SAURABH KULKARNI

CONTACT
INFORMATION

linkedin.com/in/saurabhkulkarni2312   saurabhkulkarni2312@gmail.com
saurabhkulkarni2312.github.io   Ph.No: +1-858-729-8148

EDUCATION

University of California San Diego,
- MS. Intelligent Systems, Jacob's School of Engineering
- Certificate: Micro MBA, Rady School of Management, UCSD

Birla Institute of Technology and Sciences,Pilani,
- BE. Electrical and Electronics Engineering

WORK
EXPERIENCE

Graduate Intern, IgrenEnergi, Inc   **Aug 2016 - Dec 2016**
- Modelled solar power forecasts for DCO based PV array using weather data, irradiance data and PV panel characteristics in C++ and evaluated it's performance with string inverter output.

Undergraduate Intern, Intel   **July 2014 - Dec 2014**
- As part of Intel's telematics team, I worked on a project to develop a sensor-fusion based g-force evaluation and inertial navigation system.
- Implemented a pilot system on a Raspberry Pi platform using Python.

RELEVANT
SKILLS

Languages and Tools: Python, SQL, C++, MATLAB, R, Tableau, PySpark
Machine Learning: Data Modeling and optimizing, ETL, Visualization, supervised and unsupervised learning, regression and classification, tree-based ensembling, Bayesian models
Relevant Courses: Statistical Learning, Data Analysis using R, AI using graphical models, Digital Signal Processing, Adaptive Filtering, Parameter Estimation and Optimization, Computer Vision, Recommender Systems and Web Mining, Neural Networks

PROJECTS

Handwritten Digit Classification   **Apr 2016**
- Three models: multivariate Bayesian classifier, gradient descent using softmax and feed-forward multilayered neural net with backprop were used to classify images of handwritten digits of MNIST dataset in **Python**
- Implemented batch learning to decrease complexity and regularization to avoid overfitting. Hyperparameters were tuned for optimal results.
- Performance of all three models was compared and evaluated for complexity and accuracy
- Achieved a best accuracy of 97% on Neural Network

Predictive Modelling for Insurance Claim Approvals   **March 2016**
- Implemented a **R-based** robust rare class classification model to accelerate claims management processes of BNP Paribas Cardif.
- Significant variables were identified and the classification performance of random forest and xgboost with respect to the base case of logistic regression. Achieved a logloss score of 0.456.

Transfer Learning using ConvNets   **Jan 2017**
- Implemented classification on CalTech 256 and UrbanTribes Datasets using a VGG16 CNN Model, using **Tensorflow** and **Keras** on Python3. Explored the effects of using different output activation functions, changing network topology and number of training samples.

Amazon Reviews Recommender System   **Feb 2017**
- Built a recommender systems to make ratings predictions related to reviews of Clothing, Shoes, and Jewelry on Amazon.
- Compared the performance of latent factor models with simple collaborative filtering on the dataset. Tuned the model for optimal hyperparameters using sklearn on Python
- Achieved an MSE of 0.108 on the predictor

Music Generation using RNN   Feb 2017
- Trained a Keras based Recurrent Neural Network to learn a structure of ABC notation and its temporal dependencies from given set of melodies
- This RNN model was then used to "compose" its own set of melodies in ABC format.

Speech Processing Projects   June 2016
- Linear Prediction: Implemented Linear Predictive Coding in MATLAB. Implemented a MATLAB based detector to detect formant peaks in given speech phrases.
- Command recognition: Used LMS Filtering, MFCC-DTW coefficients to detect and execute 5 voice commands

Sattva Fetal ECG Monitor   Jan - Jun 2015
- Worked on creating a low cost portable smart solution in fetal monitoring and maternal healthcare for rural Indian market
- Developed a Python based algorithm for data extraction and noise cancellation from abdominal signal data.
- Implemented filtering techniques to remove maternal ECG and motion artifacts and identify R-R peaks to accurately measure fetal heart rate.
- Implemented POC diagnostic device using ECG Electrode Sensors on ADS 1298

LEADERSHIP & ACHIEVEMENTS
- Led a team of 3 TAs as head teaching assistant in the Intro to Analog Design course at UCSD. Conducted weekly tutoring sessions for a class size of 120 students
- Received Certificate of Excellence (awarded to the best project among interns in a team) at Intel.

REFERENCES
- Dr. Jim Baker, Senior Principal Scientist, PointPredictive Inc.
jbaker[at]pointpredictive[dot]com
- Dr. Stojan Radic, Professor of Electrical and Computer Engineering, UCSD
sradic[at]ucsd[dot]edu