Puneet Mishra

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EDUCATION

Thapar Institute of Engineering & Technology, Patiala | Bachelor of Engineering | 2017 - 2021

Electronics and Computer Engineering
CGPA: 8.41/10.0 (Upto 6th semester)

Delhi Public School, Sector 45, Gurgaon

10th - 12th Grade (CBSE) | 2015 - 2017
10th CBSE CGPA: 9.6/10.0
12th CBSE Percentage: 95%

RELEVANT COURSEWORK

- **Derivatives & Global Finance Workshop,** Futures First Academy
- **Introduction to Corporate Finance,** UPenn, Coursera
- UHU008 **Introduction to Corporate Finance,** Semester 6

RESEARCH & PUBLICATIONS

Post Graduate Institute of Medical Education & Research

April 2019 - March 2020 | Chandigarh/Patiala, India
Advisors: Dr. Jainy Sachdeva, Associate Professor, TIET
Dr. Deeksha Katoch, Professor, Ophthalmology, PGIMER
- Researched on an ICMR funded project to segment and classify retinal vessels from patient's eye fundus images.
- Developed a Deep learning and Image processing based system and thus reduced diagnosis costs and time.

'Gender Differentiated CNNs for Speech Emotion Recognition'

Conference: 12th International Congress On Ultra Modern Telecommunications and Control Systems
- First author of the paper (under-review) proposing a 2-stage gender-differentiated system for SER.
- Experimental results show that our proposed system outperforms the exisiting methodologies in literature.

'Segmentation of Retinal Vessels Using Difference of Gaussian Filter & Ensemble of Fully Convolutional Neural Networks'

Journal: Elsevier's Engineering Science and Technology, an International Journal
- First author of the paper (submited) proposing a novel segmentation approach for retinal blood vasculature.
- Tests on real patients shows that our proposed approach diagnoses more acurately and quickly with low false positives.

LEADERSHIP

- **Secretary-General, Thapar MUN Society:** Led a team of 30 in hosting 4 Model United Nations conferences recognized by the UN and won 6 MUN conferences as best delegate.
- **Institute Innovation Council:** Member of the MHRD council to oversee innovation efforts in the institute.

EXPERIENCE

Ericsson India Pvt. Ltd. | Summer Intern

June 2018 - July 2018 | Indore, India
- Automated daily-data collection of network statistics for 4G & VoLTE technologies using data analysis tools and Python.
- Created systems to identify troubled BTS and cells and track them in a more efficient manner while also providing insights into causes and network conditions.

PROJECTS

- **Equity Closing Price Direction Using LSTM:** Developed an estimation model using Long Short Term Memory to estimate the price direction of an equity based on 14 technical indicators such as SMA, EMA, MACD with data from Yahoo Finance APIs.
- **Investment Portfolio Optimization:** Wrote a MATLAB based program to calculate, compare, and visualise Omega Ratios for given historical returns.
- **Asset Price Modelling using MonteCarlo Simulations:** Developed a stochastic price model using historical prices and volatility. Monte Carlo simulations were performed and a frequency distribution curve for future prices was derived. .
- **Asset Trading Strategy Optimization (ongoing):** An optimal trading strategy for procuring a large but fixed volume of a risky asset to minimize the execution cost of the trade.
- **Capstone Project:** Speech sentiment analysis using 2D Temporal Convolutional Networks. Implemented using Python, Keras, & TensorFlow 1.0. Achieved an accuracy of 92.37% for six emotion classes.
- **Spectrum Sensing for Cognitive Radios Using Residual Neural Networks:** Designed a Residual CNN based system for spectrum sensing in an AWGN channel for 5G cognitive radios achieving a f1-score of 94.6% with multiple modulations and SNR.
- **Buying Behaviour Prediction of Consumers:** Built a machine learning model to predict clients' interests for a product line using Gradient Boosted Machines.
- **V2X Communication using 5G:** Researched and simulated V2X communications based on 5G protocols and IEEE 802.11p standards in MATLAB.

SKILLS & TECHNOLOGIES

- **Programming Languages:** Python/MATLAB/C++/C
- **Database Management Systems:** MySQL
- **Machine Learning:** SciKit, NumPy, Regression, NLP, Classification, Time-Series Models, Signals Processing
- **Deep Learning:** Keras,TensorFlow 2.0, PySpark
- **Data Science and Analytics:** EDA, CDA, MS Excel
- **Financial Engineering:** ARIMA, MCS, Modeling
- **Image Processing/Computer Vision:** Scipy, OpenCV