# AAYUSH PATIAL

Raleigh, NC ● +1-(774)-498-4142 ● apatial@ncsu.edu ● *aayush1710.github.io*

## EDUCATION

**North Carolina State University** RALEIGH, NC
Master of Computer Science, **Dec 2018**
***Courses:*** Design and Analysis of Algorithms , Object-Oriented Design & Development , Artificial Intelligence , Software Engineering , Spatial & Temporal Data Mining , Database Management Concepts & Systems

**University of Mumbai** MUMBAI, INDIA
Bachelor of Engineering, **May 2017**

## SKILLS

**PROGRAMMING:** Python, Java, and MATLAB.
**WEB DEVELOPMENT:** HTML5/CSS3, JavaScript, MySQL, PostgreSQL, MongoDB, and MariaDB.
**TOOLS:** Git, Anaconda, Android Studio, Heroku, Virtual Box, MATLAB & Simulink.

## PROJECTS

**Multi-Label Classification using CNN** *(Python, CNN, Keras)*
- Designed 4 CNN model namely Resnet-50, Baseline, VGG-16, and Inception to perform multi label classification of Amazon satellite images with 17 feature labels.
- Model takes an input image, computes a score for each of the 17 features, and then uses a cutoff threshold to decide which labels to keep.

**Multi-Class Geospatial Object Detection** *(Python, OpenCV, SVM)*
- Designed a model to extract features from a geographical image by creating HOG of individual object images and use them for detection.
- Using linear SVM for classifying and detection of objects in the image within certain range of orientation.

**Wolf Inns Hotel Management System** *(Java, SQL, MariaDB, JDBC)*
- Coded the Wolf Inns Hotel DBMS application with the user ability to book different category rooms in multiple hotels, check nightly rates of each room along with allowed guests and complimentary services.
- DB admins can access the hotel employee information, and customer details as well as make modifications.

**OCR based Smart Shopping App** *(Java, Node.js, REST API, MongoDB, Cloud Vision API)*
- Developed android application with features of Bill Parsing and Push Notification using Google Cloud Vision API. User can scan any bill and get data parsed to the database.

**FIS based Autonomous Navigation System** *(MATLAB, Fuzzy Logic)*
- Developed a Fuzzy Inference System(FIS) based algorithm for simulating the Autonomous Navigation System on MATLAB giving an error of about 1-2% from the ideal path.
- Analysed the developed system against ANFIS and Neural-Networks to prove FIS as the better technique.
- *Published on IEEE explore digital library - DOI: **10.1109/ICCCNT.2017.8204164***

**Speech Emotion Detection** *(MATLAB)*
- Developed an audio input classifier using multiple single hidden layer neural-networks in 5 user defined classes namely, angry, crying, exited, happy, and neutral.
- Analyzed extracted audio features using Principal Component Analysis(PCA) and used Neural-Network learns emotional information from low-level features giving 72% accuracy when tested.

### *Open Source Contribution*:

**NSF supported EXPERTIZA** *(TDD, Ruby on Rails, MySQL, HTML, and RSpec)*
- Expertiza is a classroom tool build on Ruby on Rails for group projects and peer review. We refactored assignment model of 'Expertiza' using Ruby on Rails and DRY principles for better architecture.
- Worked on UI issues and improvement of display of review page for students work.
- Added Expert review status and addition of feature of multiple expert review.

## LEADERSHIP & PUBLIC SERVICE ACTIVITIES

- **General Secretary, Students' Council** of Sardar Patel Institute of Technology, Mumbai (2015-16)
- **Winner** of the Intra-College Seventh S.M. Parekh Debate competition (2015)