

# GABRIEL REYNOLDS

Worcester College, Oxford  
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## Education

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**Oxford University** **Oct. 2023 - June 2026/27 (optional)**  
MMathCompSci Mathematics and Computer Science (ongoing) *Oxford, UK*

**Oxford Spires Academy** **Sep 2020 - May 2022**  
A Levels: A\*A\*A in Maths, Further Maths, Physics *Oxford, UK*

## Projects

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**Transformer** | *Python* **February 2025**

- Developed strong understanding of transformer architecture and use cases by building one from the ground up
- Built an object-oriented implementation to allow flexibility, trained it and ran inference tests
- Greatly strengthened knowledge of pyTorch as a library whilst implementing positional encodings, attention blocks etc

**Neural Network From Scratch** | *Python* **January 2025**

- Built a feed-forward neural network using just numpy
- Deepened understanding of base NN theory by implementing back-propagation, Adam optimizer by hand
- Compared with equivalent implementation using pyTorch, realised impact of GPU acceleration

**Sentiment Analyser** | *Python* **December 2024**

- Built an LSTM RNN to classify positive and negative reviews from the IMDB review dataset
- Learnt processes of tokenization, batching etc and familiarised with TorchText library

**Image Classifier** | *Python* **December 2024**

- Developed knowledge of PyTorch library by building and training a convolutional neural network to classify images in the MNIST dataset
- Built a recurrent neural network alongside and compared accuracy over a validation set (99% acc vs. 97%)

**Maze Solver** | *Haskell* **November 2023**

- Created haskell-friendly representation of mazes, and developed algorithms to solve them
- Adapted the program to run depth-first and breadth-first searches, and compared performance

## Relevant Modules

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- Probability
- Imperative programming
- Intelligent Systems/AI
- Functional programming
- Continuous mathematics

## Experience

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**GCSE Mathematics Tutor** **Oct 2022 – March 2022**

*Self Employed* *Online*

- Improved time management and organisation through a weekly learning schedule
- Practiced explaining concepts in a clear and concise manner

## Competitions and Awards

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**The Boat Race 2024** | *Rowing* **March 2024**

- Competed in Oxford's 2024 Isis crew, awarded a **half Blue**
- Developed time and stress management skills under the high training load
- Demonstrated strong motivation and the ability to perform under pressure
- Competed for 9 years, winning Gold at the **National Schools Regatta 2022**, Gold and Silver at the **North Island Rowing Championships**, NZ, and reaching the final of **Henley Royal Regatta** in 2021

## Additional Activities / Interests

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- Rowing coaching at a charity club in Oxford; developing Junior athletes, assisting with admin, equipment maintenance
- Avid volleyball player, successful team player
- Love hiking and all things outdoors

## Technical Skills

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**Languages:** Scala, Haskell, Python(PyTorch), LaTeX

**Developer Tools:** VS Code, UNIX, git