# SAURABH KULKARNI


**Contact Information**

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


**Education**

**University of California San Diego**,
- MS. Electrical and Computer Engineering (Specialization: Intelligent Systems) (GPA: 3.5/4)
- Certificate: Micro MBA, Rady School of Management, UCSD
- Received grades **A+** in Data Analysis grad course, **A** in Recommender Systems course

**Birla Institute of Technology and Sciences,Pilani**,
- BE. Electrical and Electronics Engineering (GPA: 8.35/10)

**Work Experience**

**Graduate Intern, IgrenEnergi, Inc** **Aug 2016 - Dec 2016**
– Explored solar forecasting techniques using device data, weather data, panel characteristics and shading patterns in Python. Project was implemented in R and Python.

**Co-Founder and Tech Lead** **Jan 2015 - June 2015**
– Co-founded a company in medical devices space (Sattva). Selected among top 10 tech innovations in 2015 by Stanford Business School and FICCI at IIGP 2015. *(Results Link)*
– Developed a low-cost portable solution for fetal monitoring in rural India.

**Undergraduate Intern, Intel** **July 2014 - Dec 2014**
– Implemented a accelerometer (ADXL345) and gyro (ITG3200) based linear and lateral g-force measuring system using Python and Octave. Pilot was tested on a 4-wheel vehicle using Rasberry Pi. G-forces and roll,pitch,yaw angles were estimated using adaptive algos. Sensor noise modeling was performed for steady state condition using Allan Variance in Octave

**Recent Projects**

**Predictive Modelling for Insurance Claim Approvals**
– Implemented an end-to-end R-based data solution to classify 114000 insurance claims in an unclean imbalanced dataset with 133 variables.
– Predicted class probability Random Forest, XGboost and achieved improvement over logistic regression baselines. Achieved a logloss score of 0.456 using xgboost.

**Amazon Reviews Recommender System**
– Built a recommender systems to make ratings predictions and estimate review helpfulness for a given database of Amazon reviews.
– Ratings prediction was performed using linear models and latent factor models using alternating LS and achieved a 28% MSE improvement over baselines. Implemented GradientBoostedTrees to estimate helpfulness rating to improve MAE by 12%.

**Image Segmentation using Probabilistic Techniques**
– Performed object segmentation from given image using different learning techniques - Maximum Likelihood, Bayesian Estimation, Gaussian Mixture models using EM.
– Improved classification performance, achieved dimensionality reduction from ML model to EM

**Handwritten Digit Classification**
– Performed digit recognition using several techniques: bayesian estimation, gradient descent using softmax and feed-forward multi-layered neural net with backprop in Python. Optimized performance for different learning rate, network topology, activation functions batch size.
– Achieved a best accuracy of 96.8% on the Neural Net.

**Transfer Learning using Convolutional Neural Nets**
– Implemented image classification on CalTech 256 and UrbanTribes Datasets using a VGG16 CNN Model, using Keras-Tensorflow on Python.

**Relevant Skills and Leadership**

**Languages and Tools:** Python, R, SQL, MATLAB, Spark, C, Linux, Git
**Libraries:** Numpy, Scipy, Sklearn, Pandas, Seaborn, Keras, Tensorflow
**Concepts:** Linear Models, Bayesian Statistical Learning, Random Forest, Boosting, Clustering, PCA, Neural Nets, Recommender Engines
**Leadership:** Co-founded medical device startup: selected as top 10 innovators at IIGP 2015 by SBS and FICCI. Led a team of 3 TAs and 8 tutors as head teaching assistant at UCSD.