SOUVIK ROY

Specialized in Machine Learning and Deep Learning

@ s56roy@uwaterloo.ca 647-293-2684 Waterloo, Canada
in https://www.linkedin.com/in/royalsouvik/ https://www.github.com/s56roy

SUMMARY

- Experience with machine learning skills - tensorflow, scikit-learn, NLTK, Pandas, Matplotlib and data visualization technique using Tableau, Python and R.
- Developed classical machine learning and neural network model for sentiment analysis of yelp food review dataset of 1 million to achieve higher results than academic papers.
- Used image processing technique to generate feature vector using HoG, LBP, Color Histogram and combination of these, which was used to classify the ships in satellite images. PCA was used to reduce feature size and classification score of 82% achieved with pattern recognition methods SVM and Random Forest.
- Used Python to perform ETL of dataset from Postgres & SQL database and developing neural network LSTM.
- 6+ years of experience in C/C++ programming with data structure, algorithms and SQL queries. And 3+ years of experience in machine learning.

ACHIEVEMENTS

- Winner of Telus Challenge at UofT Hackathon - solved a social problem
- Participated in NASA space app challenge
- Former Vice-president of Yantra Society

PUBLICATION

- "ANPR Indian system using Surveillance Cameras" 2015 Eighth International Conference on Contemporary Computing (IC3) , 20-22 Aug. 2015.

EDUCATION / COURSES

M.Eng in System Design Engineering

University of Waterloo

May 2018 – October 2019 Waterloo, Canada

- Methods and Tools for Software Engineering
- Pattern Recognition
- Data and Knowledge Modeling and Analysis
- Intelligent Systems Design
- Text Classification

B.Tech in ECE

Indraprastha University

August 2010 – July 2014 New Delhi, India

SKILLS

Programming

C • C++ • Python • R • Tableau • Shell • MYSQL • Powershell • LaTeX • Jupyter

Ancillary Technologies

Linux • Keras • Tensorflow • Scikit-learn • NLTK • PostgreSQL • Git/Gitlab • SolidWorks • Qt • Google Cloud Platform • SPSS • Data Cleaning •

EXPERIENCE

PROJECT ENGINEER | NORTH EAST CENTER FOR TECHNOLOGY APPLICATION AND REACH

June 2014 – May 2018 | New Delhi, India

- Worked on the development of unmanned aerial vehicle. Responsibilities included system designing, integration & embedded programming.
- Worked on ANPR - automatic car number plate recognition software. SVM and ANN algorithms were used for numberplate recognition and optical character recognition.

PROJECTS

Sentiment Analysis of Yelp Review Dataset

- Built and explored various ML models for classification using KNN, XGBoost, Decision Tree, Naive Bayes, Random Forest, SVM, Gradient Boost, LSTM and MLP.
- Major challenges were class imbalance, using different word vectorizer and hyperparameter tuning to achieve better accuracy score than academic journal.

Ship Detection in Optical Satellite Imagery

- Developed, modified and implemented pattern recognition for ship detection and localization in satellite images using classical machine learning algorithms like SVM and Random Forest for classification and generating feature vector using LBP, HoG and saliency map.

Cognitive Engineering Case Analysis: Google Maps Application on Android

- Examined the "Google Maps on Android" as the problem to find out decision making capabilities and interface usage. Impact of the human behaviour user experience level and usage process. Experiments were performed using CTA & CD.

Automatic Number Plate Recognition Software

- Developed a classical machine learning SVM model in C++ & Qt for recognizing the english characters from the segmented images extracted from video frames. SVM model is trained using Google tesseract OCR dataset available in public domain.

Anomaly Detection in Autonomous vehicles

- The project is to find anomalies in the autonomous vehicle dataset using classical machine learning algorithm and LSTM neural network, thereby developing a prediction model for the parameters and finding anomalies in the dataset.