

Suraj Pai

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Education

May 2016 **B.Tech in Electronics and Communications**, Manipal Institute of Technology, GPA: 8.43, Manipal.

Experience

July 2017 – Present **Associate Engineer, Digital Image Processing**, Cognitive Machines, Bengaluru, Karnataka.

- Worked on object detection algorithms using OpenCV and Tensorflow Models in production environments (Using AWS Lambda, EC2 etc.) Exposed to result visualization and inference deriving framework using MySQL and Metabase.

January 2016 **Research Intern**, MIT Practice School, Manipal, Karnataka.

- May 2016 ◦ Developed and tested various optimization algorithms for Supervised Learning (Mainly MLP, SVMs, Binary MLP, Statistical Classification etc.) to train a Sign Language Classification system. A comparative study was done to offer clear cut visualization into each algorithms performance.

2016 – **Participant**, Stanford Crowd Course Initiative.

- Present ◦ As a part of this initiative, I contributed content mainly to the course, " Practical Machine Learning with Python" and received #21 Thank yous. (Thank yous are a way of measuring contributions made to the course in scale.) I also helped translate " Introduction to Python" to Hindi aimed to target the Indian audience.

June 2015 – **Embedded System Developer**, Go-E-Code Technologies, Bangalore, Karnataka.

- August 2015 ◦ My responsibilities as a developer: Developed IoT applications on 8051 and ARM based boards primarily for Sensor and Timer based projects

Skills

Programming Languages Javascript, Python

Machine Learning Keras, NLTK, Scikit Learn, Seaborn, Tableau, Pandas

Adobe Suite Photoshop, Illustrator

Projects

Facebook Messenger Bot Development, *Django, NLU* .

- Black Adam Bot: Messenger bot to recognize Music and provide information and similar music and artists (Similar to Shazam). Built from scratch using, Django, GraphAPI, ACRCLOUD API; Link : <https://www.messenger.com/t/408061186191970>
- First Aid Bot: Messenger bot to provide daily information about first aid procedures and provide targeted information as well. A comprehensive app for basic first aid knowledge. Powered by Red Cross UK. Built using, Django, GraphAPI, Celery, Wit.ai; Link: <https://www.messenger.com/t/1246059572141324> (WIP)
- Discover Bot: Messenger bot that helps you discover new places based on local reviews and ratings

Tinnitus Project.

Developed a tunable multi frequency cancellation device using Phase shifters. Tested various simulations and lab tested the final design to achieve optimal cancellation

Speaker Diarization System, *Django, Sklearn, Scipy, Python speech features*.

Built a remote server that identifies and discriminates users based on their voice fingerprints. Employed MFCC feature vectors along with RF decision trees to achieve a 40 percent difference in confidence scores between false and true classifications. The system was architected using Django and can accommodate dynamic user entry and subsequent classification.

k-NN based analysis of different pigmenations in skin images, *MATLAB*.

Used k-nn to allow a doctor to pick out different ROI in a skin image to provide prognosis for acne treatment etc. based on comparative image analysis

Airplane Crash Data Visualization, *Python, Pandas, Tableau*.

Represented crash causes, airline companies associated and time domain analysis of airplane crashes since the beginning of time.

<https://medium.com/@surajballambat/the-limitless-skies-1bbf83f4457b>

Question and Answer Bot, *Word2Vec, Keras*.

QA bot was built using distributed bag of words and deep Neural Networks. Predicted answers for test questions with a 80% accuracy. (Built for Hyphen AI Challenge)

SimPol: US elections predictor, *Python, Pandas, Sklearn*.

Takes your stand on about 20 issues. (From Strongly Disagree, Disagree, Neutral, to strongly Agree) and predicts your chances of winning the US Election based on 2004 and 2008 elections.

Awards

MIT's Innovation Day Prize 2015, *August 2015*.

A low cost lighting and rain water harvesting system concept and prototype won us the first prize at Innovation Day. This concept would help slum dwellers capitalize on the resources readily available to them at a minimal cost.

Manipal, Karnataka