



# Suraj Singh

A pre-final year undergraduate student at the CSE Department, Lovely Professional University. I have experience in competitive programming, genetic algorithms, deep learning, Front-End web design and development. I have worked on a number of projects with various groups picking up teamwork and software skills along the way. I am a tech enthusiast who likes creating new things and experimenting with them.

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## EDUCATION

### computer science and engineering Lovely Professional University

08/2018 - Present

7.43 CGPA

## PERSONAL PROJECTS

#### 1. Smart Rockets (Genetic Algorithm) (10/2020 - 11/2020)

- It is a web-based project using P5.js framework, HTML and CSS.
- This project is a visualization of individuals learning to reach a target by avoiding walls and obstacles using genetic algorithm.
- Fitness of each individual =  $1 / ((d + 1) * t)$ .
- where d is the distance between the target and the position where an individual died and t is the time for which that individual was alive(individual die if it hits a wall or obstacle or target).

#### 2. Cat image classification using neural networks (08/2020 - 10/2020)

- Logistic regression classifier to recognize cats using single hidden layer neural network.
- Used sigmoid function :  $\text{sigmoid}(z)$  returns  $(1.0 / (1.0 + \text{np.exp}(-z)))$ .
- Cost Function :  $((Y * \log(A)) + ((1 - Y) * \log(1 - A)))$ .
- where Y : actual output A : predicted output.

#### 3. School Management System (Front-End) (05/2019 - 08/2019)

- A web based school management system Front-End.
- Technologies used: HTML, CSS and JavaScript.

## EXPERIENCE

### Teaching Assistant classroomStudy

01/2021 - Present

Tasks

- Teach : c++, Data Structures and Algorithms.
- Taking : Drought classes.
- Introducing students to competitive programming.

Contact: <https://www.classroomstudy.org/>

### Front-End Developer and Event Manager MSP Developer Community Punjab

06/2019 - 06/2020

Achievements/Tasks

- developing technical content.
- managing events.
- handling audience.

Contact: [www.microsoftpu.com](http://www.microsoftpu.com)

## SKILLS

Data Structures

Algorithms

C++

Object-Oriented Programming (OOP)

C

Java

HTML

CSS

JavaScript

p5.js

Python

Genetic Algorithms

Neural Networks

## ACHIEVEMENT

#### - 4\* CodeChef

[https://www.codechef.com/users/sinsinwar\\_code](https://www.codechef.com/users/sinsinwar_code)

#### - CodeVita Season 9

Cleared Pre-Qualifier Zonal Round. Ranked in top 3% among 250k+ participants.

#### - Secured rank 170 out of 2783. (06/2020)

Certificate of Appreciation for securing 170 rank out of 2783 in Project Code 2.0 hosted by INFINITE LOOP in association with CodeChef on 05/06/2020.

## CERTIFICATES

#### Algorithmic Toolbox (02/2020 - 03/2020)

Course covered algorithmic techniques like sorting and searching, divide and conquer, greedy algorithms, dynamic programming.

#### Neural Networks and Deep Learning (08/2020 - 10/2020)

Learned to build, train and apply fully connected deep neural networks and how to implement efficient (vectorized) neural networks.

#### Object-Oriented Programming using Java (05/2020 - 06/2020)

#### Data Analysis with Python (01/2020 - 03/2020)

Topics covered: Importing Datasets, Cleaning Data, Data frame manipulation, Summarizing the Data.

## LANGUAGES

English

Full Professional Proficiency

Hindi

Full Professional Proficiency

## INTERESTS

Competitive Programming

Basketball

Sketching

Poetry