Subrat Kumar

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EDUCATION

The University of Queensland - IIT Delhi Brisbane - New Delhi
PhD in Machine Learning & Security(Dr Dan Kim & Dr Vireshwar Kumar), **CGPA 9/10** *Aug 2021 – May 2025*
- My area of interest lies in the security of machine learning and machine learning for security. I'm currently working on Semantic Preserving Adversarial Attacks and it's application on intrusion detection systems.

VSS University of Technology Sambalpur, Odisha
Bachelor of Technology in Computer Science, **CGPA 9.21/10** *Aug 2016 – Jul 2020*
- Computer Networks, OS, DBMS, Data Mining, Data Structures & Algorithms.

EXPERIENCE

Product Engineer Sep 2020 – Aug 2021
Cognizant Technology Solutions *Bengaluru, KA*
- Developed and integrated a Ticket Analysis Solution into Nexa, an AutoML platform, which generates plots for volumetric & multivariate analysis and arrival patterns of the tickets.
- Integrated Content-Security-Policy by generating CSP nonces from Nginx end.

Machine Learning Engineer Sep 2019 – Sep, 2020
TaiyoAI Inc. *San Francisco, CA(Remote)*
- Automated the hyper-parameter optimization of models by 80% using **Bayesian optimization**.
- Improved model evaluation by ranking 20+ competing machine learning models by implementing an evaluation leader board for various use cases.
- Improved & managed model deployment pipeline for 1000+ time series forecasting models using **Apache Airflow**

Undergraduate Research Assistant (Under *Prof. Bighnaraj Naik***)** Apr 2018 – Mar 2020
VSS University of Technology, Burla *Sambalpur, Odisha*
- Implemented a Deep Belief Network classifier using only Python by stacking multiple Restricted Boltzmann Machine.Performed a comparative study of classification power of the DBNs by trying out different Gibbs chain lengths in Gibbs sampling.

AWARDS AND ACHIEVEMENTS

I was a part of UC Berkeley SkyDeck Start-up Acceleration program as an ML Engineer for taiyo.ai
Secured an **AIR 800** (99.2 percentile) among 1 lakh+ candidates in GATE 2021(CS-IT)
Secured an **AIR 13,187** (top 5%) among 2 lakh candidates in JEE-Advanced 2016
Selected for national level visual art competition from Bhopal region as one of 50+ participants in standard IX.

RESEARCH PUBLICATIONS

Deep Learning and Wavelet Transform integrated approach for Short-term solar PV power prediction(here)
- A novel short-term solar power prediction model is presented in this work, by utilizing the learning ability of Long-Shot-Term-Memory network (LSTM) based deep learning (DL) technique and the concept of wavelet transform (WT).

PROJECTS

A Collection of Meta-Learning Algos(here) | *Python, Pytorch*
- Implementation of Meta Learning based algorithms that includes experiment on toy and reasoning dataset. This includes Few-shot Learning, Representation Learning, Continual Learning, Neuro-Symbolic Reasoning.

Reading Noisy Captions Embedded in Images(here) | *Pytorch, Python*
- The task is to predict the text embedded into the image (irrespective of the background image). But, these captions may or may not correctly correspond to the image in which it is embedded i.e. in some cases it has been randomly embedded on background image and in the remaining examples it's correctly embedded on top of correct image.
- An Encoder-Decoder model with attention is implemented for this task. Encoder is ResNet50, the decoder is word level LSTM network trained using teacher forcing method. The predicted text is generated using beam search and the evaluation is the BLEU score.