New Delhi, India
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MAHAVEER SUTHAR

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PROFESSIONAL EXPERIENCE

Lead Computer Vision Scientist **Attentive AI** **July 2019 - Present**

Attentive AI (*www.attentive.ai*) create meaningful insights from remote sensing data using deep learning and computer vision.(like road and building footprint extraction from satellite imagery)

- Responsible for designing, developing and managing different types of **Vision Systems** for satellite imagery application.
- Currently Leading and developing **InsurTech AI Models** for Property Insurance from aerial imagery.
- Built **Street Imagery Feature Extractor** which produced street imagery feature **One Million** Images.
- Lead Team of four people for the development of a **High Performance System** for "**Fast Georeferenced Feature Operations**" based on OpenHPC which has been used for **Distributed Feature processing**.
- Designed a private internal **Attentive library** for Software and AI Team's development usages.
- Done research & development **(R&D) of Street Imagery 2D Feature** AI Extraction System.

Leveraged Knowledge in *Tem Management, Docker, Docker-Compose, Google Compute Engine, OpenHPC, CentOS, RockCluster Tensorflow, PyTorch, GDAL,Faster-RCNN, RFCN Architecture ,Utilized Multithreading and Multiprocessing for reducing execution time of Pipelines*.

Computer Vision Scientist **Attentive AI** **July 2018 - June 2019**

- Responsible for developing different type of **Vision Systems** for Satellite Imagery Application.
- Developed **a crop classification system** from satellite imagery using Sentinel-2 data, and cadastral data from the state government of Madhya Pradesh
- Developed **TargetNet** – an object detection module using deep convolutional networks for identifying objects such as cars, planes, tanks etc. in satellite imagery
- Built a **Road Centerline Extractor** for satellite imagery, which produced **500K km** road centerline (Region US).
- Developed and Deployed Production Level Pipeline with post processing for **End-to-End Road Centerline Extraction** from satellite imagery.

Leveraged Knowledge in *Git, Tensorflow, PyTorch, GDAL, D-LinkNet Architecture, Worked on AWS-EC2-P3 GPU Servers.*

Deep Learning Researcher **Prof. Rajendra Sahu - IIITM Gwalior** **Jan 2018 – June 2018**

Prof. Rajendra Sahu has been associated with teaching profession for the past 30 years and has been closely involved in industrial consultancy projects. He is also Secretary of System Dynamic of India.

- Responsible for plan, design, and conduct research to aid in interpretation of Computer Vision analysis of RGB Imagery in context of Depth estimation.
- Compile and Present data relating to the state of a **Disparity Map Algorithm** and **Guided Filter Algorithm.**
- Develop, train and evaluate deep learning models with **Guided Filter for Depth Estimation**.
- Archived **82.37 % accuracy** on NYU Depth dataset & Here is *Demo Video*.

Leveraged Knowledge in *Research Methodology, Data Analysis, Presentation, Python, Transfer learning, Multiband Image Analysis, Guided Filter Architecture*.

Research Internship **Prof. Joy Dip Dhar - IIITM Gwalior** **Dec 2016 - Feb 2017**

Prof. Joy Dip Dhar has been associated with teaching profession for the past 20 years and has been closely involved in Big Data and Data Mining research projects.

- Responsible for plan, design, and conduct Literature review research on "Understanding Brainwaves and effect of music on brainwaves".
- Studied and compile various literature on Brain workings, Brainwave theories and results of brainwave experiments.
- Finally wrote a paper on "Understanding Brainwaves and effect of music on Brainwaves" check it out here

Leveraged Knowledge in *Research Methodology, Brainwaves, Presentation, Deep Sleep Patterns and collaboration* .

Software Engineer Internship **Technology Innovation & Incubation Center** **May 2016 - June 2016**

TIIC is to be an effective interface b/w industry & Academia to foster, promote and sustain commercialization of science & technology in technology in institute for mutual benefits.

- Responsible for building *Virtual Tour* of Indian Institute of Information Technology & Management Gwalior.
- Project Lead of Summer Internship Program.
- Planned , designed & distributed work for project execution among summer interns.
- The Virtual Tour was built using 4000 Image and 303 Equirectangular Projections.

Leveraged Knowledge in *Leadership, Project Management, Web Flash Player, Different type of Photo Sphere Projections, Software Development(Python)*

SKILLS

General :

- **Googliness**
- General Cognitive Ability
- Machine Learning System Design

Languages:

- Python(Proficient), Morden C++, MATLAB

Tools, Frameworks :

- Tensorflow, PyTorch, Keras, C++
- Docker, Apache Kafka, Caffe2
- OpenCV, NumPy, Scikit, GrabCut, GDAL
- Git, Linux, Bash, Crontab
- OpenHPC, WMS/WMTS, WFS, WPS

Areas of interests/knowledge:

- Image & VIdeo Analysis through Computer Vision
- Deep Learning & Deep Reinforcement Learning
- High Performance Computing System Designing for Vector feature processing
- Large scale Deep learning model deployment
- Perception: multiple-view geometry, variational methods, statistical inference, Lie theory, multilateration.
- Neuroscience, Visual Cortex Functioning, Brainwaves
- Semantic Segmentation, Instance Segmentation, Object Detection, Change Detection and Real time Object tracking

PROJECTS & BLOGS

- **CG Image Detector -**
  - Classify Input Image into Realistic, Ambiguous and Unrealistic.
  - CG Image Detector reached 76% accuracy and trained on 4.8GB data.
- **PARALLAX-TOLERANT IMAGE STITCHER -** *Github*
  - This stitcher will produce seamless panorama from deformed panorama.
  - Parallax-Tolerant image stitching method based on robust elastic warping, which could achieve accurate alignment and efficient processing simultaneously.
- **Where will Artificial Intelligence come from? (** Blog Link)
- **What is Computer Vision?** (Blog Link)

EDUCATION

Indian Institute of Information Technology & Management, Gwalior, India

- **Master of Technology -** Information Technology
- **Major :** Computer Vision & Artificial Intelligence
- **Thesis : -**
  - **Title :** *"Fast Facial Identification and Recognition both 1:N and 1:1"*
  - **Advisor -** *Prof. Rajendra Sahu (Director)*

Indian Institute of Information Technology & Management, Gwalior, India

- **Bachelor of Technology -** Information Technology
- **Thesis :-**
  - **Topic - "***Depth Estimation using RGB Imagery "*- (***Video Demo***)**
  - **Advisor -** *Prof. Rajendra Sahu (Director)*
- ***Programming Coursework*** *: Algorithm & Data Structure, Operating System, Network, Computer Vision,NLP*