Raphael Kargon

Software engineer with an interest in building scalable systems and robust infrastructure, particularly with respect to machine learning.

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Education

Brown University Sc. B. (2018) Computer Science GPA: 3.88

Relevant Coursework:

- Deep Learning (CS147)
- Computational Linguistics (CS146)
- Machine Learning (CS142)
- Design & Implementation of Programming Languages (CS137)

Technical Skills

Languages
C, C++17, Java 8, Python 3, Javascript
Frameworks
Django, Tensorflow, JQuery, JUnit/Mockito, Docker, Kubernetes, Ansible, Kafka, MongoDB, Flask, Qt

Work Experience

Abnormal Security, Inc. (2019 – 2021) — *Software Engineer*

Worked on Account Takeover product to monitor for and protect customers from email account compromise. Built and maintained real-time streaming pipelines to download ~100M sign-in events/day from GSuite and O365 across ~300 tenants and feed them into ML models that alerted customers and locked down compromised accounts. Worked with data scientists and ML engineers to build internal tools to analyze account takeover data and to monitor precision/recall of models in production. In addition, helped automate customer onboarding.

Python 3 · Django · Apache Airflow / Celery · Apache Spark · Terraform

Sensemetrics, Inc. (2018 – 2019) — *Software Engineer*
Worked on cloud platform for collecting, storing, and analyzing geotechnical sensor data, as well as embedded Java software for interfacing with sensor hardware in the field. The backend uses Java 8 with Spring, Guice, and MongoDB. Aided in transition to load-balanced, microservices-based infrastructure using Kubernetes, ELK, and Kafka.

Java 11 · Spring · MongoDB · Kafka

Vision Systems, Inc. (Summer 2017) — *Research Developer Intern*
Worked on data structures & algorithms for representation of time-varying 3D voxel data in C++.

Brown University (Spring 2016, Fall 2017) — *Undergraduate Teaching Assistant*
Teaching Assistant for CSCI1460 (Computational Linguistics) and CSCI1470 (Deep Learning)

MongoDB (Summer 2016) — *Software Engineering Internship*
Developed Mangrove, an object document mapper (ODM) for MongoDB in C++14

Selected Projects.

Scene Labeling with rCNNS (2017)
A Python implementation of a “recurrent convolutional neural network” for scene labeling (Pinheiro et al. 2014) using Tensorflow. Tested effects of various distortions in training data on model performance. Final project for course in “Computational Vision”.

Render Denoising (2018)
Real-time denoising of path-traced images. Implementation of NVIDIA paper that used spatial filtering with edge detection as well as lighting information from previous frames to produce high-quality images with only one light sample per pixel. Implemented using C++ and OpenGL. Final project for graduate-level course in computer graphics.
https://github.com/rkargon/render-denoising

Mangrove (2016)
Mangrove provides automatic serialization of rich C++ objects into BSON, "active record pattern" access of documents, and a static query and update builder in a natural C++ syntax.
https://github.com/mongodb-labs/mangrove

3D Renderer (2014)
Some experiments in 3D rendering. Supports rasterization, raytracing, and path tracing.
https://github.com/rkargon/Renderer-CPP

Languages

English (Native); **Hebrew** (Conversational); **French** (Understand / Read);