple frames of video.