

# Abhinav Dhere

abhinavdhere@gmail.com | (+91) 9630669058

## EDUCATION

### MS by Research

International Institute of Information Technology, (IIIT-H)  
Hyderabad, India | 2022

### Bachelor of Engineering

Electronics & Communication  
Acropolis Institute of Technology & Research, Indore, India | 2016

### Senior School Certificate Exam (12th)

Central Board of Secondary Education  
Indore, India | 2011

### Secondary School Exam (10th)

Central Board of Secondary Education  
Indore, India | 2009

## SKILLS

### Proficient

Python | Pandas, Numpy, Matplotlib, Scikit-Learn, PyTorch, Keras, OpenCV | MATLAB, LaTeX

### Comfortable

C, C++, Django

### Familiar

Bash, Java, Tensorflow

## COURSES

### GRADUATE

- Medical Image Analysis
- Computer Vision
- Statistical Methods in Artificial Intelligence
- Digital Image Processing
- Optimization Methods

## EXPERIENCE

### Senior Research Engineer - Siemens Healthineers

Nov '23 – Current | Hybrid, on-site (Full-time)

- Contributing to building innovative AI-powered features for the Ultrasound machines from Siemens Healthineers.
- Achievements: Multiple innovation POCs, 3 Invention Declarations, finalist for NextGen Innovator Award consecutively two years, performance improvements to models going into product.

### Kaliber AI

Data Scientist - August '21 – October '23 | Remote (Full-time)

Trainee Research Scientist - March '20 – September '20 | Remote (Part-time)

- Worked in the core ML research team developing the AI models driving the surgical software solutions offered by Kaliber Labs.
- Worked on building deep learning models for video classification, segmentation and monocular depth estimation.

### MS Research Scholar - International Institute of Information Technology

Dec '17 – Dec '21 | Hyderabad | Advisor: Prof. Jayanthi Sivaswamy

- Pursued research at the Medical Image Processing group at CVIT, IIIT Hyderabad & submitted my thesis titled "Computer Aided Diagnosis of Closely Related Diseases"

### Research Intern - IIT Bombay

June '15 – July '15 | Mumbai | Supervisor: Prof. Abhay Karandikar

- Developed simulations in C++ using the ns-3 simulator for an ongoing work that proposed a new method for handover from LTE to WLAN.

## PUBLICATIONS

- **Abhinav Dhere**, Vikas Vazhayil and Jayanthi Sivaswamy, Fast detection of sulcal regions for classification of Alzheimer's disease and Mild Cognitive Impairment. *IEEE International Conference on Signal Processing and Communications (SPCOM)*, 2022
- **Abhinav Dhere** and Jayanthi Sivaswamy, Explainable COVID detection using multi-scale attention in Chest X-Ray images. *IEEE Journal of Biomedical & Health Informatics (JBHI)*, 2022
- Manish Sharma, **Abhinav Dhere**, Ram Bilas Pachori, and U Rajendra Acharya. An automatic detection of focal EEG signals using new class of time-frequency localized orthogonal wavelet filter banks. *Knowledge-Based Systems*, 2017
- Manish Sharma, **Abhinav Dhere**, Ram Bilas Pachori, and Vikram M Gadre. Optimal duration-bandwidth localized antisymmetric biorthogonal wavelet filters. *Signal Processing*, 2017

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## COURSES

### MOOCs

- Deep Learning Specialization ([deeplearning.ai](#))
- Software Construction in Java (MITx)
- Intro. to Computational Thinking & Data Science (MITx) | Score: 96%
- Intro. to C.S. & Programming using Python (MITx) | Score : 92%

## MISCELLANEOUS

- Conducted hands-on tutorials on Medical Imaging at the [Summer School of AI with focus on Computer Vision](#) | IIIT-H 2019, 2021, 2022
- Ranked among top 10 at Zeiss hackathon 2018, Bengaluru (in a team of 5)
- Presented posters at IIIT-H R&D showcase 2019 & 2021.
- Founder & lead vocalist of college rock band "Rockतार". Managed its recruitment, coordination & event planning.
- Selected in top 500 out of 500K participants in all-India online singing talent hunt [MOBIsur](#)

## SELECTED PROJECTS

### Fast detection of sulcal regions for classification of Alzheimer's disease and Mild Cognitive Impairment

Sep 2021 - March 2022 | Research Project | Tools used: PyTorch

- Explored methods based on height maps for classification of healthy, Alzheimer's disease and Mild Cognitive Impairment.

### Explainable COVID detection from Chest X-ray images

May 2020 - June 2021 | Research Project | Tools used: PyTorch

- Proposed a novel architecture and loss function for COVID detection with clinically consistent explanations.

### Self-supervised learning for Kidney Segmentation

March - Oct 2019 | Research Project | Tools used: PyTorch

- Proposed a novel proxy task for kidney segmentation using self-supervised learning. Demonstrated faster convergence & better performance compared to training from scratch.

### Segmentation of brain sulcal regions from 3D Mesh

Feb - Oct 2018 | Research Project | Tools used: MATLAB, PyTorch

- Developed a novel method for conversion of 3D mesh to an image representation. Used this image representation of the human brain's 3D structure to build a fast, non-iterative method to determine regions of sulcal folds.

### 3D Segmentation in Heart MRI

Jan - May 2018 | Course project for Medical Image Analysis | Tools used: PyTorch

- Implemented a deep CNN for segmentation of myocardium & blood pool from heart MRI based on [HVSMD dataset](#).

### Face Recognition and Verification

Aug - Nov 2017 | Course project for Statistical Methods in AI | Tools used: Torch (Lua), OpenCV

- Implemented a face recognition method, evaluated it on three independent datasets, and tested the method on face recognition between twins using celebrity images.

### Contrast Based Filtering for Salient Region Detection

Aug - Nov 2017 | Course project for Digital Image Processing | Tools used: MATLAB

- Implemented a contrast-based saliency detection algorithm. It decomposes the image into SLIC superpixels & obtains a saliency measure from filters describing rarity and compactness.

### Contrast Based Filtering for Salient Region Detection

Feb - July 2016 | Undergraduate Project | Tools used: MATLAB

- Classified EEG signals as focal vs non-focal with LS-SVM. Used a set of wavelet entropy features computed from proposed novel time-frequency localized orthogonal filter banks.