

# SHAIFALI VASHISTHA

[Mail](#) ◇ [LinkedIn](#) ◇ [Github](#) ◇ [Webpage](#)<sup>†</sup>

## EDUCATION

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Indian Institute of Technology Madras, Chennai, India

Dec '20 - Present

B.S. in Data Science & Its Applications

GPA: 7.8

Central Board of Secondary Education, Delhi, India

CBSE Intermediate, Percentage: 80.4%

2017-2018

CBSE Matriculation, CPI: 10/10

2015-2016

## KEY PROJECTS

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Automatic Text Summarizer | Natural Language Processing

Winter '23 - Present

- Implementing an **interactive** text summarizer that automatically produces a summary of a document
- Integrating an approximate summarization model to the original model to guarantee interactive speeds for large text collections of multiple topic-related documents to keep the user engaged in the process

Face Detection | Computer Vision

Winter '23

- Used **Viola Jones algorithm** for fast face detection and improved performance using **AdaBoost**
- Implemented the algorithm using **Haar Cascades & Integral images** and achieved 87% accuracy

Eigen Face Recognition System | Image Processing

Fall '22

- Implemented quick face recognition & reconstruction using **eigen-faces** obtained from **PCA & SVD**
- Represented facial images from the **ORL Dataset** as  $n$ -dimensional vectors and implemented dimensionality reduction by obtaining their eigenvectors acting as key signatures in the recognition task

Mentorship platform Application | Software Engineering

Fall '22

- Created a mentorship platform for IIT Madras BS students using **Flask & RESTful API** for back-end, **Jinja 2** with **HTML, CSS & bootstrap** for user interface based on **Agile** approach
- Collected user requirements as user stories through online interviews, designed the interactive wire-frame of the application using **figma** and used **Jira** Software for keeping track of sprint meetings

KanBan ToDo Application | Application Development

Fall '22

- Developed a python web application using **Flask-SQLAlchemy** and **SQLite3** for managing and visualizing tasks, setting deadlines with daily task reminder emails and monthly statistical reports
- Used Flask framework in python for back-end development, **Vue-CLI** for front-end development and **Celery & Redis** for **caching** & implementation of triggered and scheduled tasks in the application

SAT Solver | DPLL Algorithm

Fall '22

- Implemented the NP-Complete problem of **SAT Solver** which takes **CNF** and gives a solution
- Used **DPLL algorithm**, a famous backtracking algorithm to find a solution for the given CNF

Financial Position Analysis | Business Data Management

Fall '21

- Analyzed the **revenue trend** and **net profit trend** over the last 5 years for the State Bank of India
- Conducted numerical analysis of key **financial ratios** & derived insights on the financial performance
- Compared the financial performance of the bank to its peers and documented the results in a report

Model Training from Scratch | Machine Learning

Spring '22

- Implemented machine learning algorithms such as **Logistic Regression**, **Gaussian Naive Bayes**, **Softmax Regression**, **KNN**, Soft Margin **SVM** and **Kernel SVM**, and **ANN** to train models

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<sup>†</sup>Use URL [www.shaifalivashistha.github.io](http://www.shaifalivashistha.github.io) in case hyperlinks don't work

## SCHOLASTIC ACHIEVEMENTS

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- Completed **Diploma in Data Science & Programming, 2022** from **IIT Madras**
- Awarded **S grade** in Mathematics, Modern Application Development, and Business Analytics
- Achieved **97.8** percentile in **AIIMS-MBBS 2018** among 374,000 candidates
- Secured **90** percentile in **NEET (UG) 2018** among 1.59 million candidates

## POSITIONS OF RESPONSIBILITY

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- Teaching Assistant** | *Modern Application Development* Spring '23
- Will be responsible for organizing regular doubts solving sessions, handling course-related queries, conducting programming sessions, and preparing mock tests & solutions for a batch of **40 students**
- Mentor** | *Modern Application Development* Fall '22
- Organised regular doubt-clearing sessions and managed weekly assignments for a batch of 21 students

## OTHER PROJECTS

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- Self Tracker Application** | *Application Development* Summer '22
- Created a web application to log and manage boolean and numeric data for daily activities using **Flask** with **Jinja2** templates for backend and **HTML5, CSS & Bootstrap** for frontend development
  - Modified Self Tracker from a **static** web application to an advanced **dynamic** web application using **Vue-CLI** for frontend development, and **flask** for backend development of the application.
- Predictions from Data using sklearn** | *Machine Learning* Spring '22
- Designed and trained various models using **sklearn** to make predictions over data and detect outliers
- E-Commerce Trend Analysis** | *Business Data Management* Fall '21
- Used a dummy data corresponding to an E-Commerce company for **trend analysis** of the firm
  - Analysed distribution of revenue, stock price, and volume trends using **Pareto** and **scatter plots**
  - Utilised Google sheets to present various trends in line charts, bar charts, and combination charts
- SQL Query Writing** | *Database Management* Fall '21
- Wrote various queries in **PostgreSQL** to extract and display data from the given datasets

## TECHNICAL SKILLS

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<b>Programming</b>	Python, C++, SQL, JAVA, Vuejs, MATLAB, Octave, bash
<b>Libraries</b>	Pytorch, NumPy, Pandas, SciPy, SKLearn, Flask, BeautifulSoup, tabula
<b>Softwares</b>	Linux, Github, PostgreSQL, MS Excel, SQLite, OpenRefine, QGIS, Redis, L <sup>A</sup> T <sub>E</sub> X

## RELEVANT COURSES

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<b>ML &amp; AI</b>	NLP ( <i>NPTEL</i> )*, Search Methods for Problem-Solving (AI), Deep Learning, Machine Learning Techniques, Machine Learning Practice, ML Foundations
<b>CSE</b>	Software Testing*, Ethical Hacking ( <i>NPTEL</i> )*, Software Engineering, Cloud Computing ( <i>NPTEL</i> ), Data Structures & Algorithms, Database Management Systems, Programming in Java, System Commands, Advanced Application Development
<b>Other Courses</b>	Discrete Mathematics* ( <i>NPTEL</i> ), Market Research*, Industry 4.0*, Data Visualisation & Design*, Tools in Data Science, Business Data Management, Business Analytics, Mathematics I & II, Statistics I & II

## EXTRACURRICULAR ACTIVITIES

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- Participated in **Datathon** hosted by **IBM Zurich** and **Shooting Stars Foundation** (2022)
- Participated in **Capture the Flag** contest at **Shaastra**, organized by IIT Madras (2022)
- Participated in **Reverse coding contest** at **Shaastra**, organized by IIT Madras (2022)
- Ardent Quizzer in many intra-school science and general knowledge quiz competitions (2014-2018)

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\*Ongoing courses in Spring 2023