Garima Mahato
Systems Engineer,
Samsung Electro-mechanics Software India Private Limited
LinkedIn , GitHub, Portfolio

Phone : +91 – 9663583281
Email : m.garima7@gmail.com

Passionate about Machine Learning. Self-driven and motivated individual who is adept at understanding technical papers and implementing them. I like taking up challenges and persevere to give excellent results. I would like to work in a competent, challenging and responsible environment where I can enhance my knowledge and also extend my expertise as an ML enthusiast.

Education

2012-16	BIT Sindri, Dhanbad Bachelor of Technology, Information Technology	(CGPA)8.42/10
2012	12th (Indian School Certificate Examination) Council for Indian School of Certificate Examination	90.5%
2010	10th (Indian Council for Secondary Examination) Council for Indian School of Certificate Examination	89.57%

Experience

Dec'19 – Present

Samsung Electro-mechanics Software India Private Limited

- Role: Software Engineer
- Developed end-to-end solutions in Python using Machine Learning and Deep Learning
- Lead a team of 8 members to build products to automate and improve processes

Dec'16 - Dec'19

TATA Consultancy Services

- Role: Systems Engineer
- Developed end-to-end solutions in Python using Machine Learning, Deep Learning, Computer Vision and Image Processing, Natural Language Processing concepts
- Developed Web Application using ASP.Net, AngularJS, SharePoint 2013
- Working experience in Agile/Scrum development environment with frequently changing requirements.
- Delivered projects with 100% customer satisfaction

Workshops & Trainings

June 2020	Completed **Extensive Vision AI 4 Program for 2020(Phase 1)** by The School of AI
Nov 2019	Completed online training on "**Machine Learning by Stanford University**" on Coursera
April 2019	Completed online training on "**Deep Learning A-Z**"
	Completed online training on "**NLP: Natural Language Processing**"
Nov - Dec'15	Successfully underwent online training on **Image Processing-SimpleCV** conducted by Internshala with **90%** score
Aug'14 - Feb'15	Successfully underwent online training in **Python** conducted by Internshala with **100%** score
	Successfully underwent online training in **Web Development(HTML, CSS, PHP, MySQL)** conducted by Internshala with **90%** score
	Successfully underwent online training in **Core Java** conducted by Internshala with **90%** score
Jun-Jul'14	Underwent IBM Career Education program on J2EEwhere I learnt J2EE,JS,DB2,SDLC using various IBM software like Rose 2000,Websphere and developed a project on Online National Polling System.

Internships

May-Jul'18

The Inkers Technology

- Completed 2 months External Internship Programme
- Hands-on experience in coding deep neural networks like CNN,RNN, ResNet, DenseNet
- Created Indian Faces Database and used it to generate faces based on high-level description

Projects

Jul 2021 - Present

Parameter Optimization to minimize defects

- Role - Team Lead and AI developer
- Analysed customer requirements
- Helped shape up an automatic data collection, preparation and SME-validated system
- Developed model to optimize machine settings to minimize defects

May 2021 - Aug 2021

Extensive NLP 2 Program

- Worked on NLP related problems using RNN, LSTM, GRU, Seq2Seq and transformers
- Link to GitHub repository of work

Jul 2020 – Jan 2021

Extensive Vision AI 4 Program for 2020(Phase 2)

- Developed and deployed CNN and DNN models.
- Link to GitHub Repository of work , Link to website

March 2020 – June 2020

Extensive Vision AI 4 Program for 2020(Phase 1)

- Created APIs for deep learning tasks. Worked on various CNN networks.
- Link to API , Link to EVA4

Custom dataset for depth and mask

- It consist of: Background image - 100 images of 160x160x3 dimension, foreground with background - 400000 images of 160x160x3 dimension, ground-truth mask - 400000 images of 160x160x1 dimension, ground-truth depth - 400000 images of 160x160x1 dim
- Link to work: DepthMaskDataset

Mask Depth Generator

- It takes an image and its background as input to generate depth and mask for the image.
- Link to work: MaskDepthGenerator

Feb 2020 – June 2021

AI Platform

- A data preparation & modelling tool for Machine Learning and Deep Learning tasks to automate data preprocessing processes and generate standard datasets.
- Role: Backend developer to develop core functionalities of data preprocessing.

Feb 2019 – May 2019

Predicting Ablation Procedure details from data

- Implemented an ML based model to predict ablation requirements of cancer patient and volume that needs to be ablated. The model takes patient details as input and predicts number of probes, power and time for those probes. "MultiOutputClassifier" was used to predict the number of probes and "Regression" was used to predict power and time for those probes with 86 % accuracy. Created a flask API to serve the created model.
- Created a python module to read the RTSTRUCT file and generate a 3D view of the lesion volume using Plotly along with its calculated volume in cubic millimetre.
- Created web application in ReactJS for taking inputs and generating results using API.
- Used Azure Databricks with MLFlow for data analysis, model creation, versioning and model serving.
- Language – Python, Libraries – Scikit-learn, Plotly

Mar-April 2019

Chatbot on Bambi Dataset

- This chatbot uses End-to-end memory network to answer question on Bambi dataset with a training accuracy of 90.22%. The network was created concatenating a series of

embedding layers and dropout and passing it to an LSTM. This model is based on the reference paper: End-to-end memory networks
- Used Natural Language Processing(NLP) techniques for input analysis and dataset formation, and Deep Learning to create and train models
- Language – Python, Libraries - Keras
- Reference of work: ChatbBot on Bambi Dataset

Aug-Oct 2018

Tracking (Research Project)
- Implemented a novel model to track. The model takes as input a series of video captures with the bounding box of people in the first capture, which is generated from YOLOv3. It then uses the idea of the "A Complementary tracking model with multiple features" reference paper to create an optimal feature representation of those bounding boxes by using an ensemble model of both template and statistical features. This optimal feature representation is merged with the features generated from a model trained on human detection and used in deep sort technique to track people.
- Used Image Processing and Computer Vision techniques for input analysis and dataset formation, and Deep Learning to create and train models. Reference paper: A Complementary tracking model with multiple features

Jun-Jul'18

Generating Indian Faces with Deconvolutional Network
- Created an **Indian Face Database** consisting of images of 28 Indians in different poses and lighting from scratch.
- Trained a "Deconvolution Neural Network" using this dataset consisting of model's identity, view, and transformation parameters as input and the image as output with the results that the network learns to generate 2D projections from high-level description of 3D models, learns about face structure and about 3D space concepts. This gained knowledge is then used by the model to infer remaining viewpoints of the same face and also to interpolate between different faces.
- Used Image Processing and Computer Vision techniques for dataset formation, and Deep Learning to create and train models
- Language – Python, Libraries - Keras; Reference paper: Learning to generate chairs, tables and cars with convolutional networks , Reference of work: Generating Indian Faces

Technical Skills

Languages	*Proficient in: Python, JAVA*
Web	*Proficient in*: HTML, CSS, JavaScript, AngularJS *Beginner in*: ReactJS
Database	*Proficient in*: SQL *Beginner in*: MongoDB
Frameworks	*Proficient in*: Flask, AngularJS, Keras, Scikit-Learn, Numpy, Pandas,Pytorch,Tensorflow

Achievements

2019	Awarded "Certificate of Appreciation" for outstanding contribution towards Technical Excellence
2017	Awarded "ILP Kudos" for outstanding performance during training
2013	Awarded "North America Alumni Association Scholarship" award for being the 2nd branch topper in Information Technology
2010-2012	Received "Timken India Limited Scholarship 2012" for excellent performance in XII Received cash award in Essay Competition conducted by "Department Of Atomic Energy, Atomic Minerals Directorate For Exploration And Research, Eastern Region" Ranked among top 50 students in International Olympiad Of Science at State Level

Co-curricular and Extra-curricular Activities

2014-15	Student Member of Cryptology Research Society of India(CRSI) (ID- S/0339)
2017	Taught students as part of CSR initiative to motivate them in the field of STEM