Christopher Novitsky

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Senior Software Engineer & Scientist with a proven track record of solving complex challenges across medical devices, imaging, cybersecurity, and high-performance machine vision. Experienced in embedded C++ GUIs, desktop applications, web dashboards, ML solutions for image classification/segmentation, high-performance cloud computing, mobile apps, DevOps, and building custom Linux distributions using Yocto.

EXPERIENCE

AI/Machine Learning Data Scientist 3
Costco WholeSale, Issaquah WA Aug 2023-Present

Costco is a global retail chain utilizing AI/ML to optimize supply chains, enhance customer experience, and improve cybersecurity. Brought on as a technical lead for an ambitious ML, cybersecurity, and e-commerce fraud detection initiative within the Information Security (InfoSec) department..

Accomplishments:
- Built a User Behavior Analytics (UBA) platform from analyzing insider threats (Azure, Databricks)
- Provided leadership and mentoring to more junior team members

Senior Machine Learning Software Engineer
QBio, San Carlos CA Jun 2022-Aug 2023

QBio is a Series-B ($80 million) Biotech startup that is revolutionizing MRI technology for preventative medicine by: developing a fast scanner to bring down the cost and providing futuristic “digital twins” to analyze changes in the human body over time. I work on the image segmentation team that use the latest machine learning techniques to segment the entire body. My focus is on the high performance microservice AWS Batch compute Airflow data processing pipeline. That takes raw DICOM MRI images, performs data transformations like: multi-atlas image registration, machine learning inferences, volumetric calculations and asset creation for web dashboard.

Accomplishments:

- Co-led development and release of Gemini Exam (Feb 2023), QBio’s core medical imaging product (~100+ customers/month)

  Involved:
  - Setting up the AWS resources for a production environment with release cycles (AWS CDK)
  - Designing and building cloud based microservice data pipeline: Compute (AWS Airflow-MWAA , Batch, Lambda, ECS, ECR, EC2), Storage (S3, RDS- Postgres) and Monitoring (AWS Cloud-Watch, Datadog).
  - Continuous delivery with build pipelines (Bitbucket build pipelines)

Machine Learning Software Engineer
Boulder Imaging (BI), Boulder CO Sep 2019-Jun 2022

BI is an industry leader in Machine Vision Technology. As a company, we tackle the most challenging problems. Our newest product IdentiFlight Aerial Detection System (IDF) uses A.I. to save endangered birds at wind farms, a key factor in the sustainability of renewable energy. I lead the development of Machine Learning (ML) solutions for the IDF system. This involves the entire machine learning pipeline from data validation, preprocessing, model training, validation to the final embedded model deployment. (TensorFlow 1&2, Keras, Postgres, Mongo, Docker, Linux, Bazel, OpenCV).

Accomplishments:
- Trained, validated, and deployed a new Convolutional Neural Network (CNN) image classifier to ***Tasmania Australia***, resulting in lower False-Positives/False-Negatives rates while increasing the number of classifications.
- Embedded ML: Applied neural network acceleration to IDF system using Intel OpenVino and Hailo for faster inference speeds at the edge.

- Optical character recognition (OCR): Built custom high-performance (inference latency <10 milliseconds) OCR network for visual inspection of paper currency.
- 1 of 3 Software Engineers developing a big data analysis web dashboard for the IDF system from scratch. The dashboard has live maps, operations system health monitoring, heat maps, report generation, curtailment simulation, image classification, etc. Currently being used to monitor the IDF system all over the world (Australia, Germany, France, Sweden, USA). Python(Flask, Pandas, Scikit-Learn), C++(Boost, OpenCV), SQL(Microsoft SQL Server), MongoDB, Javascript(React, JQuery), CSS, HTML, and Docker.

Embedded Software Developer
Zepto Life Technologies, Saint Paul MN Jan 2018-Aug 2019

Zepto Life Technologies is a University of Minnesota startup developing fast, accurate early cancer and disease detection using nanoparticles. I was 1 of 4 software developers working with a team of scientists to develop the medical device from conception to productization.

Accomplishments:
- Qt C++ GUI development for an embedded medical device.
- Build Infrastructure (BI), Built Yocto Linux image for an embedded system (Google Cloud Instance).
- Developed C# Visual Studio .Net lab analysis tooling.

Research Assistant Jun 2014-Nov 2014
Los Alamos National Laboratory, GeoPRISM National Security
Fellowship – Student Ambassador, Full Scholarship Abroad
Iceland School of Engineering, Reykjavik, Iceland 2013 - 2014

EDUCATION/RESEARCH PUBLICATIONS

M.S. Geophysics, University of Wyoming
B.S., Geophysics, Minor Astrophysics, University of Minnesota – Twin Cities

*Mapping inherited fractures in the critical zone using seismic anisotropy from circular surveys, Geophysical Research Letter (2018***)**
Scalable, Parallel algorithm for Seismic Interferometry of large-N ambient-noise data, Computers & Geosciences, (2016)