ATHARVA GOLE

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EDUCATION

K. J. Somaiya College of Engineering, Vidyavihar, Mumbai, India **Expected: June 2020**
Bachelors of Technology in Computer Engineering **CGPA: 8.66/10**
Relevant Courses: Data Structure, Analysis of Algorithms, Database Management Systems, Artificial Intelligence, Neural Network and Fuzzy Logic, Discrete Structure and Graph theory, Theory of Computer Science, Digital Signal and Image Processing.

PROFESSIONAL EXPERIENCE

KJSCE, Mumbai, India **Dec 2018 – Feb 2019**
In-house Research Intern – Satellite Image Processing, Machine Learning
Project Mentor: *Dr. Jyoti Joglekar*

- Developed and implemented an optimized algorithm for intensity range classification using Decision Tree Algorithm.
- Created a JSON Database of Multispectral Satellite images for faster data access while training.
- Performed Visualizations on the Data using the QGIS Software and found some patterns in pixel intensities of images which were useful for designing the classification algorithm.
- The optimized algorithm designed by me increased the accuracy of pixel prediction from 65% of the initial empirical method to 92%.

PAPER PUBLICATIONS

- **Multispectral Satellite Image Classification by Optimization of Intensity Range - Decision Tree Algorithm Based Approach** (Internship Project)

- Presented the Research paper in the prestigious INAC-4 National Conference organized by Indian Society of Systems for Science and Engineering (ISSE).
- Stood 2nd in the presentation under the theme "Systems for Sustainable Development".

ACADEMIC PROJECTS

Walking Quadruped Robot using Policy Gradient Reinforcement Learning for Fast Locomotion (Final Year Project) *Reinforcement Learning, Simulation, IOT, Robotics*

- The goal is to attain stable walking gait for a quadruped robot in the real world with smaller training time and faster convergence.
- The project involves creating various robots in the simulation and training them to walk using various Reinforcement Learning techniques. Then creating a Quadruped Robot prototype and training it for walking in the real world.

Tab-Overflow (Mumbai Hackathon 2019) *Web Development and Machine Learning*

- A chrome extension for managing, accessing and storing excessive tabs opened on the browser. All the data is stored on Firebase Database.
- The application can sort tabs based on the webpage content in a single click.
- Porter Stemmer algorithm was used for keyword extraction and a keyword vector was then created. A Neural Network algorithm was used for classifying the webpages into categories based on the keyword vector.
- Both the algorithms were implemented from scratch in JavaScript.

Stock-Chat (Barclays India Hackathon 2019) *Web Development and Deep Learning*

- A Chat based system that advises to buy or sell a stock based on its price history and its sentiments from the latest news. It also provides proper justifications and prediction graphs for its advice.
- It was implemented in Python Flask. A hybrid technique was implemented that used the prediction done by Neural Networks along with real time market sentiment analysis for advising.

Color-IT (Mumbai Hackathon 2018) *Deep Learning*

- Colors grayscale images into RGB using Convolutional Neural Network (CNN) based Encoder-Decoder architecture.
- It was implemented in Python and PyQt4 was used to make an artistic GUI.

Supervisor Allotment System *Desktop Application Development and Algorithms*
- Software used for allotting supervision duties to faculties during exams for our college using a special algorithm developed by me. The algorithm performs the allotment in less than 1 second for the entire college.
- It is implemented using Python. Input and Output is done using Excel sheets.

Computer Learns to Flappy Birds Game *Deep Learning and Game Development*
- Computer learns to play Flappy Birds. Used Neural Network for controlling the bird and Genetic Algorithm for training the bird.
- Game was made using Python and Pygame. Numpy was used for implementing the Neural Network.

Candy Crush Game *Game Development*
- A game similar to the original Candy Crush Game was implemented from scratch using Java Applet.

Chess Game *Game Development, IOT, Electronics*
- A 2-player chess game where one user plays on Computer and the other on a chess board. Each cell of the board had LDRs and LEDs to detect the position of piece and indicate the move played from the computer end. Used Raspberry PI for computer board interfacing. The game was then converted to single player using Mini-Max algorithm and Alpha-Beta pruning.

1 – bit Microprocessor *Electronics*
- Designed and made my own microprocessor using Logic Gate ICs on Breadboard. It contained 1 bit I/O Bus, 4 Registers, 1 bit ALU and it can be programmed with 16 instructions. It works at a clock speed of around 10 KHz.

ACHIEVEMENTS

- In top 0.35%tile on competitive coding platform Codechef in India.
- Participated in ACM ICPC 2017 national round held at Kolkata and secured 51st rank there.
- 1st Rank on platforms of Codechef and Codeforces in my college.
- Won 6 coding competitions:
  - Codewars twice by CSI KJSCE
  - Crackathon, KJSCE Coding Challenge, KJSCE Codespree by Codecell KJSCE
  - Somaiya Games of Code by CSI KJSIEIT
- Barclays India Hackathon finalists.

ONLINE COURSES

- Machine Learning by University of Washington on Coursera.
- Deep Learning by Deeplearning.ai on Coursera.
- Python Programming on Internshala.
- Android App Development on Internshala.

SOFTWARE SKILLS

- Programming Languages: Python, Java, C#, C, C++, Prolog.
- Databases: Oracle 12c, MySQL, Firebase, PostgreSQL.
- Web Technologies: HTML, CSS, Bootstrap, JavaScript, PHP, Flask
- Tools and Software: Android Studio, .Net Framework, MATLAB, PyBullet, QGIS, Github
- Hardware: Raspberry Pi, Arduino, PixHawk

EXTRACURRICULAR ACTIVITIES

- Participated in 30~ online coding competitions on platforms of Codechef, Codeforces and Hackerrank. Also took part in 4 Hackathons.
- Palsunda Village visit for a social cause as well as collecting data for the internship project.
- Played club cricket for Union Cricket Club team and participated in various cricket competitions.
- Conducted a waste paper audit in my college. Collected statistics on waste paper generated by various departments and discussed ways to reduce it.