AMARA NASIR BHALLI

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EDUCATION

National University of Computer and Emerging Sciences (FAST), LAHORE

MS (Data Science): 3.96/4.0 **2019 - 22**

Course Work:

Data Science Tools and Techniques, Statistics and Probability, Big Data, Machine Learning, Deep Learning, Natural Language Processing, Computer Vision, and Computational Intelligence.

National University of Computer and Emerging Sciences (FAST), LAHORE

BS (Computer Engineering): 3.21/4.0 **2004 - 08**

Course Work:

Design and Analysis of Algorithms, Database Systems, Data Structures, Object Oriented Programming, Intro to Computing

Field Projects

Thesis - Fine grained sentiment analysis of Urdu Reviews using machine learning and deep learning models

- Annotate the data from 3 to 5 classes. A benchmark dataset SAU-18 corpus was used for fine-grained sentiment analysis
- After annotation class imbalance problem was faced and handled using data augmentation
- Performed sentiment analysis using machine learning algorithms (SVM, LR) and deep learning algorithms (RCNN)
- Used state of the art model BERT for classification
- All the experiments were performed using K-fold cross validation
- Machine learning algorithms outperformed after data augmentation

Classify “Plant Pathology” dataset - project from "Kaggle competition"

- Image data of diseased and normal leaves was given
- Preprocessing includes Image Resizing, Image scaling & transformation, and Label encoding
- improved **Class Imbalanced** using Image augmentation
- Extract **HOG** feature (using **skimage)** as it outperformed the Principal component analysis (**PCA**)
- Pass this preprocessed data from **KNN, FFNN, and SVM** using **Keras**.
- **FFNN**, outperforms all with impressive learning behavior.

Handwritten Digit Recognition - Machine Learning Project

- **Mnist** image data of handwritten digits were used
- Data contains ten classes, so encode data labels for designing **one-verses-all scenario**
- Extract Histogram of oriented gradients(**HOG**) features.
- Applied "**Kernel Trick**" (using **sklearn**) to add linearity in classes
- Applied Support Vector Machine (**SVM**) and Perceptron Learning
- SVM was applied after extracting **HOG** features and with the addition of the "**poly**" kernel method, yields the best results among all, as it comes up with an impressive accuracy of **95.20% on train and 93.30%** on test data.

Credit Card Fraud Detection - a Data Science Project

- Dataset was taken from **Kaggle** provided by IEEE Computational Intelligence Society (IEEE-CIS**)**.
- Data pre-processing involved handling missing values by using mode/median for categorical attributes and using regression method for numerical attributes.
- Data was imbalanced and it was resolved by using SMOTE
- Dimensionality reduction was handled by using PCA
- Data was split by using train, validation and test with 60%,20% and 20% ratio.
- Experiments were performed using four machine learning models like SVM, Logistic Regression, Random Forest and XGBoost
- Among all the classifiers XGBoost outperformed other classifiers

Customer Churn Prediction – Machine Learning Project

- Two datasets were used for customer churn prediction named IBM and Cell2Cell downloaded from Kaggle
- Performed statistical analysis of both data sets
- IBM dataset was small, including 7043 instances, whereas Cell2Cell dataset had 71K instances
- Both of these datasets had class imbalance problem which was solved by using SMOTEC
- Architectures of deep neural network classifier (ANN) are designed for both data sets by setting a number of neurons, input layer, hidden layer, output, and dropout layers.

Work Experience

Instructor in FAST NUCES Lahore

(August 2022- present)
Joined National University of Computer and Emerging Sciences Lahore in August 2022 as Lab Instructor of Data Structure course

Freelance Work in Drupal:

(April 2011 – 2013): Worked in drupal as a freelancer
- Dexcom - www.dexcom.com/(Drupal 7)
- Oradan - www.oradan.com/ (Drupal 7)
- TonightinRI - www.tonightinri.com/ (Drupal 6)
- Vecthorse -www.vecthorse.com/ (Drupal 7)
- PakReviews -www.pakreviews.com/ (Drupal 6)
- 3rdElectric - www.3rdelectric.com (Drupal 7)
- Cardwise - www.cardwise.com (Drupal 7)

Affordable Programmers (Freelancer):

(April 2010 –March 2011): Working full time at awpdc as permanent Software engineer.

Working experience as a freelancer in PHP:

(Mar2009 – March2010) Worked as freelancer in PHP framework Code Igniter. ***http://www.telepot.net/***

Archimedes Services Limited:

(Dec2008-Feb2009) Three months working experience as Jr. J2EE in Archimedes Services Limited, and worked on the site ***http://resumelocker.com/***

Visual Sparks Technology:

(June-Nov 2008) 3 months Internship and then 3 months working as a permanent employee at Visual Sparks Technology, worked on the site ***http://manhattanstudios.com.au/*** in PHP and on a Restaurant Reservation system in a PHP Framework Code Igniter.

OTHER SKILLS AND INTERESTS

Languages: C, C++, PHP , Python

Tools: MATLAB, weka, notebooks, visual studio, sublime **Techniques:** Sklearn, TensorFlow, Keras, NumPy, TensorFlow, PySpark, PyTorch