

Adam Wood

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Education

2020-2023	Clare College, University of Cambridge Studying for BA Hons Computer Science
2013-2020	Hampton School
2020	Cambridge Pre-U: Physics (D1), Mathematics (D1), Further Mathematics (D2) A Level: Computer Science (A*)
2018	IGCSE: 8 A* grades, 2 9 grades FSMQ: Additional Mathematics (A) Won the prize for Computer Science in years 11 and 12

Technical Skills

Programming Languages	 Python	 Javascript	 Typescript
	 Java	 OCaML	
Web Technologies	 HTML5	 CSS3 & Sass	 Bootstrap
DBMS & Query Languages	 SQL	 Neo4j DB	 Cypher QL
Other Tools and Skills	 Windows	 Linux	 Git

Project Experience

NEXUS: ORIGINAL ABSTRACT STRATEGY GAME (*JAVASCRIPT*)

- Created a web-based user interface for my original abstract strategy game, Nexus.
- Implemented a game-playing agent using the negamax algorithm with alpha-beta pruning.
- Developed a genetic algorithm to optimise the weights of the heuristic evaluation function used in the negamax algorithm.
- Available at nexus.adamwood.co.uk. Code at github.com/adam-d-wood/Nexus

NEURAL NETWORK LOGIC GATES (*PYTHON*)

- Developed from scratch a program to initialise and train feed-forward neural networks of arbitrary numbers of layers, each with an arbitrary number of neurons.
- Implemented a stochastic gradient descent algorithm, used to update weights and biases during backpropagation.
- Designed a 'meta-training' algorithm which initially trains many networks, each initialised with random weights and biases, in order to sample more of the solution space and increase the probability of finding the global minimum of the cost function.
- Trained neural networks to closely approximate boolean logic functions.

REVERSI WEB APPLICATION (*JAVASCRIPT*)

- Developed a game-playing agent for the game of Reversi using the minimax algorithm with alpha-beta pruning and opening books.
- Designed, implemented and optimised a heuristic board evaluation function for Reversi to be used in the game tree search.
- Available at reversi.adamwood.co.uk. Code at github.com/adam-d-wood/WebReversi

Work Experience

MATHEMATICS, PHYSICS AND COMPUTING TUTOR FOR MYTUTOR.CO.UK (*2020-PRESENT*)

- Assessed the needs of individual pupils and designed tailored lesson plans to meet these needs.
- Delivered effective and engaging lessons with a focus on fostering deep understanding of fundamental concepts.

Awards and Achievements

STUDENT ROBOTICS COMPETITION - 3RD PLACE

- Used the competition's API to implement a strategy for Caldera, a game designed by the competition organisers to be played by 4 competing robots.
- Collaborated and communicated effectively as part of a team, placing 3rd nationally.

DUKE OF EDINBURGH GOLD AWARD

GOLD AWARD IN UKMT SENIOR MATHEMATICAL CHALLENGE (*2019*)

Volunteering Experience

SECTION ASSISTANT IN SCOUTS (*2017-PRESENT*)

- Collaborated effectively with the leadership team and took an active role in planning and delivering an exciting and structured program.

Interests

LANGUAGES

- Interested in language learning and linguistics, as well as natural language generation and processing in computers
- Currently learning French (approx B2) and Japanese (elementary)

CHESS

- Enjoy both playing chess and solving chess puzzles
- Actively involved in the Cambridge University Chess Club, as part of which I have participated in online tournaments against various international universities