

Alexander Koziell-Pipe

MPHYS · MATHEMATICS · COMPUTER SCIENCE

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alex-koziell



Education

University of Oxford

MPHYS MASTER OF PHYSICS

Oxford, United Kingdom

Sep. 2015 - Jun. 2019

• 1st Class Honours

Thesis title: Interactions of Chiral Magnetic Skyrmions

St Paul's School

London, United Kingdom

A LEVELS & GCSE

Sep. 2009 - Jun. 2014

- **A2 Level** Mathematics: A*, Physics: A*, Further Mathematics: A*, Chemistry: A*
- **AS Level** (as above): As, in addition to Biology: A
- **GCSE** 9 A*s and 3 As including A*s in Maths, Triple Science and Electronics

Grants, Awards & Achievements

RESEARCH

- | | | |
|------|--|----------------------|
| 2020 | (Acknowledgement by Authors) , "Magnetic skyrmion interactions in the micromagnetic framework."
Physical Review B 101.13 (2020): 134422. | University of Oxford |
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ACADEMIC

- | | | |
|---------|--|----------------------|
| 2018-19 | Lord Crewe Scholarship (£700) , awarded to 11 (out of 304) students each year to mark outstanding work by undergraduates. | University of Oxford |
| 2017 | Sidgwick Exhibition 2017-18 (£150) , awarded for exceptional academic achievement and promise. | University of Oxford |
| 2014 | Senior Mathematics Prize , chosen for outstanding work from approximately 20 students. | St Paul's School |
| 2013-14 | Senior Academic Scholarship (£50) , for top results in AS-level and excellent work throughout the year. | St Paul's School |

SPORTING

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|------|--|----------------------|
| 2019 | Full Blue (Artistic Gymnastics) , Oxford University's highest sporting achievement. | University of Oxford |
| 2018 | Full Blue , as above. | University of Oxford |
| 2017 | Half Blue , Oxford University's second highest sporting achievement. | University of Oxford |
| 2016 | Half Blue , as above. | University of Oxford |

GRANTS

- | | | |
|------------|--|--|
| 2018 | Club Development Grant (£1000) , applied for and won in open competition to support further development of Oxford University Gymnastics Club. | University of Oxford
Sport |
| 2016,17,19 | Blues Fund (£150, £270, £125) , to support achievements in gymnastics. | Lincoln College,
University of Oxford |

Professional Experience

Hitachi Vantara

SE LUMADA FELLOW

London, UK

Sep. 2020 - present

- Competitive admissions process: chosen as one of 6 in a pool of over 500 applicants.
- Projects involved research into new machine learning algorithms, data modelling and solving real-world problems for clients.

HELIX RE, Inc.

COMPUTER VISION RESEARCH INTERN

London, UK

Jul. 2019 - Oct. 2019

- Research-based role involving computational geometry and machine learning (including deep learning) to create 'digital twins' of buildings.
- Contributed production-level code used in the company's main data processing pipeline.
- Python, C++, Matplotlib, Computational Geometry, Linear Algebra.

Online Education Partnership Limited

ONLINE MATHEMATICS AND SCIENCE TUTOR

- Teaching Maths and Science to students around the world (Hong Kong, US, Dubai) via an online interface.
- Communication of abstract ideas to students through innovative use of video and online whiteboard software.
- Subjects: Mathematics, Further Mathematics Physics, Chemistry and Biology, up to and including A Level. University-level Linear Algebra.

Remote/Worldwide

Jun. 2016 - Sep. 2020

National Tsing Hua University

CONDENSED MATTER PHYSICS INTERN

- Introduction to research on Weyl Semimetals: solid state crystals in a topologically non-trivial phase of matter.

Hsinchu, Taiwan

Mar. 2015 - Apr. 2015

University of Texas at Dallas

ATMOSPHERIC PHYSICS INTERN

- Ran computer simulations in FORTRAN to study the effect of airborne particles on cloud formation.

Dallas, Texas, USA

Feb. 2015 - Mar. 2015

Source Lifestyle Inc

COMPETITOR ANALYST

- Research of 100+ potential competitors for a former startup company.

London, UK

Jan. 2015 - Feb. 2015

Administrative Roles

Men's Captain

OXFORD UNIVERSITY GYMNASTICS CLUB

- Elected by teammates and other members of the club.
- Responsibilities: attending meetings, organising and leading a team, and supporting and teaching other club members.

Oxford, UK

Apr. 2018 - Mar. 2019

IT Officer

OXFORD UNIVERSITY GYMNASTICS CLUB

- Responsible for website maintenance, video production, and social media account management.
- Relevant Skills: HTML, CSS, Image and Video Editing (GIMP, DaVinci Resolve), Social Media Management.

Oxford, UK

Apr. 2017 - Mar. 2018

Online Courses

Coursera **Machine Learning**, Linear and Polynomial Regression, PCA, SVMs, Neural Networks, MATLAB and Octave.

Stanford University,
Andrew Ng

Coursera **TensorFlow in Practice Specialization**, Dense Neural Networks, CNNs, RNNs, LSTMs and Time Series Analysis with TensorFlow.

deeplearning.ai

Coursera **Algorithms Part I**, Algorithmic design and analysis, A* Search, k-d Trees, Java.

Princeton University

Udemy **Complete Web Development Bootcamp**, HTML, CSS, javascript, Nodejs, React, Databases (SQL, mongoDB), Authentication and Security.

LondonAppBrewery

Udemy **iOS 12 & Swift - The Complete iOS App Development Bootcamp**, Swift, Databases (Core Data, Realm), CoreML, ARKit, SwiftUI.

LondonAppBrewery

Udemy **Deep Learning A-Z**, Theory behind different deep learning models, Tensorflow, Keras and Pandas.

SuperDataScience

Udemy **Blockchain A-Z**, Theory behind blockchain technology, coding a simple cryptocurrency in Python, the Solidity programming language.

SuperDataScience

Udemy **How to Program Games: Tile Classics in JS for HTML5 Canvas**, Creating browser-based games from scratch using javascript and HTML.

ChrisDeLeon

Kaggle **Kaggle Courses**, Basics of the Seaborn plotting library, Pandas, and Machine Learning.

Various

fast.ai **fast.ai Course**, PyTorch, Computer Vision, NLP, implementing academic papers, data mining.

Jeremy Howard

Additional Skills & Interests

Technical

ADDITIONAL EXPERIENCE

- Scientific Computing
- Basic experience with C++, R, Java. Currently learning Haskell.
- Linux, comfortable working from the command line.
- Git and Version Control.

Languages

AS A HOBBY OUT OF AN INTEREST IN LINGUISTICS AND ANTHROPOLOGY

- Conversational French.
- Basic Japanese (including reading and writing).

Sport

PREVIOUS CAPTAIN OF UNIVERSITY GYMNASTICS TEAM, INTEREST IN A WIDE RANGE OF SPORTS AND PHYSICAL ACTIVITY.

- Men's Artistic Gymnastics.
- Skiing and snowboarding (since age 2).
- Horsemanship, tennis, squash, windsurfing, martial arts.

Music

- TRUMPET: GRADE 4
- PIANO: GRADE 2