Mridul Chopra

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Education

Adelaide University — Adelaide, SA
Bachelor of Computer Science — *Feb 2024 – Jul 2027*

Projects

On Camera Whiteboard Project | *Python, OpenCV, MediaPipe, NumPy, Git* — Nov 2025 – Present

- Built a real time computer vision system to digitize physical whiteboard drawings using OpenCV and MediaPipe.
- Designed a gesture recognition pipeline enabling erase, draw, and clear actions without hardware input.
- Integrated MediaPipe hand tracking to support interactive real time gesture based input.
- Actively extending the system with dynamic colour selection and adjustable stroke thickness.

Chess Puzzle Solver | *Python, Git* — Jun 2025 – Sep 2025

- Implemented a chess puzzle solver using Minimax with Alpha Beta pruning in Python.
- Built a FEN based move generation engine to evaluate real board states.
- Added caching and pruning optimizations, reducing execution time by 30%.
- Successfully solved more than 75 chess puzzles sourced from Lichess.

CO_2 Emission Prediction | *Python, NumPy, Pandas, Matplotlib Git* — Mar 2025 – Jun 2025

- Built a linear regression model from scratch using gradient descent to predict CO_2 emissions.
- Performed data preprocessing and feature engineering on real world datasets.
- Achieved an average prediction error of approximately 5 units using MAE on test data.
- Designed the pipeline to support future feature expansion.

Extracurricular Activities

Adelaide University Competitive Programming League — May 2025 – Nov 2025

- Competed in an ICPC style programming league hosted by the University of Adelaide and sponsored by Jane Street.
- Ranked Top 10 out of 40 teams across multiple rounds, solving advanced problems in graph theory, dynamic programming (DP), and number theory.
- Collaborated in a three person team to solve difficult programming problems, often focused on mathematics or data structures and algorithms.

RSP × ACPC Competitive Programming Contest — Feb 2026

- Participated in an ICPC style contest as part of a three member team.
- Solved problems around 1500 Codeforces rating, covering graphs and DP.
- Placed 10th overall, showing strong problem solving under time pressure.
- Worked closely with teammates to discuss approaches and optimise solutions before implementation.

Adelaide Competitive Programming Club (ACPC) | Social Media Team — May 2025 – Nov 2025

- Designed social media graphics and short videos to promote competitive programming events.
- Improved engagement and visibility through consistent branding and content planning.

Ravi's Study Program — Nov 2025 – Feb 2026

- Actively participated in an intensive collaborative course led by volunteers who are in graduate or internship positions at big tech or HFT companies. The course involved a comprehensive theory study on DSA, as well as applying technical problem-solving skills to DSA and OOD problems.

Technical Skills

Programming Languages: Python, Java, C++
Database Technologies: SQL, MS SQL Server, PostgreSQL
Technologies & Tools: Git, Docker, OpenCV, MediaPipe, NumPy, Pandas
IDEs & Environments: VS Code, Visual Studio Community, Eclipse