

# Changdao He

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*I am an undergraduate student at the University of Toronto, deeply interested in the application of computer science across various technological domains. I eagerly seek opportunities for hands-on experience through research.*

## TECHNICAL SKILLS

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- Programming Languages: Python, Java, C, SQL, Shell Script, Assembly, R
- OOP, Relational Databases, Algorithm Design, Project Management, Communication Skills, Problem Solving, Task Planning & Organization Skills, Mentorship & Learning, Teamwork, Independence

## EDUCATION

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### UNIVERSITY OF TORONTO

*Honours Bachelor of Science*

**Toronto, ON**

*Sep 2022–Present*

- Computer Science Major, Mathematics Major, Art & Science Internship Program: Computer Science
- CGPA: 3.76/4.0, achieved “Dean’s List” Distinction in 2023 & 2024 & 2025 academic years
- Relevant Courses: Algo Design & Analysis & Complexity, Intro to Theory of Computation, Data Structures & Analysis, Intro to Machine Learning, Intro to Artificial Intelligence, Intro to Image Understanding, Intro to Number Theory, Intro to Combinatorics, Groups and Symmetries, Software Tools & Systems Programming, Software Design, Intro to Databases, Intro to Software Engineering
- Planned Courses: Computational Complexity and Computability, Knowledge Representation and Reasoning, Neural Networks and Deep Learning, Information Theory, Natural Language Computing

## PROJECTS

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### REINFORCEMENT LEARNING FOR OTHELLO

*Supervised by Professor Alice Gao at University of Toronto*

**Toronto, ON**

*Apr 2025–Present*

- Implementing a Monte Carlo Tree Search agent for the board game Othello, focusing on randomized simulations to guide decision-making in complex game states.
- Comparing MCTS to traditional minimax-based approaches and integrating heuristic-based playouts to improve simulation quality.
- Exploring the use of Q-Learning and Deep Q-Networks in Othello to enhance decision-making through reinforcement learning techniques.

### HEURISTICS FOR OTHELLO

*Supervised by Professor Alice Gao at University of Toronto*

**Toronto, ON**

*Jan 2025– Apr 2025*

- Developed advanced algorithms and heuristics for strategic gameplay in the board game Othello.
- Explored various approaches for board evaluation, minimax algorithm optimization, and pruning techniques to enhance performance.

## INTERNSHIP EXPERIENCE

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### BGI GENOMICS

*Software Development Intern*

**Shenzhen, China**

*Jul 2023–Aug 2023*

- Contributed to enhancing the CRM system, conducted module functionality testing, and explored automation strategies to streamline testing workflows.
- Led several group meetings, demonstrating project management and coordination skills.

### SHENZHEN UNIVERSITY

*Data Processing Intern*

**Shenzhen, China**

*Jun 2023*

- Communicated and collaborated with graduate students and decided how to visualize the data.
- Processed and visualized raw EEG data using the matplotlib library in Python.