Tanjina Piash Proma

Machine Learning Engineer

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Summary

Experienced Machine Learning Engineer proficient in developing and deploying ML models. Strong skills in data preprocessing, feature engineering, model selection, and evaluation. Proficient in Python and popular ML frameworks. Collaborative problem solver with a passion for delivering impactful solutions.

Skills

- **Machine Learning:** Experienced in using Machine learning (ML), Artificial Intelligence (AI) and Deep Learning (DL) techniques including neural networks, convolutional neural networks (CNNs), recurrent neural networks (RNNs), and generative adversarial networks (GANs), using ML frameworks such as TensorFlow, PyTorch, Scikit-learn, Keras.
- **Computer Vision:** Skilled in using techniques for image classification, object detection, recognition and extracting insights using OpenCV, PIL/Pillow and other image processing libraries.
- **NLP:** Proficient with Sentiment Analysis, Named Entity Recognition, Translation, Attention models, Encoder-decoder based models, Transformers, BERT, GPT-3, and T5.
- **Programming Languages:** Skilled in Python and C++.
- **Data Analysis and Visualization:** Pandas, NumPy, Matplotlib, Seaborn.
- **Big Data Technologies:** Familiar with Apache Kafka, MongoDB.
- **Machine Learning Pipeline:** Efficient in building an end-to-end ML pipeline using steps i.e. Data preprocessing, EDA, Feature engineering, Model Selection and Training, Evaluation, Hyperparameter Tuning, Model Deployment, Monitoring and Maintenance using Python's modular programming approach.
- **MLOps:** Adept in using techniques and tools to manage the deployment, monitoring, and maintenance of models in production.
  - Version Control: Git, GitHub
  - Continuous Integration and Continuous Deployment (CI/CD): CircleCI, GitHub Actions.
  - Containerization: Docker.
- **Cloud Platforms:** Experienced with AWS (ECR, EC2, S3), Azure (Azure Container Registry, App services) and GCP for deploying and managing models.
- **API Development:** Proficient in writing API for machine learning inference using FastAPI, Flask.

Experience

JUNE 2023 – PRESENT

Data Science Intern / iNeuron.ai, India.

- End-To-End NLP Text Classification on New Articles: Implemented a text classification system to categorize news articles into predefined categories using Transformers model BERT with 98.75% accuracy rate. Tools Used: Python, PyTorch, Hugging Face's transformers for utilizing pre-trained model BERT, Docker, FastAPI, GitHub Actions and AWS ECR, EC2. Demo

JANUARY 2019 – FEBRUARY 2022

Research Associate (AI & ML) / Independent University, Bangladesh (IUB)

- National Medicine Image Database creation: Creating Image dataset of 101 medicines produced in Bangladesh, a total of 50,500 annotated images using YOLO-v4 for detection and annotation. This project was funded by the ICT Division, Government of the People's Republic of Bangladesh.
- Face recognition for biometric security solutions: Face region selection from continuous video feed by taking frames per second. Encoding image frames for identification by implementing CNN, FaceNet model, Inception model, One-shot learning algorithm using TensorFlow framework.
- Analysis of CERN's very large particle data using machine learning: Acquiring expertise in the area: Clustering, Representation Learning, Semi-Supervised Learning, Graph-based Machine Learning, Time-Series/Data Streams.
- Video captioning with NLP: Classifying videos based on the visual content by running frame through CNN, feed it to a sequence-to-vector RNN, LSTM and Attention Network building from video feature streams.

JANUARY 2017 – DECEMBER 2018

Research Assistant (AI & ML) / Independent University, Bangladesh (IUB)

- University Rover Challenge **(URC 2018) Utah, USA**: As the AI Lead of Team IUB Attendant Worked on Autonomous rover navigation using GPS and vision-based path planning, onboard camera-depended object detection in real life terrain in MDRS, Utah, USA using ML framework TensorFlow, OpenCV and PIL. Worked on Path generation, update, and modification of Python-based rover maneuver map.
- Medical Image Project: Pill recognition using intrinsic geometric properties and identify shape, color, and text of pill image using image processing and ML algorithms such as classification and clustering method in MATLAB.
- Line Follower: Raspberry Pi controlled, onboard camera depended Image Processing based line follower.

OCTOBER 2017 – MARCH 2018

R&D Engineer / Bitec Software

- Machine learning algorithm implementation analysis, proposal writing, scope and objective analysis, documentation, and presenting pitch in the Prime Minister's Office of Bangladesh.

JANUARY 2014 – DECEMBER 2016

Teaching Assistant / Independent University, Bangladesh (IUB)

Courses:

- Artificial Intelligence (CSC425)
- Image Processing & Pattern Recognition (CSC420)
- Machine Learning (CSC424)
- Introduction to Computer Science(CSC101)

Education

JANUARY 2013 –AUGUST 2017

BSc in Computer Science / Independent University, Bangladesh (IUB)

Minor: Robotics.

Publications

- Md. Zakir Hossan, **Tanjina Piash Proma**, M Ashraful Amin. “Medicine Recognition Using Intrinsic Geometric Property from Pill Image”. Pacific Rim International Conference on Artificial Intelligence (PRICAI 2016). *Winner of the Best Presentation Award*
- Ishraq Ul Haque, Abul Arabi, Shadat Hossain, **Tanjina Piash Proma,** Nafi Uzzaman, Mahfuz Hannan and Sajjad Hossain. “Vision Based Trajectory Following Robot along with Swarm Robotics”. 3rd International Conference on Control, Automation and Robotics (ICCAR 2017)
- Abul Al Arabi, Hasib Ul Sakib, Pranabesh Sarkar**, Tanjina Piash Proma**, Jahedul Anowar, M Ashraful Amin. “Autonomous Rover Navigation using GPS Based Path Planning”. Asia Modelling Symposium 2017 (AMS2017)
- **Tanjina Piash Proma**, Md. Zakir Hossan, M Ashraful Amin. “Medicine Recognition from Colors and Text”. 3rd International Conference on Graphics and Signal Processing (ICGSP 2019)

Certifications

Coursera:

- Deep Learning Specialization (Certificate)
- Natural language Processing Specialization (Certificate)
- DeepLearning.AI TensorFlow Developer Professional Certificate
- Data Engineering, Big Data, and Machine Learning on GCP Specialization (Certificate)
- Machine Learning in Production (MLOps) Certificate

Udemy:

- Deep Learning A-Z™: Hands-On Artificial Neural Networks. Certificate

References

Available upon request