Yuvraj Singh Sandhu

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Summary

Quick learner known for a logical approach to problem-solving and the ability to break down complex issues into manageable components. Enthusiastic about applying critical thinking and analytical reasoning to tackle real-world challenges.

Education

McMaster University, *BASc in Computer Science*   *Sept 2021 – May 2025*
- GPA: 3.66/4.0
- Minor in Mathematics

Experience

Teaching Assistant, *McMaster University – Hamilton, ON*   *Jan 2024 – Apr 2025*
- Supported live lab sessions by explaining **Python** concepts and addressing student queries.
- Worked with TAs to assess student comprehension and address learning challenges for **1000+** students.
- Graded assignments and provided detailed feedback to students for improvement.

Security Guard, *Kuthala Group Inc. – Georgetown, ON*   *Apr 2024 – Aug 2024*
- Recorded vehicle entries and exits in Excel spreadsheet to maintain accurate records.
- Maintained and troubleshot computers, ensured smooth operation and resolved technical issues.

Projects

Fire Detection using Machine Learning   *github*
- Developed and compared **CNN**, **SVM**, and **KNN** models to classify fire and non-fire images, demonstrating the potential for real-time fire detection in CCTV footage.
- Achieved **97%** test accuracy with CNN, outperforming SVM (92.06%) and KNN (87.14%) in precision, recall, and F1-score. Preprocessed data with resizing, normalization, and **PCA** for dimensionality reduction; implemented techniques to address overfitting in CNN.
- Tools: PyTorch, scikit-learn, NumPy, Pandas.

Personal portfolio   *link*
- Designed and developed a visually engaging, fully responsive personal portfolio website to showcase my resume, projects, and contact detail.
- Tools: Astro, JavaScript, HTML, CSS, SVG, GitHub Pages

Connect-4   *github*
- Developed a game using object-oriented programming concepts using Java.
- Developed an AI that can play a winning move and even block a winning move if available
- Highlights the object-oriented principles of **encapsulation**, **inheritance** and **polymorphism**

Technologies

Languages: Python, Java, JavaScript, HTML, CSS, SQL, MongoDB, C, Haskell

Developer Tools: VS Code, GitHub, Astro, Svelte, DBeaver, Vim