

# Vaishnavi Khindkar

RESEARCH FELLOW · CVIT LAB, IIIT HYDERABAD

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## Summary

Being a hard worker with a positive and never give up attitude and with deep interest in field of Computer Vision and Deep Learning, I aspire to develop effective and intelligent solutions and contribute towards betterment of the society.

## Education

### SPPU (Savitribai Phule Pune University)

B.E. IN COMPUTER ENGINEERING

Mar. 2015 - Aug. 2018

### NMV Jr. College Pune

HSC

Mar. 2013 - Aug. 2014

### KSDSV (Shanbhag Vidyalaya)

SSC

Mar. 2003 - Aug. 2012

## Publications

Inventor : Khindkar, Vaishnavi M. **An efficient and scalable architecture for underwater plastic detection and cleaning using Underwater Autonomous Vehicle (AUV) and CycleGans as Data Augmentation technique to convert in air plastic to underwater style.**

Patent No : 202021028978

Author : Khindkar, Vaishnavi M. **IOT BASED SMART HOME USING FACE RECOGNITION.** *International Journal of Creative Research Thoughts (IJCRT)*. Feb 2018. ISSN:2320-2882, Volume.6, Issue 1, Page No pp.321-326. Publication : <http://www.ijcrt.org/papers/IJCRT1802045.pdf>

## Work Experience

### CVIT lab, IIIT Hyderabad

Hyderabad, India

COMPUTER VISION RESEARCH FELLOW

Aug. 2020 - Present

- Working at CVIT lab, IIIT Hyderabad under guidance of Prof. C.V. Jawahar and Prof. Chetan Arora in Vision For Mobility Team.
- My current research is highly focussed on Autonomous Driving using Deep Learning and Computer Vision. I am currently working on broader domains of Computer Vision for Autonomous Driving research mainly Domain Adaptation and Few Shot Learning.

### BARCLAYS

Pune, India

DATA ANALYST - BA4

Aug. 2018 - Present

- Demonstrated Machine Learning skills in a presentation on "Machine Learning" through Knowledge Cafe Session at Barclays covering basics of ML and Neural Networks broadly wherein I created a demo using Jupyter Notebooks for a Rock Papers Scissors game using Neural Networks.
- Worked on Sentiment Analysis of Customer Survey responses for Online Banking collected by NPS survey to understand reviews of customers on Online Banking features and created a Dashboard in AngularJs to display visualisations on sentiments of Customers for different features
- Worked on new feature that offers customers read-only services when mainframes are down which can be done by using data held on ODS (Operational Data Store) which is accessed via uplifted Mid-Tier Services (MTSs) by using a switch with four possible modes.
- Implemented server side solution to prevent CSRF attacks wherein two factor authentication wasn't used.

### HackersDigital

Pune, India

SECURITY ENGINEER AND ANDROID DEVELOPER

Mar. 2018 - Apr. 2018

- Implemented Android app for loan collection.
- Build and automated installation of vms on ESXI servers

## Research and Projects

### CycleGans as Data Augmentation for Underwater Plastic Detection and Cleaning

Apr. 2020 - Aug. 2020

COMPUTER VISION, ARTIFICIAL INTELLIGENCE, CYCLEGANS

- Worked on this research project right from collecting and creating dataset from scratch as there's no dataset readily available on internet for this problem statement
- Implemented my idea of using cyclegans as Data Augmentation technique to convert in air plastic to underwater style for underwater plastic detection which further improves performance by detecting even in conditions like turbidity.

### Underwater Plastic Cleaning using an AUV

Aug. 2019 - Feb. 2020

COMPUTER VISION, ARTIFICIAL INTELLIGENCE, IOT, SONAR NAVIGATION

- An underwater autonomous vehicle capable of detecting underwater garbage using Image Processing and Keras
- The designed machine would be able to detect the plastic, calculate distance using sonar and OpenCV and then collect the detected garbage using Robotic Arm.
- The collected garbage would be compressed in a compressor attached and would be collected in an attached net.

## Multiclass Image classification on UC-Merced LandUse Dataset

Sep. 2019 - Dec 2019

MACHINE LEARNING, COMPUTER VISION, DCT, LBP, FUSION OF CNNs

- This project aims at classification of remote sensing image dataset.
- The model developed for classification is a fusion model of spatial features with dct features. 3-layer fusion model of cnn is used with dct and lbp to improve the accuracy of prediction.

## Aspect Based Sentiment Analysis on NPS survey data for Retail Online Banking

Oct. 2019 - Dec. 2019

NATURAL LANGUAGE PROCESSING, MACHINE LEARNING

- Implemented an aspect based Sentiment Analysis on NPS (Net Performer Score) Survey Data for Retail Online Banking Platform to understand reviews of customers on Online Banking features like Payments or Homepage etc.
- Also created a Dashboard in AngularJs to display visualisations on sentiments of Customers for different features. It helped in analysing what improvements can be done by analysing the negative reviews for the particular features.

## IOT based Smart Home using Face Recognition

Aug. 2017 - Feb. 2018

MACHINE LEARNING, IMAGE PROCESSING, IOT

- This project provides controlling and monitoring of home appliances as well as provides security from unknown persons.
- We proposed a system for Smart Home Automation technique. To design this system, we used a Raspberry Pi module and Computer Vision techniques, OpenCV and image processing algorithms.

## Artificial Neural Network Optimization using Genetic Algorithm

Apr. 2020 - May 2020

ANN, GENETIC ALGORITHM

- Optimization of ANN using Genetic Algorithm. Weights were updated using GA.
- We used the optimized ANN to classify fruits using Fruits360 dataset. The images were converted into HSV and then used for training purpose.

## Breast Cancer Classification on Wisconsin (Diagnostic) Dataset using ML

Mar. 2020 - Apr. 2020

MACHINE LEARNING, LOGISTIC REGRESSION, SVM, RANDOM FOREST

- A python application to classify Breast Cancer. We used Principal Component Analysis and Backward Elimination techniques for feature extraction concluding the best performing technique as PCA
- We compared different classification algorithms like SVM, Kernel SVM, Random Forest, Logistic Regression, Naive Bayes and K-Fold Cross Validation was used to avoid overfitting and best accuracy was given by Kernel SVM

## NGO Helper App

Mar. 2018 - Apr. 2018

ANDROID STUDIO, FIREBASE DATABASE

- An Android app that helps people to communicate with NGOs by easily finding nearby NGOs and their information through app, so that they can help society by donating the needful things and thereby contributing towards their progress and a better living.
- A user can easily track NGO's nearby his/her location and can select any activities further like birthday celebrations or donations to be done to a selected NGO with further enquiries.

## Geek Quiz

Nov. 2016 - Dec. 2016

TURBO C++, DATA STRUCTURES

- A user friendly Techno-Quiz application which lets you analyze your knowledge.
- It is a 3 level quiz which proceeds to next level after user achieves a badge for that level

## Skills

<b>Programming Languages</b>	C, C++, Python, R, Octave, Core Java
<b>Platforms</b>	Anaconda, Pytorch, Jupyter notebooks, Tensorflow, scikit-learn, Matlab / Octave, Kaggle
<b>Databases</b>	MYSQL database, Firebase database
<b>IDE's</b>	Pycharm, IntelliJ, Android Studio, Turbo C++, Eclipse, QT Creator

## Activities & Achievements

2019	<b>Organised HOUR OF CODE as an initiative for International Coding Week</b> , to teach school students Coding and Algorithmic Concepts by innovative and simple games	ZP School Talegaon, Pune
2017	<b>Earned a certificate in Machine Learning by Stanford University</b> , on Coursera with grade of 96.5 %	Coursera
2017	<b>Qualified Google Codejam</b> , Round 1.	Google CodeJam
2017	<b>Semi-finalist</b> , Reached the Semifinal round of TCS Codevita 2017.	PCCOE, Pune
2018	<b>Runner up</b> , Secured 2nd position in Just Coding competition at ACM-W during celebration of women in computing at PICT APCWIC	PICT, Pune
2011	<b>State level</b> , Swimmer	Balewadi, Pune
2017	<b>Finalist</b> , Secured 1st position in BE-C contest of Hackerrank	PCCOE, Pune
2018	<b>Earned badge for Algorithms domain on Hackerrank</b> , (achieved 3 off 4 stars)	Hackerrank
2016	<b>Secured 5th position in Codewars event of Techlligent</b> , (National Level Event)	PCCOE, Pune
2011	<b>Secured 1st position in class and 275 State rank</b> , International Olympiad of Mathematics	KSDSV, Satara
2014	<b>Worked as Representative of Cultural Club</b> , in First Year Department of Engineering	PCCOE, Pune
2012	<b>Attended Inspire Internship Camp held at IISER</b> , Pune	IISER, Pune