Arunav Shandeelya

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Education

International Institute of Information Technology [IIIT Bhubaneswar] Bhubaneswar, India
*Bachelor of Technology in **Electrical & Electronics Engineering** with Minor in **Computer Sc. & Engineering*** *2015-2019*

Undergrad Coursework: Principle of Soft Computing, Object Oriented Programming, Microprocessor & Micro-controller, Analog & Digital
Online Coursework: Machine Learning(CS229), Deep Learning (deeplearning.ai), Deep Learning with NLP(CS224N)

Skills

- **Languages:** Python, C++, MATLAB
- **Libraries and Tools:** TensorFlow, PyTorch, Keras, Scikit-Learn, Numpy, Pandas, StanfordCoreNLP, nltk, Spacy, Jupyter
- **Others Softwares:** NI Multisim, Proteus Simulation tool, Keil, LOGISIM

Experience

Indian Institute of Technology Patna Patna, India
Research fellow (AI-ML-NLP LAB) *Jan 2019 - Present*

- **Supervisor:Prof. Asif Ekbal & Prof. Pushpak Bhattacharyya**: Department of Computer Science, IIT Patna
  - Working on Multimodal NLP i.e., Intersection of Natural Language and Computer Vision reconcile for NLG task.
  - Studying applications of NLP such as dialogue systems, Persona, fusions of multilinear modalities.

PriceWaterHouseCoopers (PwC) Kolkata, India
Technology Consultant Intern *May 2018 - July 2018*

- **Principal Consultant (Manager), Pratik Goenka**: Machine Learning in Supply Chain Management Systems
  - Worked & contributed in "Finance Cockpit" which translate the business performance into an Insight.
  - Developed a machine learning prototype for forecasting price based on KPIs such as spend analysis, maverick spend, total spend.
  - Along with this, it includes metrics such as trend analysis, spike/ anomaly detection, correlation breakdowns, etc. which helps user to draw an insights while selecting the vendor, based on location & prices.

International Institute of Information Technology Bhubaneswar, India
Undergraduate Research Assistant *Aug 2017 - Dec 2018*

- **Supervisor:Prof.R.C Balabantaray**: Associate Prof. Department of Computer Science & Engineering
  - Working on projects in area of Natural Language Processing using ML/AI
  - Assist fellow junior Researcher in current research in AI-ML & NLP through paper reading sessions and by organising hackathons.
  - Worked with prof. & research fellow and submitted my work at Journal of Sc. & Engg, **Sadhaana Springer**.

Xerox Research Center New Delhi, India
Research Intern *June 2016 - July 2016*

- **Human Computer Interaction**: AI Search Engine for Videos and Scientific Articles
  - Worked with GoodEd Technologies (education startup) involves for *Content Development, e-Course Management* & Xerox Research Center. Involved with human computer interaction and data visualizations team to work on AI based search engine.

Academics Projects

- **Interpretable Fusion Mechanism for Multimodal Representation Learning**: Prof. Asif Ekbal, Prof. Pushpak Bhattacharyya
  - Implemented a super-diagonal fusion mechanism to approximate for multi-linear fusion with a BLOCK super-diagonal tensor decomposition. As stated this fusion mechanism perform better in capturing the inter-modality dynamics.
  - We demonstrate this on two multi-modal task i.e., speaker traits analysis and speech recognition.
  - Submitted to *IEEE International Conference of Acoustics, Speech, Signal Processing (ICASSP 2020)* (Under Review)
  - **Tech:** Python, PyTorch, NumPy, scikit-learn

- **More to Perceptual in Super Resolution**: (Self Motivated)
  - Implemented a GAN based network and introduced a novel loss formulation derived from discriminator network provides strong supervision to generator for erasing the artifacts generated from pre-trained perceptual loss function.
  - Introducing loss with an objective of eliminating the unwanted artifacts from the high resolution images across the several level adversarial similarity.
  - Submitted to *IEEE Winter Conference on Applications of Computer Vision (WACV 2020)* (Under Review)
  - **Tech:** Python, PyTorch, openCV, MATLAB

- **Predictive Model for Extractive Summarization**: Prof. Rakesh Chandra Balabantaray (Academic)
  - Developed the predictive model for Extractive based Text Summarizations through deletion using concept of Stacked LSTM.
  - Study and Implemented LSTM Architecture for Sentence Compression. Achieved accuracy of greater than comparable SOTA models.
  - Submitted my work in Journal of Science and Engineering, **Sadhaana Springer** (Indian Academy of Science). [Status: Under Review]
  - **Tech:** Python, Keras, nltk, Spacy, StanfordCoreNLP

- **Information Retrieval from Micro blogs during Disasters**: Prof. Rakesh Chandra Balabantaray (Academic)
  - We present a system which analyses the emergency-related tweets to classify them as need and available tweets.
  - Trained a multinomial & bernoulli naive bayes model which analyses emergency related tweets to classify them as need and available tweets.The system will further give a ranked list of tweets, along with a relevance score for each tweet with respect to the topic. Finally, for each need tweet identified its corresponding mapped availability tweets are reported.
  - **Tech:** Python, scikit-learn, matplotlib, nltk, Spacy

- **Music Classification by Genres**: Prof. Abhijit Mustafi, BIT Mesra (Academic)
  - Developed a statistical machine learning approach for genre based music classification. train a network and compare the results between artificial neural nets and support vector machines. study features selection in audio such as MFCC, spectral centroid, etc. apply FFT algorithms for feature sampling.
  - Tested the Classifier with different kinds of inputs files for classifying them into Pop, Hip-Hop ,Rock, Classical, Metal etc. Study different parameters like total error, sensitivity, heat-map, frame width, and achieved >80% in Neural Network and >75% in SVM.
  - Tech: Python, ScipyFFT, sunau, GTZAN, matplotlib, scikit-learn

Mini Projects

- **Multi-class News Headlines Classification based on Genres**: (Self Motivated)
  - Implemented a [CNN-LSTM] based neural classifier architecture which are getting the probability distribution across the 22 classes. Used Kaggle dataset for performing this task.
  - By comparing results with other participants model our model beats the state of the art score of most of the participants & comes under top 50 submissions.
  - **Tech :** Python, Keras, scikit-learn, matplotlib

- **Predictive Model for Stock Market Investment**: (Self Motivated)
  - Crawled tweets and data from Marketwatch and Investopedia of the recent market scenario. Majorly data are from STOCKTWITS API for which gives tweets in real time along with past market trends.
  - Implemented a LSTM based neural architecture for classify the tweets amongs 4 classes. Perform the analysis to draw insights in portfolio investments based on the market sentiments.
  - **Tech:** Python, Keras, bs4, scikit-learn, matplotlib

Additional Experience & Achievements

- Ranked top **200** out of **5.5K** finalist of Mckinsey Analytics Hackathon organised by **Mckinsey & Company**
- Ranked **171/2000+** participant in **American Express** Machine Learning Hackathon on **HackerEarth**
- **Philips Data Science** Hackathon: 1st Round : Qualified (Technical MCQ Related to ML and Data Science),2nd Round : Coding Hackathon 18th) Rank with a score of 96.3/100 out of 1300
- **Global Alpha Researcher** Challenge by **Trexquant**, Achieved Rank 51 out of 7K participant across the world
- Global Alpha Competition by **WorldQuant LLC**. Achieved rank 681 in India
- **IIT Joint Entrance Examination** and successfully got a seat at IIIT in Department of Electrical Engineering.