Arunav Shandeelya

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Research Interest

Deep Learning, Natural Language Processing, Generative Modeling, Meta-Learning

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*

Bachelor Thesis: "**Courteous Response Generation in Task Oriented Multimodal-Dialogue System**"

Research Experience

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

- **Supervisor: Prof. Asif Ekbal & Prof. Pushpak Bhattacharyya**: Department of Computer Science, IIT Patna
  - Working on Multimodal Deep Learning 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.

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

- **Supervisor: Prof. Rakesh Chandra Balabantaray**:
  - Worked on intersection of natural language processing and deep learning for various NLP task
  - Specific Projects including Text summarizing using deep learning, Twitter Classification based on Statistical Machine Learning Analysis for Disaster Management, & Predictive model for price movement in stock market.
  - Submitted ***Journal of Intelligent Information Systems*** for Text Summarization Task.

Industry Experience

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.

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*,With Xerox involved in human computer interaction and data visualizations team to work on AI based search engine.

Academics Projects

- **Inducing Diversity in Task Oriented Multi-modal Dialogue Systems**: [Under Review]
  - Authors: **Arunav Shandeelya***, M.Firdaus, Asif Ekbal, Pushpak Bhattacharyya
  - We propose a novel approach & techniques which helps for any goal-oriented conversational agents, to improve their system responses that will be informative, diverse ,leading to better user experience.
  - Submitted to ***ACM Transaction of Knowledge Discovery from Data (ACM)***

- **More to Perceptual in Super Resolution**: [PREVIEW]
  - **Supervisor:** Prof. Vinod Pankajakshan, Indian Institute of Technology, Roorkee, India
  - Authors: A.Ravi Tej*, S. Halder, **Arunav Shandeelya**, Vinod Pankajakshan
  - Introduced a novel loss formulation derived from GAN based network in which discriminator network provides strong supervision to generator for erasing the artifacts generated from pre-trained perceptual loss function.
  - Utilizing the latent features from the discriminator, we adaptively filter the unwanted information introduced by the perceptual loss.

- **Predictive Model for Extractive Summarization**: [Code] [Under Review]
  - Authors: Deepak Sahoo*, Sthita.P. Pujari*, **Arunav Shandeelya****, Rakesh Chandra Balabantaray
  - Developed the predictive model for Extractive based Text Summarizations through deletion using concept of Stacked LSTM.
  - Building a text compression model that compress sentences by deletion through context categorization using bidirectional LSTM
  - Submitted to ***Journal of Intelligent Information Systems, (Springer)***

Mini Projects

- **Predictive Model for Stock Market Investment**: [Code]
  - Crawled tweets and data from Marketwatch and NYSE of the recent market for Intra-day trading. 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. Perform the analysis to draw insights in portfolio investments based on the market sentiments.
- **Information Retrieval from Micro blogs during Disasters**: [Code]
  - **Supervisor:** Prof. Rakesh Chandra Balabantaray, IIIT Bhubaneswar
  - 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.
- **Music Classification by Genres**: Prof. Abhijit Mustafi, BIT Mesra
  - 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.

Skills

- **Languages:** Python, C++, MATLAB
- **Libraries and Tools:** TensorFlow, PyTorch, Keras, Scikit-Learn, StanfordCoreNLP, nltk, Jupyter
- **Others Simulators:** FAIRSeq, pyCharm, open-NMT

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
- Secured **90%**ile in **IIT JEE**, a National Level Engineering Entrance Examination.
- Secured **AIR- 516** in *National Science Talent Search Examination*.

Position of Responsibility

- Co-Founder, **Machine Learning and Data Science Group** at International Institute of Information Technology, Bhubaneswar, India. The motivation is to organise hackathons and deliver talk on latest machine learning and AI topics such as Attention Networks, GloVe, LSTM Networks to students in sophomore, pre-final year.

Relevant Course-Work

- ***Undergraduate Coursework:*** Principle of Soft Computing, Assembly Language Programming, Object Oriented Programming, Internet and Web Technologies, Discrete Mathematics, Optimization in Engineering, Advanced Engineering Mathematics, Statistics & Probability, Signal and Systems, Microprocessor & Micro-controller.
- ***E -Learning:*** Deep Learning with NLP (CS224N), Machine Learning (CS229), Neural Network and Deep Learning [CERTIFICATE], Structuring Machine Learning Projects [CERTIFICATE].

References