

Prathibha Ramachandran (She/Her)

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EDUCATION

University of Washington, Seattle, USA

GPA: 3.7/4.0

Master of Science, Electrical and Computer Engineering, Specialization: Machine Learning

Sept 2021 - May 2023 (expected)

Coursework: Advanced Introduction to Machine Learning, Deep Learning for Big Visual Data, Computer Vision-Deep and Classical methods

M.S. Ramaiah Institute of Technology, Bangalore, India

GPA: 8.87/10.0

Bachelor of Engineering, Electronics and Telecommunication

Aug 2013 - May 2017

Coursework: Linear Algebra, Data Structures and Algorithms, Python, Machine Learning, Operating Systems, Computer Networks, Digital Signal Processing, Wireless Communication, Networking

MOOC: [Machine Learning Nanodegree](#) (Udacity, AWS Scholarship), [Deep Learning Specialization](#) (Coursera), [Extensive Vision AI program](#)

SKILLS

Languages, Tools: Python SQL, MATLAB, Embedded C, Linux, Git, Eclipse, Jupyter, Tableau, PowerBI, Plotly, Accessible Graphs

Frameworks, Technologies: Keras, PyTorch, TensorFlow, OpenCV, AWS, Azure, Flask, NumPy, Scikit-learn, Pandas, Matplotlib

EXPERIENCE

Wyze AI Labs, Capstone Project

Dec 2021 – Ongoing | Seattle, WA

– Working on deep convolutional neural network model using DenseNet and ResNet50 Neural Network architecture on Caltech-UCSD Birds and Stanford Dog dataset for field view object recognition and classification model for Fine-Grained object recognition and deployment on Wyze home security cameras.

[Python, PyTorch, Scikit-learn, NumPy, Matplotlib]

Research Assistant, Indian Institute of Science

Nov 2017- Dec 2020 | Bangalore, India

– Designed a behavioral experiment, collected EEG user data, performed data cleaning, data wrangling, data visualization, exploratory data analysis and applied statistical signal processing techniques to find Neural dissimilarity between English and Japanese language learning abilities of humans.

Implemented a SVM Machine Learning model for time series analysis to classify the neural signal patterns and achieve baseline accuracy of 82%.

[Python, NumPy, Scikit-learn, Pandas, Matplotlib, MATLAB]

– Designed and spearheaded the development of a Smart vibration monitoring system. Performed data extracting, exploratory data analysis, processed signals in the edge, and integrated communication modules. Created a 30-page Product Requirements Document to define objectives, product roadmap & success metrics for each solution. Proposed features to improve the accessibility of product. Implemented a near-real time vibrational signature classification system using 1D CNN Neural Network. Developed a graphical user interface for easy data visualization and analysis.

[Python, SQL, NumPy, Scikit-learn, Tableau, MATLAB]

Graduate Assistant - University of Washington-Global Innovation Exchange

Sept 2021 - Dec 2021 | Seattle, WA

– Led group discussions, sparked interest and advised 30 students on Machine Learning and Data Science concepts & projects in the course Programming for digital and physical user interfaces, Fall 2021.

[Python, NumPy, Scikit-learn, Matplotlib, Pandas, SQL]

PUBLICATIONS

– Brain Computer Interface: Design and development of a smart robotic gripper for a prosthesis environment [\[link\]](#) IEEE International Conference, 2017

– ERP Evidences of Rapid Semantic Learning of Foreign Language Words

Frontiers in Neuroscience, Journal, 2022

PROJECTS

Deep Learning

[Keras, OpenCV, PyTorch, TensorFlow Scikit-learn, NumPy, Matplotlib]

– Developed a classification model for Breast Cancer Detection using Deep learning by training on 300k breast cancer biopsy images by fine tuning ResNet18 with fully connected layers. Using transfer learning, improved accuracy by 4% over baseline to classify breast cancer tumor regions.

– Implemented a CNN-FC Neural Network to perform imbalanced class classification on the CIFAR-50 dataset. Implemented Focal Loss, class-balanced CrossEntropy, and class-balanced sampling to improve accuracy over baseline by 8.36%.

– Performed Domain-Adversarial training of a Neural Network to learn a new dataset domain and enhanced the accuracy of target domain dataset (MNIST-M) by 3.2% over baseline.

– Designed a Generative Adversarial Network on CelebA dataset to generate new faces. Implemented Neural Style Transfer on Monet paintings using CycleGAN architecture.

– Built an object detection network by fine-tuning YOLOv3 with custom annotated dog images and achieved 0.80 mAP by minimizing Cross-Entropy loss function. [\[video\]](#)

Machine Learning and Signal Processing

[Python, Scikit-learn, Pandas, Matplotlib MATLAB, Embedded C, Raspberry Pi]

– Designed and spearheaded the development of a Brain Computer Interface for controlling a prosthetic robotic arm. Performed EEG signal processing, data cleaning, extracting, data wrangling, data visualization, exploratory data analysis, and integrated wireless sensor modules for robotic arm. Implemented a classification model using SVM Machine Learning model to achieve an accuracy of 89.4% for motor actions classification. (*Senior Research Thesis*)

HONORS AND AWARDS

Best Project/Thesis Award: Brain Computer Interface (BCI) for Prosthetic arm, stood first in the University.

Runner's up at State-wide Project expo organized by the Council for Science and Technology, Karnataka, India

POSITION OF RESPONSIBILITY

- *SWE Major Chair at UW*- spearheaded the event "Engineering RSO", collaborated with a team of 30 women.

- *Team Leader at the National Service Society* - social service wing in University – Led team of 50 students, directed the team towards collecting the maximum amount of blood units in a Blood Donation Drive.

- *Teacher and Mentor at Make A Difference, NGO* – Led team of 15 volunteers, provided aftercare support in Science and Mathematics to 50 students, sparked interest in these subjects using activities.

- *Editor-in-chief and Head writer- University magazine* – Led team of 30 writers, charted magazine direction for the year, integrated various magazine departments and achieved expansion in operations to monthly issues.

- *Founder Animal Welfare Group* at Indian Institute of Science – worked towards co-existence of animals in campus, fostered animals, responsible for fundraisers, adoption and medical emergency of the animals.