MONI SHANKAR DEY

EDUCATION

Degree	Specialization	Institute	CGPA	Year
M.Tech. Geo-Informatics	Image Analysis	IIT Bombay	9.58	2020
M.Sc. Physics	Radio Astronomy	Presidency Univ., Kolkata	7.21	2017

PUBLICATIONS

- Dhoundhiyal, S., **Dey, M. S.**, Singh, S., Arun, P.V., Thangjam, G. & Porwal, A. 'Open-set classification of CRISM hyperspectral data'. (**Under Review**)
- **Dey, M. S.**, Chaudhuri, U., Banerjee, B., & Bhattacharya, A., 'Dual-Path Morph-UNet for Road and Building Segmentation From Satellite Images'. *IEEE Geoscience and Remote Sensing Letters* (2021).
- Mondal, R., **Dey, M. S.**, & Chanda, B., 'Image Restoration by Learning Morphological Opening-Closing Network', *Mathematical Morphology-Theory and Applications*, vol. 4, no. 1, pp. 87–107 (2020).

EXPERIENCE

SigTuple Technologies *Bangalore*
Data Scientist - II *[Oct'23 - Present]*

- **Leading** a 3 member team, as a **SPOC**, for a collaborative inter-company **Point of Care (POC)** device project.
- **Simulated** scenarios for device resource usage, & **benchmarked IP and DL** algorithms to check device capacity.
- Streamlined existing detection pipeline & increased inference speed by **12x** on **NVIDIA-Jetson Nano**.
- **Architectured** & implemented a **test-driven pipeline** for model inference, considering the device's constraints.
- Developed **NATS** messaging for **async** inter-module communication, & **dockerized** code for on-edge deployment

Data Scientist - I *[Apr'22 - Sep'23]*

- **Owner** of **Malaria module** - designed pipelines for data annotation, model training & inference on PBS images.
- Synced with product & medical team to define **KPI** & **develop strategy** to detect **malaria** at **40x** magnification
- Implemented basic **active learning** pipeline, leading to **67% reduction** in **annotation** time by doctors.
- Scraped and **mined in-house database** to identify potential malaria samples & add **hard negatives**.
- Applied **self supervised learning** & **clustering** to improve diversity and **reduce imbalances** in training data.
- Designed **YOLOX** based 3-stage model & finetuned over 2 iteration, achieving **23% improvement on F1** score
- Improved IP based 40x RBC classification model with **ECA-ResNet** based model for **stain variation** robustness
- Investigated product complaints, and **refactored** existing codebase to be reliable & **resilient to edge cases**.
- Documented and conducted **device-wide tests** post system releases, as part of the **regulatory** framework.

Rakuten Mobile *Tokyo*
Software Engineer *[Nov'20 - Apr'22]*

- Entrusted with developing **Proof of Concepts (PoC)** & features for Voicemail, Greetings and Call sections
- Implemented unit **test case** for code robustness, including edge cases, usability & general reliability
- Collaborated closely with cross-cultural product & UI teams across the time zones under agile methodologies

Indian Statistical Institute *Kolkata*
Machine Learning Research Intern *[May'19 - Aug'19]*

- Developed **morphological** neural network (MNN) for **style transfer** & pencil sketch on MIT Adobe Dataset
- Designed **Deep-MNN** to estimate crowd strength & achieved **18.3%** accuracy improvement over MC-CNN.

SustLabs *Mumbai*
Data Science Intern *[Dec'18 - Jan'19]*

- Responsible for building training and test **dataset** of **30+** home and industrial appliances in market.
- Developed analytical model to detect **appliance signature** from smart meter aggregate load data using **R**

TECHNICAL SKILLS

• Python • C • Cython • TensorFlow • PyTorch • ONNX • Docker • NATS • GCP • Unix • MongoDB • Git •