Madan Baduwal

Kathmandu,Nepal(+9779813120096)
madanbaduwal.github.io madanbaduwal100@gmail.com github.com/MadanBaduwal

RESEARCH INTERESTS

My research interests lie in **Machine Learning**,**Computer Vision**,**Pattern Recognition**, **Natural Language Processing**,**Multi-Model and Multi-Task Deep Learning**, and **Cognitive Science** for **Embodied AI**.In particular, I am interested in reverse-engineering the human mind to build embodied machines that can see,listen,speak,learn,and interact with human-level cognition and social intelligence.

EDUCATION

Tribhuvan University, Institute of Engineering **2015 – 2020**
Bachelors in Computer Engineering *Kathmandu, Nepal*

- **Percentage: 72.38% Rank : 2/43**

PUBLICATION

1. Prakash Ratna Prajapati, Samiksha Poudel,**Madan Baduwal**,S.,Burlakoti, S.,Pandey(Apr.2021). Signature Verification using Convolutional Neural Network and Autoencoder Journal of the Institute of Engineering ,16, No.1, pp.33–40

INDUSTRY RESEARCH EXPERIENCE

BP Eye Foundation **May 2022 – Ongoing**
Sr.Machine Learning & Computer Vision Engineer *Kathmandu, Nepal*

- **Research** on semantic-segmentation and detection algorithm for **otitis media** based on otoscopy images of the tympanic membrane with an accuracy of **85%**. Deployed it as a scalable ML SAAS product on the Dell EMC server by collaborating with multidisciplinary teams.

Fusemachines **Feb 2020 – Feb 2022**
Machine Learning Engineer *Headquater: New York, USA*

- **Led** a team of engineers to develop an AI-enabled education platform: **fuseclassroom.com**. Currently, this platform is running around **60** colleges in Nepal, **20k** students are already engaged in this platform.
- Worked on several client-based ML projects from the US as well as internal ML projects of the company in the field of Machine learning. Worked on the whole **Machine Learning pipeline**.
- Involved in in-house training,workshops,math knowledge sharing session, and paper reading sessions on Deep Learning.
- Involved in **research**, design, review, and refinement of content - reading material, quizzes, assignments, and projects for Fusemachines AI Education Programs - "Micro Degree in Artificial Intelligence, Machine Learning, Computer Vision,Natural Language Processing"

National Innovation Center **Jan 2021 – Dec 2021**
Computer Vision Engineer(R and D) *Kathmandu, Nepal*

- Collaborated with mechanical, electrical, and electronic hardware teams for the deployment of computer vision tasks in robots to create initial prototypes for waiter and service **robots** within **9** months.
- Run simulation tests on docker and Gazebo, Integrated and deployed computer vision tasks in robots with **Edge Devices** like Tensor Processing Units and Jetson Nano, RaspberryPI.
- Created few **rule base algorithms** from scratch to handling the motion and manipulation for the robot.
- Worked on several **computer vision tasks** : classification, Localization, Segmentation, Object Detection, Object Tracking, and Face Recognition. Worked on the whole computer vision pipeline.

Omnibluetech **Aug 2019 — Feb 2020**
Software Engineering(INT) *Kathmandu, Nepal*

- Worked on **data structured and algorithms**, and different structured and unstructured database systems.
- Worked on designing and developing **web applications** using Front-end technology HTML5, CSS, Bootstrap, Javascript, and backend technology Flask, Django, and WordPress.

PROJECTS

WMC Global | *Python3,Scikit-learn,Git,AWS* **jun 2021 - Dec 2021**

- Classify websites into phishing and non-phishing using clustering algorithms for **GoDaddy, Bitly, InfoBip, and ICANN under WMC global**.Transformed unstructured data into structured data format using **rgex**.

Student Status Engine | *Python3,Snowflake,Scikit-learn,Git,AWS* **January 2021 - june 2021**

- Created **feature extractor pipeline** that automatically extracts features from the data warehouse(eg: snowflake). Applied machine learning algorithms on extracted features to classify student status into different classes.
- Collaborated with back-end, front-end, and DevOps engineers to test and **deployed model into large-scale production.**

AI-Robot |*Python3,TensorFlow 2.0,ROS,Gazebo,TPU,J. nano,R. Pi* **Jan 2021 – Sep 2021**

- Retrain a classification model for Edge TPU using post-training quantization(**23fps,85% mAP** score with pre-training), face recognition using python face recognization library, depth calculation using real sense depth camera, Centroid based object tracking, and write rule base algorithm from scratch.
- Integrated and tested computer vision tasks into ROS, gazebo simulation environment and **implemented it into waiter and service robot**. Visualize robot sensors data into rviz.

Text Extractor | *Jupyter Notebook,Python3,OpenCV* **July 2019 - October 2020**

- Research and experiment on building image preprocessing techniques like erosion and dilation.
- Build a Framework that uses google tesseract and regex to extract information from the form (eg: buyer name, seller name, etc.).

Hastakshar | *Python3,OpenCV,Keras,Django* **2018-2019**

- Research and experiment on Image Localization to improve classifier model using NumPy and OpenCV library.
- Built signature verification CNN classifier system using Tensorflow. Developed Django web interfaces in local machine.

Android apps,Websites, and Packages | *C#,Unity,Python3,HTML,CSS* **2015 – 2019**

- Android apps : Asteroid Smash, Antigravity Ball , Saveme , Beat Creator
- Web apps : horizonglobal.edu.np,youthcareer.edu.np
- Pypi package: **pip install madan**

ACHIEVEMENTS AND AWARDS

Tribhuvan University Merit-based scholarship **2015-2019**

- Awarded for securing the highest GPA in the Computer Engineering cohort in the 1rd, 2th and 4th semesters respectively. The scholarship was worth $ 1000 each semester.

Best Idea Winner **January 2017**

- Best idea winner of the Exhibition organized by Kantipur engineering college and sponsored by Neosphere. Neosphere offered 6 month Ethical Hacking course, which was nearly worth $ 200

Hackathon Runner-up **March 2018**

- 1st runner-up of hackathon organizes by Kathmandu University, kavre.The prize was worth $100.

Best Logic Code **July 2019**

- Best Logic Code winner organized by Sagarmatha engineering college.The prize was worth $60.

COURSES COMPLETED AND CERTIFICATIONS

- Certified Ethical Hacking(CEH)-Neosphere
- Neural Networks and Deep Learning-Coursera
- Sequence Model-Coursera
- Effective Client Communication-Fusemachines

EXTRA ACTIVITIES

- Lite Exhibition Participant, Kantipur Engineering College, 2015,2016,2017,2018
- Himalaya Exhibition (HEx) Participant, Himalay College of Engineering, 2017
- AI Workshop Participant , MPercept Technology Pvt , 2019
- Data Science Workshop Participant, F1Soft International Pvt. Ltd., 2019

TECHNICAL SKILLS

Languages : Python3, C,C++,Android, HTML/CSS, SQL,PostgreSQL, MySQL
Tools : Scipy,Numpy,Pandas,Matplotlib,Scikit-learn,Tensorflow,Opencv,NLTK,Jupyter Notebook,Conda
Familiar : Tableau, Latex,Linux,Mongodb,Git,Github,Docker,Django/MVT, Flask,Mlflow,Robot Operating System(ROS),Raspberry pi,Coral TPU,Unity game engine,Networking,SEO,Wordpress