Vivek Dixit

Computational Physicst

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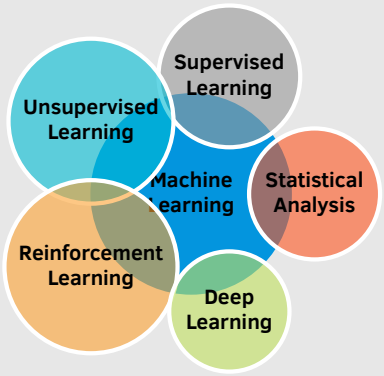
/in/vd114

vd114

Skills

Overview



Programming

$0\ LOC$ $5000\ LOC$

Python • R • MATLAB

Mathematica • Mathcad • LaTeX

FORTRAN • C++

Projects

- Investigated factors that affect the likelihood of charity donations being made based on real census data. Developed a naive classifier to compare testing results to. Trained and tested several supervised machine learning models on preprocessed census data to predict the likelihood of donations. Selected the best model based on accuracy, a modified F-scoring metric, and algorithm efficiency (Download).
- Built a model to predict the value of a given house in the Boston real estate market using various statistical analysis tools. Identified the best price that a client can sell their house utilizing machine learning (Download).

Interests

Machine Learning, Deep Learning, Data Science, Artificial Intelligence, Computer vision

Skills

- **Technical Skills:** Statistical Analysis, Metric Performance, Cross Validation, bias/underfitting & variance overfitting, Learning Curves, Linear Algebra, Probability, Model Fitting and prediction, Decision Trees, Regression, Neural Networks, Support Vector Machines, Naive Bayes, K-Nearest Neighbors, Adaboosting.
- **Tools:** Linux shell, Vim, pandas, scikit-learn, matplotlib, Tensorflow
- **Typesetting:** Xmgrace, gnuplot, LaTex
- **Personal Skills:** Creativity, Communication Skills, Honesty, Technical Competency, Work Ethic, Determination and Persistence, Team Work, Problem-Solving Skills, Loyalty, Multitasking, Self-motivated.

Education

2011 - 2015 **PhD, Appled Physics**
Minor: Mechanical Engineering Mississippi State University, US
GPA: 3.76/4.0

2009 - 2011 **MS, Physics** Mississippi State University, US
GPA: 3.92/4.0

2009 - 2011 **MSc, Physics** Banaras Hindu University, India
First Class

2004 - 2006 **B.Sc, Physics, Electronics**
Minor: Mathematics University of Lucknow, India
First Class

Experience

- Two years of experience working with real world data (LIBS sensors).
- More than six years of experience working with simulated data. Currently I am working on modeling of chemical and physical processes using Density Functional Theory (DFT). It is a regression analysis with better understanding of underlying causes.
- Developed a methematical model that predicts effects of ions substitution on the magnetic properties of strontium hexaferrite (Publication 1, Publication 2).
- Deviced a new method for CO_2 detection by implementing a regression model using signal from LIBS sensor (Publication).
- Univariate and multivariate analyis of signal from LIBS sensor for quantitative analysis of slury sample (Publication).
- Classification of coffee samples using principle component analysis (PCA) and support vector machine (SVM).

Presentations

- "Substitution effects on the emission spectra of CCC-NHC pincer Pt-complexes" at "Feeding and Powering the world 2016", July 25-26, 2016; University of Mississippi, Mississippi.
- "First principles study of Al substituted strontium hexaferrite." at APS march meeting, March 2-6, 2015; San Antonio, Texas.
- "A study for magnetic properties enhancement of strontium hexaferrite by first principles calculations." at APS march meeting, March 3-7, 2014; Denver, Colorado.
- "Quantitative analysis of slurry sample by Laser Induced breakdown spectroscopy" at LIBS2010, Memphis, Tennessee.