# Yash Agrawal

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## ABOUT

I am a recent Computer Science graduate from **BITS Pilani**, India, with a strong passion for problem solving, particularly in the field of software development. My academic background is complemented by hands-on experience in using Python to solve real-world problems. I am proficient in Python and its popular deep learning frameworks like TensorFlow.

## EDUCATION

**Birla Institute of Technology and Science (BITS), Pilani** — Goa, India
*Bachelor of Engineering (Hons.) in Computer Science (GPA: 8.74/10)* — Aug '20 - Jun '24
• **Electives:** Artificial Intelligence, Natural Language Processing, Object Oriented Programming, Data Structures and Algorithms, Database Systems, Operating Systems, Computer Networks, Design and Analysis of Algorithms

## EXPERIENCE

**Sprinklr** — Gurugram, India
*Product Engineer Intern* — Jan '24 - Jun '24
• Worked on the company's **Work Force Management (WFM)** software to reduce contact center costs by predicting employee requirements, including forecasting call volumes, calculating staffing needs, and scheduling shifts.
• Benchmarked the company's current time series forecasting model against **Google's BigQuery ARIMA+** and **Amazon Forecast** models to evaluate their relative effectiveness.
• Conducted research on transitioning from a single-channel (calls) contact center to an omnichannel (calls, live chat, email) contact center.

**BITS Pilani, Goa** — Goa, India
*Undergraduate Teaching Assistant with Prof. Swaroop Joshi* — Aug '23 - Dec '23
• Evaluated student projects in the 'Software Development for Portable Devices' course through viva examinations for a class of 70 students.
• Offered detailed feedback on code readability and best testing practices to enhance project quality.

## PROJECT HIGHLIGHTS

*Connect Four Game Solver [Report]*
• Implemented a **reinforcement learning** agent to play connect four, a strategic two-player game containing more than **4.5 trillion game states**, utilizing **minimax algorithm** with alpha-beta pruning for optimal move selection.
• Simulated an environment, conducting 100 games between the agent and a myopic opponent (1-move lookahead player with a defensive strategy).
• Enhanced game tree search through the implementation of evaluation functions, alpha-beta pruning, move ordering heuristics, and analysis of varying search depths, achieving a significant win rate improvement from **50%** to **97%**.

*Hangman Game Solver [Report]*
• Built an agent using **n-grams** to play Hangman, where the goal is to guess letters and find the word with only 6 wrong guesses allowed.
• Created a training environment with 250,000 words and tested it on a separate set of 1,000 words to evaluate different strategies.
• Enhanced the agent's performance, improving the win rate from **18%** to **68.8%** through iterative testing and optimization.

*Ten-Armed Bandit Strategy Simulator [GitHub]*
• Developed a python simulator to evaluate various bandit algorithms for the multi-armed bandit problem.
• Implemented **epsilon-greedy, optimistic initial values, and upper confidence bound algorithms** to compare their effectiveness in maximizing cumulative rewards over multiple simulated episodes.
• Analyzed the performance of each bandit algorithm based on the percentage of optimal action selection to provide insights into the strengths and weaknesses of these strategies.

## SKILLS

• **Programming:** Python, C++, Java, C, LaTex, SQL
• **Other Technologies:** TensorFlow, AWS, GIT, Android Studio

## HONORS AND AWARDS

• **Regional Mathematics Olympiad (RMO):** Ranked among the **top 300 students** in India to qualify for the Indian National Mathematical Olympiad (INMO).
• **CBSE India Merit Performer in Higher Secondary Physics:** Recognized as one of the **top 0.1%** performers among over 1 million candidates in India.