# Adarsh Jha

Undergraduate focusing on Application Development, Distributed Computing, Databases and Software Development.
Proficient in Python, C++ and Java. Passionate about innovation in STEM,
With hands-on Project-Experience, Leadership and Teamwork

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## EDUCATION

**Indraprastha Institute of Information Technology, Delhi** *CGPA: 7.7/10*
B.Tech - Computer Science in Artificial Intelligence *2022 - Present (Expected Graduation: 2026)*

**Kendriya Vidyalaya Pitampura, Delhi** PCM + CS Percentage: 94.25
CBSE (12th class) *2021 – 2022*

**Kendriya Vidyalaya Pitampura, Delhi** Percentage: 89
CBSE (10th class) *2019 – 2020*

## Artificial Intelligence Projects

**Handwritten Text Recognition (Team Size - 2)** ***Mar 24' - May 24'***
`Python, Tensorflow, Keras, Numpy, Pandas, OpenCV, CNN, LSTM` **Colab**

- Developed a CNN-LSTM hybrid model for handwritten text recognition using the IAM Handwriting Database, achieving a character-level accuracy of 95%.
- Implemented extensive preprocessing steps, including image resizing, normalization, and data augmentation to enhance model training.
- Utilized Connectionist Temporal Classification (CTC) loss for aligning predicted sequences with variable-length ground truth labels.
- Incorporated a feature to correct misrecognized words by checking against a dictionary and suggesting the closest word based on edit distance, improving efficiency by approximately 5%.

**Sentiment Analysis on Social Media (Team Size - Individual)** ***May 24' - Jun 24'***
`Python, Sklearn, NLTK, Pandas, Matplotlib` **GitHub**

- Developed a machine learning model for sentiment analysis on social media data using the Sentiment140 dataset, achieving an accuracy of 85% in classifying tweets as positive or negative.
- Implemented text preprocessing techniques such as lowercasing, URL removal, and lemmatization to prepare the data for model training.
- Utilized TF-IDF vectorization for feature extraction and trained multiple classifiers including Logistic Regression, Bernoulli Naive Bayes, and LinearSVC.
- Evaluated models using classification metrics and confusion matrices, and serialized the best-performing model for future predictions.

## Operating System Projects

**Custom Shell (Team Size - 2)** ***July 23' – Aug 23'***
`C, Linux` **GitHub**

- Designed and implemented a custom shell in C for Linux, providing basic command execution capabilities.
- Integrated features like command history, auto-completion, and signal handling to enhance user experience.
- Demonstrated deep understanding of process management, file handling, and inter-process communication in Linux.

**Assembler - Simulator (Team Size - 2)** ***Feb 23' – May 23'***
`Python, Computer Architecture, Assembly, C` **GitHub**

- Developed an assembler simulator in Python to convert assembly instructions into machine code, demonstrating the functionality of assembly language.
- Illustrated the low-level interpretation of machine instructions, providing insights into how machines process and execute code.
- Enhanced understanding of computer architecture (x86 and ARM) and assembly language programming through interactive and practical simulation.

## Web Development Projects

**Online Database Management System (Team Size - 2)** ***Jan 24' – May 24'***
`Java Spring Boot APIs FW, Java, JavaScript, HTML, CSS, Bootstrap` **GitHub**

- Developed an E-Commerce website allowing customers to shop and administrators to manage products.
- Database model design, website development/testing, creation of admin/client modules.
- Utilized Azure Cloud (App Services, MySQL DB, Storage), Postman, GIT/GitHub, GitHub DEVOPS.

**Stick Hero Game (Team Size - 2)** ***Oct 23' – Dec 23'***
`Java, JavaFX, Scene Builder, Design Patterns, JUnit` **GitHub**

- Developed a dynamic JavaFX game with score/gem display, pause, and end game functionality, achieving a 95% satisfaction rate among testers.
- Implemented smooth animation transitions and custom UI elements, increasing player retention by 20%.
- Utilized Singleton and Factory design patterns for efficient code management and scalability.
- Conducted comprehensive JUnit tests, ensuring a reliable and high-quality application.

## SKILLS SUMMARY

**Expertise Area:** Machine Learning, Data Structures and Algorithms, Object Oriented Programming, Operating Systems, Database Management, Competitive Programming, Linux, Prompt Engineering, Frontend Dev

**Programming Language:** Java, Python, C, C++, JavaFx, HTML, CSS, Javascript, MATLAB, ROS, Swi-Prolog

**Tools and Technologies:** Git/GitHub, Linux, Matplotlib, Numpy, OpenCV, CNN, IntelliJ, PyCharm, MySQL workbench, VM VirtualBox, Vim/Neovim, Kaggle, Scene Builder, Figma, IntelliJ, Eclipse IDE, RestAPI

**Technical Electives:** Statistical Machine Learning, Data Structures and Algorithms, Convex Optimization, Multivariate Calculus, Probability and Statistics, Database Management System, Object Oriented Programming (Java), Algorithm Design and Analysis, Operating Systems, Signals and Systems, Discrete Mathematics

## ACHIEVEMENTS

**JEE Mains 2022** ***AIR 4778***
Secured All India Rank 4778 in JEE Mains with a 99.5 percentile score among 872,970 students and qualified for JEE Advanced 2022.

**JEE Advanced 2022** ***Maths Score: 92***
Successfully qualified the exam and achieved 92 marks in Mathematics in JEE Advanced 2022.

**Scholar of the Year Award from KVPP (2021 & 2022)**
Received the prestigious Scholar of the Year award from Kendriya Vidyalaya Pitampura for outstanding academic achievements and contributions for both 2021 and 2022.

**Indian National Physics Olympiad (INPhO)** ***High Distinction (Top 5%)***
Qualified the National Standard Examination in Physics (NSEP) and ranked in the top 5% in the INPhO.

**CHESS** ***Legends League***
Achieved the title of Legend in chess.com for exceptional performance in online chess tournaments.

## CERTIFICATIONS

**Ethical Hacking Essentials** *Web Attacks, IoT, OT, Cloud Computing, Pentesting*
Coursera

**Machine Learning Specialization** by Andrew Ng *Linear Regression, Neural Networks, Clustering*
Coursera

**Data Structures and Algorithms** by Abdul Bari *Trees, Graphs, Hashmaps, Algorithms, Linked Lists*
Udemy

## LANGUAGES

**HINDI** *Native Proficiency*

**ENGLISH** *Native Proficiency*

**FRENCH** *Limited Working Proficiency*