

# Pankaj Chauhan

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## SKILLS

**Programming languages:** C, MATLAB, Java, Python  
**Software Packages:** MATLAB, Octave, Eagle, Circuit Maker

**ML tools:** sklearn, numpy  
**Miscellaneous:** Arduino programming, Video Editing

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## EDUCATION

**Bachelor in Electronics and Telecommunication Engineering, University of Mumbai GPA: 8.13/10 June 2014-present**

- Focussed on Signal Processing and Machine Learning and implemented ASER system on MATLAB

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## PROJECTS

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### Harmony Search for Feature Selection in ASER

*Ongoing*

Feature selection is a significant aspect of speech emotion recognition system.  
How to select a small subset out of the thousands of speech data is important for accurate classification of speech emotion.  
The main aim of the project is to decrease computation time of Emotion Detection Mechanism by using less possible features while retaining significant accuracy.

- Extracted both MFCC and TEO-MFCC features from EMODB database on MATLAB
- Planned to develop a trained model for both features using SVM classifier. **(Tool used: MATLAB)**

### Speech Emotion Recognition using Dynamic Time Warping

*Jan 2017 - Apr 2017*

The purpose of speech emotion recognition system is to automatically classify speaker's utterances into five emotional states such as disgust, boredom, sadness, neutral, and happiness.

- Designed and built a speech emotion recognition system using SAVEE database on MATLAB
- Developed a trained model for detecting emotion using DTW classifier
- Obtained accuracy of 68.57% **(Tool used: MATLAB)**

### Electronic Piano

*July 2016 - Oct 2016*

Built a piano with variable tuning feature using IC 555 in Astable mode.  
IC sends high/low-frequency signals to a piezo buzzer based on the value of resistance corresponding to the key/button pressed by the user thus producing the sound of the note.

- Introduced potentiometers to obtain custom octave frequencies.

**(Tools used: Eagle, Circuit Maker, IC 555, Resistors, Capacitors, Speaker and Potentiometers)**

### Line Follower Robot

*Sept 2015*

The Line follower robot is a mobile machine that can detect and follow the line drawn on the floor.

- Built a robust line follower robot for a National Robotic Championship held at IIT Bombay.
- Programmed Arduino to control motors of robot. **(Tools used: Arduino, Motor driver circuit, IR sensors)**

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## SUMMER TRAINING DETAILS

- Certificate Course in IP Networking** at CETTM, Powai *July 2017*
  - Learned various protocols: TCP, IP, ICMP, ARP, DHCP
  - Configured routers using various routing protocols (RIP, EIGRP, OSPF, BGP)
  - Built a small network of 3 routers and implemented concept of IP routing and VLAN
- Short Term Training Program** on "Basic Electrical Testing" at Syselec Technologies Pvt. Ltd *July 2016*

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## ACHIEVEMENTS AND EXTRA CURRICULAR ACTIVITIES

- National Robotic Championship Organized by ARK tech in association with IIT Madras:** Zonal winner of Mumbai and Represented SFIT in Finale at IIT Bombay
- PRAYAS 2015:** Presented Laser Security System along with Colour Recognition Lock.
- MOSAIC:** Leader of Mosaic (2016) Contraption Team
- Participated in "3<sup>rd</sup> National level Technical Paper Presentation" organized by Universal College of Engineering

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## ADDITIONAL DETAILS

- Personal Projects** : Laser Security System, 4x4x4 LED Cube, Stock Price Prediction, Colour Recognition Lock
- Research Interests** : Speech Processing, Machine Learning, Signal Processing
- Personal Interests** : Cricket, Listening music
- Languages known** : English, Hindi, Marathi, Marwari