

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%

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 existing methodologies in literature.

'Segmentation of Retinal Vessels Using Difference of Gaussian Filters & FCN Network'

Journal: Elsevier's Engineering Science and Technology, an International Journal

- First author of the paper (submitted) proposing a novel segmentation approach for retinal blood vasculature.
- Tests on real patients shows that our proposed approach diagnoses more accurately and quickly with low false positives.

SKILLS & TECHNOLOGIES

- **Programming Languages:** Python/MATLAB/C++/C
- **Database Management Systems:** MySQL
- **Machine Learning:** Regression, Classification, Signal Processing
- **Deep Learning:** Keras, TensorFlow, PySpark, SciKit, NLP
- **Data Science and Analytics:** EDA, CDA, Time-Series Models
- **Financial Engineering:** ARIMA, MonteCarlo Sims, Modeling
- **Image Processing/Computer Vision:** Scipy, OpenCV
- **Corporate Finance and Financial Markets** (Capital & Derivative)

LEADERSHIP

- **Secretary-General, Thapar MUN Society:** Led a team of 30 in hosting 4 Model UNs conferences recognized by the UNIC.
- **Institute Innovation Council:** Member of the MHRD council to oversee innovation efforts in the institute.
- **President, Student Welfare, DPS Gurgaon:** Led the student council to promote the interests of 1000+ students.

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.
- **Asset Price Modelling using MonteCarlo Simulations:** Developed a stochastic price model using historical prices and volatility. MonteCarlo simulations were performed and a frequency distribution 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.
- **Buying Behaviour Prediction of Consumers:** Built a machine learning model to predict clients' interests for a product line using Gradient Boosted Machines.
- **Capstone Project:** Speech sentiment analysis using 2D Temporal Convolutional Networks. Implemented using Python, Keras, & TensorFlow 1.0. Minimized cross-entropy loss by 28.3% 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.
- **Thapar Satellite Project:** Part of the On-Board Computer team with the aim to design and develop a nano-satellite capable of monitoring the infra-red Spectrum.
- **Random-Valued Impulse Noise Removal Using Hybrid Median Filter:** Researched and designed a novel algorithm based on a hybrid median filter to remove random-valued impulse noise from digital images using image processing.
- **V2X Communication using 5G:** Researched and simulated V2X communications based on 5G New Radio protocols and DSRC standards in MATLAB.
- **802.11p Channel Performance Evaluation:** Implemented a coding scheme for IEEE 802.11p to evaluate its performance under changing environmental conditions by MCS.

ACHIEVEMENTS & AWARDS

- **Won 6 Model United Nations Conferences** carrying out discussions on various International and national agendas.
- **Winner, Mozilla Firefox Hackathon 2018:** Developed an interactive website to promote United Nations SDGs.
- **Semi-Finalist, Smart India Hackathon 2018:** Hardware edition organised by Ministry of Human Resource Development.