(925)-998-5486

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Harsha Lokavarapu

Education

University of California, Davis	MS	Computational Geodynamics	2018
		Thesis Advisor: Professor Louise H. Kellogg	
University of California, Davis	BS	Computer Science	2015
	Minor	Applied Mathematics	2015

Employment

Software Engineer   **Uber**   **2019-2020**

- Developed vInfra, a system to generate virtual infrastructure using an emulator

    - used to generate Uber's on-prem backbone
    - used by network ops to investigate network failures

- Developed IRS, a golang command line tool to track inventory and reserve assets

    - designed Service Now database schema to store reservations
    - authored scripted endpoint in Service Now to handle REST API requests
    - developed and implemented Thrift and gRPC API for reserving assets

- Developed Metere, a repository for test case definitions and test case results

    - designed database schema using SQL
    - developed and implemented thrift API to create, read, update and delete test case definitions and results
    - developed front end application to interact with test case definitions and results repository using React and Base Web

Junior Assistant Programmer   **Computational Infrastructure for Geodynamics**   **2014-2017**

- Contributed to open-source numerical library ASPECT written in C++

    - implemented parallel particle generation algorithms
    - implemented parallel particle interpolation algorithms including harmonic averaging and bilinear least squares
    - designed 2-D analytical solution to Stokes equations and benchmarked the accuracy of particle algorithms

- Contributed to open-source numerical library, Calypso written in Fortran 90.

    - implemented and optimized spherical harmonic transform using cutting-edge GPU hardware with CUDA in C++
    - executed strong and weak scaling tests to measure performance on supercomputer Maverick

- Data analysis and automation with python

    - created data pipelines for large data transfers from cluster to cluster*
    - authored scripts to compute entropy as a funtion of time using particle positions
    - implemented carbon reservoir model with interactive widgets to help scientists analyze the influence of different initial parameter configurations on the evolution of carbon cycle

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| Software Developer, Intern | Humana | 2012 |

- Wrote puppet manifests to install Humana application Healthdock's software stack for clients

- Written Puppet manifests include Apache Web Server, Tomcat, Oracle, Avahi, Samba, Java, Apelon, and Healthdock

| Competitor | Kaggle Competitions - Machine Learning in Python | 2019-2020 |

- House Prices: Advanced Regression Techniques

  - Use of python library Keras to develop a regression model

  - Employed feature selection methods, feature crosses, normalization of data input, removal of outliers, and transformation of input data to correct for heavy left skew distributions

  - In combination with tensorboard, executed a hyperparameter search to discover optimal number of fully connected layers, number of neurons per layer, activation functions, and learning rates

  - Currently placed in the 34th percentile within the competition

- Human Protein Atlas Image Classification

  - This competitions' challenges included multilabel classification, 4 channel input images, and imbalanced dataset. Less than 1% of the training image data consisted of 5 classes. Of the remaining classes, 3-4 classes were represented by 70% of the data set

  - My submitted model took advantage of input images resized to 128 by 128, focal loss function, data augmentation, external data, and oversampling to counteract the imbalanced dataset

  - Wrote custom metrics and analyzed results on tensorboard in order to better measure the accuracy of various experiments

  - Experiments included transfer learning to VGG network, different network architectures such as Conv2D sequential architecture, and Network in Network architectures and more

  - Trained neural networks using Google cloud computing in a multi-GPU environment

Coursera Certifications:

- Convolutional Neural Networks

- Improving Deep Neural Networks: Hyperparameter tuning, Regularization and Optimization

- Neural Networks and Deep Learning

Skills: C++, CUDA, Distributed Services, Git, Go, gRPC, Python, Unix
(*familiar with*): keras, ipywidgets, numpy