Curriculum Vitae

Sifat Ahmed

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■ Overview

Working as a full-time Robotics & Deep Learning Engineer at Environmental Intelligence & Innovation Inc., Japan. Before that, I worked as a Data Scientist at Hiperdyne Corporation Ltd., Japan. Using deep learning, I have performed several computer vision tasks and developed multiple real-time solutions for clients. I have one year of experience in natural language processing in undergraduate dissertations. Also, an author of multiple research articles and publications in computer vision and natural language processing. During the undergraduate course, I had a short 6-month internship on intelligent application development at Microsoft Bangladesh. Prior to that, I worked as a 3D game asset design trainer in a government project organized by the Ministry of Information and Communications Technology, Bangladesh for over 6 months.

■ Overview of Work Experience

- 2021.06.01 ～ Ongoing — Senior Engineer, Robotics and Deep Learning, Environmental Intelligence & Innovation Inc.
- 2020.02.01 ～ 2021.05.31 — Data Scientist, Hiperdyne Corporation Ltd.
- 2018.11.01 ～ 2019.05.31 — Intern, Hiperdyne Corporation Ltd.
- 2018.03.01 ～ 2018.10.31 — Intern, Microsoft Bangladesh
- 2016.10.01 ～ 2017.04.30 — Trainer, Information Communication and Technology Division, Bangladesh

■ Educational Background

Year	Institution
2019	Ahsanullah University of Science & Technology (Bachelor of Science in Computer Science and Engineering) CGPA: 3.248/4.00
2014	BAF Shaheen College Dhaka (High School Certificate) GPA: 5.00/5.00
2012	BAF Shaheen College, Dhaka (Secondary School Certificate) GPA: 5.00/5.00

■ Summary of Work

- Currently working on autonomous pick and place robotic systems for garbage sorting robots, smoke, and fire detection systems.
- 3 years of experience in computer vision, natural language processing, and deep learning (1.5 year of work experience)
- Experience in different types of image classification, object detection, and segmentation, keypoint estimation.
- Experience in natural language processing such as positive / negative sentiment analysis, sentiment extraction, and text generation.
- Involvement in several game development, software development, and web development projects during my undergraduate years.
- Experienced in research. Written 2 journal articles and completed 6 IEEE conference publications.
- Participated in a programming contests and hackathons during undergraduate studies.

■ Skills & Programming Languages

Skills	
Programming Language	Python, C, C++, C#, Java, R
Machine Learning	PyTorch, Tensorflow, Scikit-learn, OpenCV, Scikit-Image, Natural Language Toolkit, Keras, FastAI
Robotics	ROS, Arduino, Raspberry PI
Web development	HTML, Javascript, PHP, ASP.NET
Database	MySQL, Oracle

OS	Linux, Windows
Tools	Git, Vi, Matlab, Blender3D, Unity3D

■ Projects and Work History

2021.06.01 ～ Ongoing Environmental Intelligence & Innovation Inc.

Timeline	Project Details	Responsibilities	Technologies	Members/Roles
2021.06.01 ～ Ongoing	Automatic garbage sorting robot programming • Detecting concretes/pet bottles from industrial garbage • Robot control/ SDK development (Hiwin Scara Robot) • Object pick and drop planning, task assigning, decision making • Improvement of object picking on a running conveyor belt using reinforcement learning	Detailed Design ・Development ・Test ・Review	OpenCV, PyTorch, Scikit-image, Keypoint Estimation, Linux, ROS	4 Members Implementation, Testing, Documentation
2021.06.01 ～ Ongoing	Industrial smoke and fire detection from live camera feed with real-time warning system • Smoke detection using deep learning • Fire detection using deep learning	Detailed Design ・Development ・Test ・Deploy ・Maintenance	OpenCV, PyTorch, Scikit-image, Linux	1 Member Dataset Preparation, Implementation, Testing, Documentation

2020.02.01 ～ 2021.05.31 Hiperdyne Corporation Ltd.

Timeline	Project Details	Responsibilities	Technologies	Members/Roles
2020.02.01 ～ 2020.03.10	Parking lot Analysis from Drone Images • Drone Takes images of the parking lot from above every hour. • Detect if a new car has been parked. • Detect if an existing car has left. • Detect if a new car has been parked in a place of a previous car.	Detailed Design ・Development ・Test ・Review	OpenCV, PyTorch, Scikit-image, YOLOv3, Linux	3 Members Dataset annotation, Implementation, Testing, Documentation
2020.03.11 ～ 2020.03.31	Problem Detection of Solar Panels from Drone Images • Drone Takes images of the Solar Panel • Segmentation and Data Preparation • Variational Autoencoder Model Development • Training, Testing, and Documentation	Detailed Design ・Development ・Test ・Review	OpenCV, PyTorch, Scikit-image, YOLOv3, Linux	3 Members Dataset Preparation, Segmentation, Implementation, Testing, Documentation
2020.04.01 ～ 2020.05.31	Keypoint Estimation of Golf Players and Objects • Dataset annotation and Preparation • HRNet Model Training and Customization • Output Visualization • Training, Testing	Detailed Design ・Development ・Test ・Review	OpenCV, PyTorch, Scikit-image, COCO annotator, Linux	5 Members Dataset annotation, Implementation, Testing, Documentation
2020.06.01 ～ 2020.06.30	Golf Stick Swing Analysis and Similarity Check • Keypoint comparison • Video/video matching • Discovery of similarities	Detailed Design ・Development ・Test ・Review	OpenCV, PyTorch, Scikit-image,	1 Member Dataset annotation, Implementation, Testing, Documentation
2020.07.01 ～ 2020.07.15	Real-time Custom Object Detection using YOLO v3 and Jetson NANO. • YOLO v3 model training. • Deploy the model to Jetson NANO. • Conversion to TensorRT • Real-time performance test	Detailed Design ・Development ・Test ・Review ・Documentation	PyTorch, OpenCV, Jetson NANO, TensorRT	2 Members Dataset annotation, Implementation, Testing, Documentation

2020.07.16 ~ 2020.08.31	Improved object detection accuracy of YOLO v3 • Dataset creation • Dataset annotation • Image augmentation • YOLO v3 model development • Development at Jetson NANO	Detailed Design ・Development ・Test ・Review ・Documentation	PyTorch, OpenCV, Jetson NANO, TensorRT	1 Member Dataset annotation, Implementation, Testing, Documentation
2020.09.01 ~ 2020.12.31	Research and Study on Human Re-identification using Deep Learning • Review of Recent Research Papers • Create Documentation on Recent Research	-	-	1 Member
2021.01.01 ~ 2021.05.31	Implementation of human body reidentification. • Dataset processing. • Development of Siamese Neural Network • Similarity Check and Testing • Real-time deployment	Detailed Design ・Development ・Test ・Review ・Documentation	OpenCV, PyTorch, Scikit-image,	1 Member Dataset annotation, Implementation, Testing, Documentation

■ Research Experience

Year	Research Title	Publication
2021	A Comprehensive Survey of COVID-19 Detection Using Medical Images. Shah, F.M., Joy, S.K.S., Ahmed, F., Hossain, T., Humaira, M., Ami, A.S., Paul, S., Jim, M.A.R.K. and **Ahmed, S.**, 2021. (https://bit.ly/3BM1cxA)	SN Computer Science, 2(6), pp.1-22
2021	Automated COVID-19 Detection from Chest X-Ray Images: A High-Resolution Network (HRNet) Approach. **Ahmed S.**, Hossain T, Hoque O. B., Sarker S., Rahman S., Shah F. M. (http://bit.ly/3qh9fvO)	SN Computer Science 2021 (Article Number: 294)
2020	An Attention-based approach to Detect Emotion from Tweets. **Ahmed S.**, Reyadh A. S., Shaafi A. I., Tabsun F., Shah F. M. (https://bit.ly/3bWIkS4)	3rd International Conference of Computer and Informatics Engineering. (IC2IE, 2020)
2020	Early Depression Detection from Social Network Using Deep Learning Techniques. Shah F. M., Ahmed F., Joy S. K. S**, Ahmed S.**, Sadek S., Shil R. (https://bit.ly/2O5Okia)	IEEE Region 10 Symposium. (TENSYMP 2020)
2019	Bengali Handwritten Alphabet Recognition using Deep Convolutional Neural Network. **Ahmed S**, Tabsun F., Reyadh A. S., Shaafi A. I., Shah F. M. (https://bit.ly/3eddHt8)	5th International Conference on Computer, Communication, Chemical, Materials and Electronic Engineering. (IC4ME2, 2019)
2019	Emotion Detection from Tweets using AIT-2018 Dataset. Shah F. M., Reyadh A. S., Shaafi A. I., **Ahmed S.**, Tabsun F. (https://bit.ly/3sOcQmP)	5th International Conference on Advances in Electrical Engineering. (ICAEE-2019)
2019	Fake Review Detection using Principal Component Analysis and Active Learning. Shah F. M., **Ahmed S.** (https://bit.ly/388aoQk)	September 2019, International Journal of Computer Applications 178(48):42-48. (IJCA, September Edition, 2019)
2019	Using Boosting Approaches to Detect Spam Reviews. **Ahmed S.**, Shah F. M. (https://bit.ly/3eaaWcc)	1st International Conference on Advances in Science, Engineering and Robotics Technology 2019. (ICASERT 2019)
2019	**Undergraduate Thesis:** Detecting Emotion Content In Tweets Using Deep Learning.	

■ Personal and Academic Projects

Year	Project Title	Tools
2020	COVID Detection from Chest X-Ray Images Using Deep Learning	PyTorch, OpenCV, UNet, HRNet
2020	Face mask detection using YOLO v3	Pytorch, OpenCV, YOLOv3
2019	Sakura (Cherry) Bloom Prediction	Linear Regression, Data Analysis, Keras
2019	[Kaggle.com] House Prices Advanced Regression Techniques. (Top 3%)	Scikit-learn, Data Analysis, XGBoost, Tensorflow, Keras
2019	[Kaggle.com] Titanic: Machine Learning from Disaster. (Top 6%)	Scikit-learn, Data Analysis, XGBoost, Tensorflow, Keras
2019	[Kaggle.com] Digit Recognizer. (Top 3%)	Scikit-learn, Data Analysis, Keras
2018	Bengali Handwritten Character Recognition	OpenCV, Keras
2018	Natural Image Classification	OpenCV, Keras

2018	Lunar Lander (Reinforcement Learning)	OpenCV, Keras
2018	Twitter Sentiment and Emotion Analysis	NLTK, Keras
2018	YouTube Vide Downloader （Single Video/Channel/Playlist） Windows Universal Desktop App. https://sourceforge.net/projects/youtubealldownloader/	C#, Visual Studio

■ Personal Achievements

- **6th Position**, Intra AUST Programming Contest-Fall 2017
- **Runners Up**, Software Development, Intra AUST Technomania-Fall 2017
- **Runners Up**, Software Development, Intra AUST Project Show-Fall 2015
- **Runners Up**, Mathematical Olympiad, 2013. BAF Shaheen College, Dhaka
- **Gold Medalist**, National Meritorious Scout of the Year 2011, Bangladesh Scouts
- NAT Test of Japanese Proficiency Q5 (N5 Equivalent): 2019.02

■ Online Courses

- Robotics Software Engineer Nanodegree – Udacity
- Introduction to Machine Learning with PyTorch – Udacity
- Computer Vision Nanodegree – Udacity
- Introduction to Deep Learning – MIT Opencourseware

■ Others

- Google Scholar: https://scholar.google.com/citations?user=0uPQXn0AAAA
- Research Gate: https://www.researchgate.net/profile/Sifat-Ahmed
- Github: https://github.com/Sifat-Ahmed

■ References

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