

Christian van der Loo

Full-Stack Software Engineer

Littleton, Massachusetts

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About Me

Full-stack software engineer with extensive experience in developing software with clean code, functional CI/CD, and high attention to detail.

Demonstrated history of machine learning education and experience.

Skills

Experienced in many programming languages, continuous integration/continuous deployment, machine learning concepts.

Programming Languages

- JavaScript/TypeScript
- C++, C
- Python
- Java
- Golang
- HTML/CSS
- Bash

Frameworks

- NodeJS
- VueJS
- React/React Native
- Gatsby
- Flask
- Spring Boot
- Android

Tools

- Docker/Docker Compose
- Git
- Linux (x86 and ARM)
- Bash/Zsh

Data Analytics

- Tensorflow/Keras
- MATLAB
- NumPy
- SciPy
- Pandas

Education

RENSSELAER POLYTECHNIC INSTITUTE

M.S. Computer Science

2020 - 2021

- 3.66/4.00 GPA
- Completed Master's project, focused on the use of deep recurrent neural networks to predict disease dynamics over a topology.

B.S. Computer Science & Cognitive Science

2017 - 2021

- Magna Cum Laude (3.86/4.00 GPA)
- Computer Science capstone concentration in Artificial Intelligence and Data.

Experience

MIT LINCOLN LABORATORY

Engineer on various projects for detecting and modeling weapon of mass destruction (WMD) threats in urban environments.

Assistant Technical Staff

May 2021 - Present

- Built software to assist data collection for the Urban Threat Dispersion program. This involved the deployment and tracking of non-toxic gases at 100 sites throughout New York City.
- Built software to connect various sensors to a universal architecture for monitoring.
- Created a multi-service architecture for a decision support tool orchestrated with Docker Compose. It was built with React, RabbitMQ, Flask, NGINX, PostgreSQL, and involved services written in Java, Fortran, R, Python, and JavaScript.
- Created software to generate interaction networks based on real-world locations to analyze disease transmission over.
- Ran high-performance computing (HPC) jobs to benchmark performance of using a Markov decision process (MDP) to intervene on an interaction network to slow the spread of a simulated disease.

Student Research Assistant

Sept 2019 - May 2021

- Member of machine learning (ML) algorithm development team for BioDetection 21 (BD-21).
- Designed and developed data ingest system for real-time data streaming using Amazon SQS to an Elastic Stack. The data feed was used to design ML algorithms for threat detection and visualization.
- Developed Android app for interfacing with hardware using near-field communications (NFC) technology.
- Developed Android app to support the Urban Threat Dispersion program. This included development of a NodeJS server to manage data and display information on a web interface. The web interface used NodeJS, Pug, SASS, React, and MongoDB.

SAP NATIONAL SECURITY SERVICES

Support Engineer Intern

Summer 2019

- Designed and implemented a proof-of-concept webapp built with SAPUI5 and utilizing a secure version of SAP Cloud Platform for customer deployment.
- Developed an internal reporting tool for the NS2 support organization to monitor incoming incidents, built with SAPUI5 and Cloud Platform.

GE AVIATION

DTLP Intern

Summer 2018

- Developed an automated testing framework using Nightwatch.js for use on a customer-facing Tier 1 web application with over 55,000 users.
- Used Jenkins and Docker to deploy testing on dedicated servers, as part of a CI/CD pipeline.
- Developed a Vue.js application for booking conference rooms, using Microsoft Exchange's REST API.

Presentations

van der Loo C, Caceres R, Xia L. (December 2021). *Graph interventions with spectral embeddings* (Poster presentation). Computer Science Poster Session, Rensselaer Polytechnic Institute, Lally Hall. https://chrisvanderloo.com/gise_poster.pdf.

Relevant Coursework

- Introduction to Artificial Intelligence (CSCI 4150)
- Machine Learning with Data (CSCI 4100)
- Cognitive Modeling (COGS 4210)
- Machine Learning and Optimization (CSCI 496x)