

Education

- Stanford University** — Stanford, CA September 2017 - Present
Ph.D in Physics (Theoretical Astrophysics)
- University of Oxford (Christ Church)** — Oxford, UK 2013 - June 2017
MPhys in Physics. First Class Honours with Distinction - top 10% of graduating class.
- Kingston Grammar School** — Kingston, UK 2008 - 2013
A Levels: Physics (A*) Mathematics (A*) Further Mathematics (A*) Latin (A) Extended Project (A)

Research Experience

- Stanford University, KIPAC** — Stanford, CA October 2017 - Present
Graduate Student Researcher (Theoretical Astrophysics), Prof. Roger Romani
Establishing relativistic models to explain observed polarization phenomena in high energy sources including astrophysical jets and pulsar wind nebulae. Using Bayesian neural networks to identify gravitational lensing events in blazars and studying their effect on polarization. Member of the IXPE collaboration.
- Stanford University, Neurosciences Institute** — Stanford, CA March 2018 - June 2018
Graduate Student Researcher (Theoretical Neuroscience), Prof. Shaul Druckmann
Developing a ring attractor dynamical system neural network to reproduce 2D path integration and pointing vector persistence in the drosophila fly brain. Results were understood using topological data analysis.
- Stanford University, NeuroAILab** — Stanford, CA December 2017 - March 2018
Graduate Student Researcher (Artificial Intelligence), Prof. Dan Yamins
Investigating unsupervised visual learning models, namely whether learning affine transformations can be transferred to improved accuracies in object classification, using RotNet and ImageNet datasets.
- University of Oxford, Department of Physics** — Oxford, UK September 2016 - May 2017
Research Assistant (Astrophysics & Cosmology Theory and Computation), Prof. Garret Cotter
Modelling the spectra of BL-Lac type blazars, developing simulations to investigate how these spectra change travelling across different intergalactic media and placing limits on whether the Cherenkov Telescope Array will be able to constrain the existence of axion-like particles.
- CERN, CLIC Test Facility** — Geneva, Switzerland June - August 2016
Research Assistant (Accelerator Physics), Prof. Philip Burrows
Leveraged beam dispersion to improve CTF3's Quadrupole scan, which measures the emittance and Twiss parameters, and reduce the uncertainty in the beam energy spread. Designed a new Gaussian fitting program to Enhance beam analysis pipeline. Quantified first order chromatic aberration effects. Results were used to sharpen beam injection.
- University of Science and Technology of China, Plasma and Fusion Laboratory** — Hefei, China June - July 2015
Research Assistant (Plasma Experiment), Prof. Xuan Sun
Investigated Alfven wave phenomena in low temperature plasmas under a bias voltage, confirming their Doppler shift and amplification. Improved plasma confinement in the KMAX axisymmetric tandem mirror machine by applying a bias voltage. Constructed and inserted a Langmuir probe.
- WHOI, Geology and Geophysics Laboratory** — Woods Hole, MA June - August 2011
Research and Engineering Assistant (Geophysics), Jim Broda
Repairing and upgrading the large diameter deep sea coring system on the R/V Knorr, including the electronics of the winch assembly. Analysing sea-bed specimens collected by this system and cataloguing them in the Core Laboratory.

Peer-Reviewed Publications and Presentations

- A.L.Peirson, *AI in Art, Used Future: Symposium by Current Obsession*, NYC, November 2018 (Upcoming)
- A.L.Peirson, *Episode 68, The NVIDIA AI Podcast*, August 2018

A.L.Peirson, R.W.Romani *The Polarization Behavior of Relativistic Jets*, *The Astrophysical Journal*, July 2018

A.L.Peirson, E.M.Tolunay *Dank Learning: Generating Memes Using Deep Neural Networks*, Accepted for publication in *Advances in Intelligent Systems and Computing*, June 2018

D.Gamba, L.Malina, **A.L.Peirson Serratos**, F.Tecker, S.Döbert, R.Corsini, P.Skowroński, A.Rollings, L.Martin, B.Constance, T.Persson, J.Roberts *Transverse Beam Phase-Space Measurement Experience at CTF3*, 8th International Particle Accelerator Conference IPAC2017, May 2017

A.L.Peirson *Limiting Beam Energy Spread using Dispersion Measurements in CTF3*, CERN - CLIC Test Facility, August 2016 (Oral Presentation)

A.L.Peirson *Plasma Confinement in the KMAX axisymmetric tandem mirror machine*, Hefei International Physics School, July 2015 (Oral Presentation)

Scholarships and Awards

Hooke Prize for the most outstanding member of Christ Church — Oxford, UK	September 2017
Roach Prize for the most outstanding undergraduate across the sciences — Oxford, UK	September 2017
Oxford International Strategy Scholarship — Oxford, UK	June 2016
Christ Church Travel Award — Oxford, UK	June 2016, 2015
Christ Church Academic Scholarship — Oxford, UK	2016, 2015, 2014
Christ Church Collections Prize — Oxford, UK	2015, 2014, 2013
Gold, British Physics Olympiad — London, UK	2013
Kingston Grammar School Academic Scholarship — Kingston, UK	2008-2013

Professional Experience and Outreach

Stanford Diversity and First Generation Office — Stanford, CA
First Generation and Low Income Student Mentor
 October 2018 - Present
 Mentoring undergraduates from underprivileged backgrounds in all matters of student life, from career and course decisions to sporting activities and extracurriculars.

Stanford Astronomical Society — Stanford, CA
Leading Committee Member
 September 2018 - Present
 Organising and participating in telescope outreach events with the local Palo Alto elementary/high school students and the public. Teaching Stanford students how to operate optical telescopes.

Stanford Office of Science Outreach — Stanford, CA
Stanford Science Penpal
 September 2018 - Present
 Corresponding with high school students about science at Colegi Sant Pau Apostol in Tarragona, Spain.

Peirson & Freedman — Stanford, CA
App Designer
 August 2018 - Present
 Conceived and designed iOS app *Dank Learning* that uses AI to generate memes in partnership with Dylan Freedman.

Stanford Judo Club — Stanford, CA
Vice-President & Financial Officer
 June 2018 - Present
 Running all financial matters for both the adults' and children's club including setting the annual budget, communicating with Stanford's capital group, handling reimbursements and organising tournaments.

Christ Church Boat Club — Oxford, UK
Boat Club Social Secretary
 June 2015 - June 2016
 Provided with a sizable budget to organise events for current and old members of the boat club – regatta dinners and crew dates. Also responsible for maintaining a healthy social dynamic within the boat club between all levels of men and women's crews.

Oxford Student — Oxford, UK
Arts and Literature Editor
 April 2014 - July 2014
 Publishing, writing and editing articles on a variety of topics ranging from poetry to film criticism. Designing the newspaper layout using wordpress.

Leukaemia and Lymphoma Research — London, UK

October 2012

Rower

Rowed 80+ miles in a double over 2 days to help beat Leukaemia and Lymphoma, collectively raising over £30,000.

Additional Skills

Spanish (Native)

Primary Languages: **C, C++, Python, MATLAB, L^AT_EX.**

Secondary Languages: **Mathematica, Bash, HTML, Swift, LABVIEW.**

Substantial tutoring experience (100+ hours) teaching Physics and Mathematics at high school level.

Athletic Achievements

Stanford Judo Club Men's Team — Stanford, CA

October 2017 - Present

Christ Church Boat Club Men's 1st VIII — Oxford, UK

May 2014 - June 2017

Summer Viii's Head of the River 2017.

Oxford-Cambridge Boat Race Triallist — Oxford, UK

2015

Kingston Grammar School Boat Club Men's 1st Pair — Kingston, UK

2012-2013

Hampton, Kingston, Teddington and Upper Thames Head of the River.

Kingston Grammar School Boat Club Men's 1st VIII — Kingston, UK

2010-2013

Raced for Princess Elizabeth Challenge Cup, Henley 2012,2013. 1st IV holders of Percy England Challenge Cup, Thames Ditton.

Great Britain Men's Junior Rowing Team Triallist — Kingston, UK

2011