

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

Competitor Kaggle Competitions 2019-2020

- House Prices: Advanced Regression Techniques
 - Use of Keras library 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

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

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 $O(N^2 \log N)$ spherical harmonic transform algorithm using CUDA
 - researched different optimization approaches investigating the pros and cons of utilizing cuFFT, CUBLAS, and CUB libraries
 - executed strong and weak scaling tests to measure optimization performance on GPU cluster, Maverick

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

Coursera Certifications:

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

Skills: C++, CUDA, Git, Python, Tensorflow, Unix