ASHOK AJAD

MACHINE LEARNING ENGINEER

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web-portfolio
code-cse
ashok-ajad

PROFESSIONAL PROFILE

Machine Learning Engineer professional with 4+ years of strong expertise in building variety of Deep Learning as well as traditional Machine Learning solutions, thereby helping Fortune 500 clients scale data driven decision making in various business functions. Love working with state-of-the-art tools and technologies. Have a knack of solving problems that haven't been solved yet.

EDUCATION

Indian Institute of Technology, Dhanbad
M.Tech - Computer Science and Engineering
[2016 – 2018]
National Institute of Technology, Agartala
B.Tech - Computer Science and Engineering
[2009 – 2013]

- Research Publication in Pipelines | Links |

- **Role and Responsibilities:**
  - Designing and building impactful Deep-Learning solutions for business use-cases.
  - Actively researching about the latest AI and DL techniques
  - Training the freshers for smooth processing into the ML projects.

- **Cloud Vendors**   GCP (Google), AWS
- **Programming**   C, C++, Python
- **ML Frameworks**   Tensorflow, Keras
- **Machine Learning**
  - Traditional Machine Learning
  - Convolutional Neural Network
  - RNN (LSTMs and GRUs)
  - Recommender System
  - Generative Adversarial Network (GAN)
- **Data Structure and Algorithm**

WORK HISTORY

Mar-2018 – Present | **Machine Learning Engineer** | **Quantiphi Inc.**
Designing and building impactful Deep-Learning (DL) solutions for business use-cases. [e.g. Image, Text, Video and Speech] Actively researching about the latest AI and DL techniques.

Jul-2017 – Feb-2018 | **Solution Consultant and Algorithm Validation** | **Nisin Technologies.**
Designed and build impactful Deep-Learning solutions for business use-cases. Determines operational feasibility by evaluating analysis, problem definition, requirements, solution development, and proposed solutions.

Jul-2016 – May-2018 | **GTA - Graduate Teaching Assistant** | **IIT Dhanbad**
Worked as a Subject Instructor in Computer science Subjects like Advance Algorithm and Data Structure, and Machine Learning. Assist more than 50 students in lab work and designed module for their lab work and evaluated their assignment

May-2017 – Jul-2017 | **Software Engineer - Intern** | **Rakuten**
Worked as a Subject Instructor in Computer science Subjects like Advance Algorithm and Data Structure, and Machine Learning. Assist more than 50 students in lab work and designed module for their lab work and evaluated their assignment

Oct-2013 – Mar-2016 | **Software Developer** | **Life-UP Software Park**
Developed various application for Android OS based mobile and web applications. Documented user requirements and specifications for developing and maintaining the application. Tested the developed functionality of the application using unit testing. Version Management; Deployment Support; Performance Tuning of Code.

KEY PROJECTS

Generative Adversarial Network OIL & GAS	**Enhance Image Resolution Quality for Seismic Images** **Detail**

Enhance Image Resolution Quality for Seismic Images **Detail**

● **Problem Statement:** To enhance the image resolution quality of seismic images for one of the leading oil and gas manufactures in the world. Quality of image resolution in enhanced based on the different classes in the seismic images. Challenges involve the format of seismic images, ground truth of images and different classes present in the seismic images. Inference time for quality enhancement system.

● **Solution Implementation:** Developed a Generative Adversarial Network (GAN) i.e. class conditional super resolution GAN based computer vision model that would perform the resolution enhancement of seismic images. Model also perform the resolution enhancement based on classes present in the images.

● **Impact Perform different mathmatical and techniques:** Developed a highly accurate model on cloud machine learning engine (CMLE) for end to end process. Perform single as well batch prediction and easy to handle the for different user with minimal knowledge of model.

Recommend-er System

Retail Industry

AI based Fashion Recommendation System **Detail**

● **Problem Statement:** To build a recommend-er system for one of leading retail industry. This system will recommend the items for user's current dressing style and face shapes. Challenges involve handle the large data to trained the computer vision model. Recommending the item to user in real time based on availability of item in stores.

● **Solution Implementation:** Developed a combination of different computer vision models that would perform highly accurate recommendation for the user. Different computer vision models are trained and build in a pipeline together for recommending items.

● **Impact:** Developed a highly accurate that can easily be deployed on a static camera installed on the side of a store.

Convolutional Neural Network

Real Estate

Data Warehouse System **Detail**

● **Problem Statement:** To build a custom data warehouse system for one of the leading real estate industry in the world. The custom model include the multiple classes to be classified with different condition. Challenges involve to handle the large data approx 200k images with multiple classes approx 100 with minor different in classes, and simultaneously perform multiple requests to system with minimal inference time.

● **Solution Implementation:** Developed a CNN based computer vision model classification model that would perform highly accurate classification. Perform different mathematical and different hashing techniques to solve the problem. Create a pipeline for end to end user interface.

● **Impact:** Developed a highly accurate model and deployed on cloud machine learning engine (CMLE).

Pointer Generator Network

Media & News

Summarization of News and Documents **Detail**

● **Problem Statement:** To build a custom model of a text summarisation, that would take a passage and come up with the best possible summary, title and most popular word associated to the passage.

● **Solution Implementation:** Tried out various traditional machine learning as well as deep learning model. Finally implemented an architecture inspired from state-of-the-art research - - Get-pointer generator network, trained on CNN, Daily news dataset.

● **Impact:** Above model was used to get the text summary with title and most popular word from various passage related to official SOP manuals and reports followed in a production plant, provided by the client.

Recurrent Neural Network
LSTM

Health-care

DNA-Splice Gene Junction **Detail**

● **Problem Statement:** Required to accurately splice protein encoding part of the gene for DNA-level gene, that would take any length of gene-sequences and perform the protein encoding level of gene. Challenges involve the availability of tag data of gene sequences.

● **Solution Implementation:** Developed a deep learning model for gene splicing. The data set is split into 5 folds. Selected model employs RNN based word embedding fused and passed into Highway Network layer, followed by dual attention.This is then passed through a bi-directional LSTM modelling layer to predict span of relevant level to the given gene-sequences.

● **Impact:** Above model was used to get level from various gene sequences of protein encoding, reports followed in a production plant, provided by the client.

Face-net, SSD
Object tracking

Media & Entertainment

Monitor the Person Appearance and Anomaly Detection **Detail**

● **Problem Statement:** To automate the monitoring of person appearance and detect the activity of person (anomaly detection). Various quality-inspections, currently being performed manually. Challenges involve to handle the large amount of data approx 200 hrs of videos feed.

● **Solution Implementation:** Developed a CNN based computer-vision model, that would perform classification of persons passing on a gate in real-time. Model also performs recognition of person and tracking of person activity.

● **Impact:** Developed a highly accurate and a small-size model that can easily be deployed on a static camera installed on the side of gate.