

# ROSS KOEPKE

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B.S. Chemical Engineering, Michigan Technological University

B.S. Computer Science, University of Houston - Expected Dec. 2022

High Performance Computing Courses from the Hewlett Packard Enterprise Data Science Institute

**Linux · GCP · AWS EC2 · SQL · C · C++ · Python · HTML/CSS/JavaScript · Project Management**

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## PROFESSIONAL EXPERIENCE

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### **Systems Software Engineer Intern      Hewlett-Packard Enterprise, Houston, TX      May 2020 – Aug. 2020**

- Architected and wrote a multithreaded python service using nmap and REST queries to identify improperly configured hosts on the network.
- I identified the opportunity for, proposed, architected, designed, and built an embedded IoT ecosystem that performs environmental monitoring and alerting to prevent downtime events which periodically interrupted >200 engineers.

### **Engineering Technical Lead      PLI General, Houston, TX      Oct. 2018 – May 2019**

*Technical lead on 5,500 I/O point migration from legacy codebase*

- Solely responsible for all reverse engineering of embedded controllers.
- Built a custom re-usable Python tool to parse ICS Triplex source code, generate directed graph network of I/O points, automate new code generation from abstract syntax tree, and created interactive codebase visualization.
- Identified and raised concerns about large gaps in project scope early on, reducing technical debt.

### **Product Manager      Convene.Market      April 2017 – Oct. 2017**

- Managed team of four developers.
- Conducted detailed market research of similar existing platforms and summarized recommendations.
- Responsible for feature generation and pruning to meet business requirements for minimum viable product.
- Connected founder to champions and professional coaches experienced in startup financing and contract law.
- Performed full set of project manager duties in an Agile environment:
  - Sprint planning/tracking, backlog generation using VSTS.
  - Drove daily standups and frequently checked in on less-communicative team members.
  - Proactively escalated roadblocks by scheduling meetings between members to address shared issues.
- Successfully re-scoped and released a 1200 hour project in 850 hours as a working MVP proof of concept.

### **Systems Engineer      RoviSys, Houston, TX      Mar. 2016 – Sep. 2018**

*Primary engineer on 1,200-device system migration*

- Designed and commissioned interfaces and automation system for third party client.
- Reduced team workload by 60% using VBA and Python.
- Resolved client's primary concern by using machine learning methods to determine how to isolate groups of devices to perform on-site cutover without shutting down production.

*Engineer for \$3.9MM system migration for pharmaceutical plant*

- Provided two months of onsite support to verify that the new code is functionally identical to the existing system to avoid triggering regulatory validation requirements.

*Automated modifications to code for series of oil pipeline terminals*

*Onsite construction manager for \$750,000 control systems upgrade at oil pipeline terminals*

- Proposed and maintained project schedule. Ran all-hands meetings remotely and onsite to discuss timelines, identify roadblocks, and re-arrange work crews in order to avoid lost time.
- Validated contractor invoices, quotes, and estimates. Drove change order process for unplanned work.
- Managed all subcontractors (IT installers, electricians, builders, excavation) both remotely and from onsite.

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## CONTINUING EDUCATION / PROJECTS

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### Intern Project

### IoT Sensors and Platform

Summer 2020

*Embedded C · ESP32 / ESP8266 · Prometheus · Grafana · HTTP · RESTful · IoT · Systems Engineering*

- I identified the opportunity for, proposed, architected, designed, and built a full IoT ecosystem from scratch, bespoke for our specific lab / datacenter needs.
- This system performs environmental monitoring and alerting to prevent downtime events which periodically interrupted >200 engineers.
- Lowered cost for system from >\$10,000 contractor quote to \$250 in parts and under 40 hours of engineering.

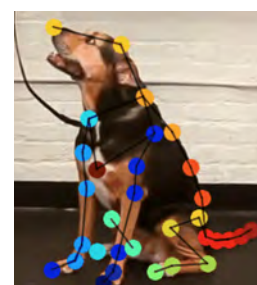
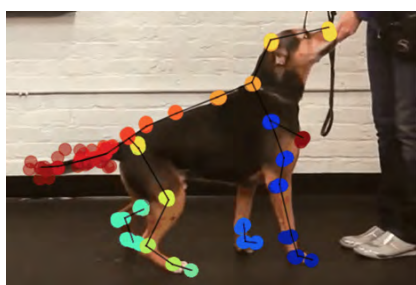
### Personal Project

### Dog Trick Trainer (Canine Pose Detection)

Fall 2019

*Docker · GCP · Python · TensorFlow · Computer Vision · GCP · Deep Learning · IoT*

- Reward dog with food whenever the dog performs well / improves its accuracy vs. the ideal position
- AI Pose Detection using DeepLabCut to detect when dogs are doing a trick like “Sit”, “Down”, etc.
- Used Google Edge TPU Board as well as Raspberry Pi Zero WH with Intel Movidius Myriad 2 (MA2450)
- Created and deployed custom Docker containers on GCP and Vast.ai, automatically taking advantage of temporary spot pricing to lower cost by transitioning ongoing workload to a cheaper machine.
- Transfer learning on pre-trained networks including ResNet and MobileNet.



### Google Scholar

### Udacity Frontend Nanodegree Challenge

Jan 2018

*HTML · JavaScript (ES6) · CSS · JQuery*

- Team leader for Houston students in the Google Scholar Challenge Course. Our final project was showcased as the best project of all teams world-wide.

### Georgia Tech – ISYE6501X

### Introduction to Analytics Modeling

May 2018 – Aug 2018

*Machine Learning · Statistics · Business Analytics · Modeling and Simulation*

- Masters-level course in machine learning and statistical modeling.
- This semester-long course provided very in-depth, practical and real-world exercises to select and use the correct methodologies among techniques included but not limited to: support vector machines (SVM), classification, clustering, principal component analysis (PCA), Bayesian modeling, exponential smoothing (ARIMA, GARCH), decision trees, Markov chains, k-mean, k-nn, Q-Q plots, probability distributions, graph analysis.
- Software used included Python, Rockwell’s Arena Simulation Software, and R.

### Michigan Tech – Team Leader

### AIChE Chem-E-“Car”

Aug 2010 – May 2012

*C · Embedded Controllers*

- 1st Place in Regional Competition 2012 | 2nd Place in Regional Competition 2011
- Managed team of 12 students to produce a hydrogen fuel cell vehicle with chemical control logic.
- Solely responsible for vehicle management system and programmed embedded controller using C.
- Produced 162-page engineering report containing all safety, operation, regulatory, and design information.