Aug 29, 2022

Alex Martens

Software Developer
MSc | 5 years of experience

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https://github.com/alexsmartens

Toolbox: Ruby / Python / JavaScript / React / Docker / Heroku / C / R / SQL / MongoDB / Redis / Machine Learning / Computer Vision

Experience

Oct 2020-current
Full Stack Developer
Wefunder, San Francisco, CA
- achievements, developed or significantly improved the following:
  1. front and back end of the tool for founders to manage investments and analyze campaigns success
  2. automated identity verification via LexisNexis and manual verification pipeline
  3. contracts with e-signature pre-authorizations
  4. automated reconciliation for ACH payments
  5. numerous automated emails, batch email reminder system
- tools: Ruby on Rails, JavaScript, React, CSS, PostgreSQL, Heroku, Vim

Jul 2019-Jul 2020
AI Developer
Katerra, Toronto, ON, Canada
- achievements: proposed, developed and validated a humidity based occupancy model for smart thermostats
- concepts: data science, experiment design, computer vision
- tools: Python, Pandas, Matplotlib, Scikit-learn, Statsmodels

Feb 2019-Jul 2019
Data Engineer / Software Programmer
Real Tech, Toronto, ON, Canada
- achievements: 1 implemented ML model training service and deployed it on AWS; 2 developed a dashboard with custom JS D3 widgets for real-time IoT data visualization; 3 maintained company's IoT platform
- concepts: data visualization, microservices, IoT platform
- tools: JavaScript, D3, Python, AWS, Flask, Pandas, Matplotlib, Thingsboard

Nov 2018-Mar 2019
Python Developer
Coursera, San Francisco Bay Area, CA *(remotely)*
- achievements: developed course materials for Self Driving Cars courses offered by the University of Toronto. These courses have 60K+ enrollments
- concepts: visual odometry, PID controllers, stereo vision, simulation
- tools: Python, OpenCV, CARLA, Docker
- project: https://www.coursera.org/specializations/self-driving-cars

Jan-Jun 2018
Software Developer
Salu | Health Gauge, Edmonton, AB, Canada
- achievements: designed and developed a full-fledged Android/iOS app
- concepts: MVC, signal visualization, REST, Bluetooth communication, UI/UX
- tools: React Native, JavaScript, Python, Flask, Pandas, Matplotlib

2015-2017
Research Assistant
University of Alberta, Edmonton, AB, Canada
- thesis prezi: Automated Tool for Visual Progress Tracking in Construction
- achievements: improved computation time in 10 fold and cut down number of manual steps required. Tested the proposed approach at a Ledcor's site
- concepts: SfM, MVS, ICP, Gaussian Mixture Model, CPD, Hausdorff distance
- tools: Matlab, Python, Bash, C++

About

I love cracking hard problems.
I make structure out of chaos.
I appreciate simplicity and have an eye for good design.

Spare Time Projects and Hobbies

Built, tuned up and ran multiple 7-GPU cryptocurrency mining rigs.

Built and set up a custom router running pfSense for improved privacy and security, features:
- ad/privacy traffic filtering
- threat detection with Suricata
- OpenVPN server for personal devices

Set up a personal cloud running Nextcloud, features:
- natively encrypted ZFS for higher reliability and data encryption at rest
- encrypted data backup with rsync & rclone
- personal cloud with NextCloud
- Plex media server

Built and ran a high performance workstation for machine learning and computer vision projects, features:
- 32-core AMD Threadripper 2990wx
- Nvidia 1080Ti
- 64 GB four channel RAM
- custom CPU-GPU water cooling loop *(EKWB)*

Installed lots of advanced features to my BMW:
- blind spot monitors
- collision prevention assist
- surround view camera system
- head-up display
- CarPlay
- M-Sport brakes

3,000 mi roadtrip from Toronto to San Francisco.

Education

2015-2017
MSc in Construction Project Management and Engineering
at University of Alberta, Edmonton, AB, Canada
- Algorithms & Data Structures, CSC263
- Software Tools & Systems, CSC209
- Machine Learning, CMPUT551
- Applied Regression Analysis, STAT502
- Statistics for Engineering, STAT235
- Computer Vision, Udacity CS6476
- Simulation, CIVE606

Volunteering

2009-2013
Head of Students' Union
- represented students' interests at the university and local government councils
- recruited volunteers
- managed teams
- initiated and organized events