HARRY COPPOCK (HE/HIM)

PhD candidate, HEA Fellow, PGCert, MSc and MEng graduate

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🔘 https://github.com/harrygcoppock   👤 https://harrycoppock.com   🎓 Google Scholar

EDUCATION

Artificial Intelligence (PhD)
Imperial College London

📅 Oct 2020 – Aug 2023   📍 London, UK

My work focuses on characterising and controlling for bias in high dimensional deep learning and self-supervised learning for auditory inference.
Supervisor: Prof. Björn Schuller.

Postgraduate Certificate in Higher Education (PGCert)
Imperial College London

📅 Oct 2021 – June 2022   📍 London, UK

Course content: Reflection of Changing Practice, Digital Learning, Educational Supervision, Higher Education in Context

Artificial Intelligence (MSc)
Imperial College London

📅 Sept 2019 – Sept 2020   📍 London, UK

- **Distinction** (82%) with **Distinguished** Individual Project
- Course content: Reinforcement learning, Introduction to Machine Learning, Mathematics for Machine learning, Symbolic AI, Python programming, Natural Language Processing, Deep Learning, Machine Learning for Imaging, AI Ethics and Privacy, Software Engineering group project and an Individual Research project.

Materials Science and Engineering (MEng)
The University of Manchester

📅 2015 – 2019   📍 Manchester, UK

- **1st** (84%) finishing **top of the year** every year throughout 4 year course
- Specialised in nanotechnology (energy storage devices), solid state physics (solar cells and computer transistors) and composite + nanocomposite mechanics.

Artificial Intelligence
The University of Stanford in partnership with deeplearning.ai

📅 2018 – 2019   📍 Online

Neural Networks and Deep Learning (grade: 97.2%), Neural Networks and Deep Learning (grade: 97.2%), Improving Deep Neural Networks: Hyperparameter tuning, Regularization and Optimization (97.6%), Structuring Machine Learning Projects (87.5%)

Secondary School
Queen Elizabeth's Hospital School, Bristol

📅 2007 – 2014   📍 Bristol, UK

A2: A*A*A, **GCSE**: 8A*s 1A 1B

AWARDS AND PRIZES

- Nominated and shortlisted for **The Old Centralian's Trust: John and Francis Jones Prize for postgraduate students in engineering**. The Prize is awarded annually to the postgraduate student (taught programme or research) who has made the best all-round contribution to College life during the previous academic year, taking into account academic achievement, social and extracurricular activities. *Award waiting final decision from shortlist* 📅 2023

- Nominated for **Imperial College London's Award for Outstanding Achievement**. For my work with the UK Government on combating COVID-19 and for my positive impact on the Department's working environment. 📅 2022

- **AIHACK 2022 challenge winners**. Our team of 4's solution of Generative Hamiltonian Neural Networks for Microfluid Dynamics Modelling came top. 📅 2022

- **Best Student Paper** award at IEEE CBMS 📅 2021

- Imperial College London's **Distinguished Individual Project Prize** for work on Vector Quantised Variational Autoencoders for representation learning 📅 2020

- The University of Manchester's **Outstanding Academic Achievement** award - awarded to 0.5% of the graduating cohort for students who have demonstrated exceptional achievement in their academic career 📅 2019

- The Engineering "Faculties Prize(s) for **Highest Performance** in {Year 1, Year 2, Year 3 and Year 4}" 📅 201{6,7,8,9}

- "The Tin Plate and Rolls Royce Prize" for top performance in Third year 📅 2018

- "The Robert Warner Scholarship" a national scholarship for academic excellence in Materials Science and Engineering 📅 2017

- "The British Steel Prize" for top performance in metallurgy 📅 2016

- The School of Materials Prize for **Outstanding Home and Overseas Application** 📅 2015

- The Captain's Prize for my service as Head Boy at QEH school 📅 2014

- Commendation for top performance at A level and GCSE 📅 2014, 2012

RESEARCH EMPLOYMENT

The Alan Turing Institute + The UK Health Security Agency (UKHSA) 📅
2021-present
40% secondment, evaluating the potential of bioacoustic analysis for a digital mass test for COVID-19. Conducted a nationwide study involving over 70,000 participants yielding conclusive results. First author paper, and reported to Number 10. Worked with a diverse, multidisciplinary team of policy makers, civil servants, researchers and industry leads.

Teaching Scholar 📅 2020-present
Alongside my PhD studies I teach undergraduate and postgraduate students, delivering course related topics through lectures, tutorials and workshops, creating and marking course work and tutorial materials and managing modules.

ROLES OF RESPONSIBILITY

The PhD Equality, Diversity and Culture Representative 📅 2021-present
In this role I represent all PhD students in the Department of Computing. I act as an Ally, working to ensure that all voices are heard, and campaign for a more diverse future for the department.

Year Representative 📅 2016-2019
For my 2nd, 3rd and 4th years at Manchester I was elected year representative. In this role I was happy to be nominated for The University of Manchester's "Student Representative of the Year" in 2019.

Elected Head Boy at QEH School 📅 2013-2014
Represented all the students, gave regular addresses to the school and the wider community, represented the school and helped organise a range of events.

Pack Leader of the 1st XV 📅 2012-2014
This was an opportunity to lead, motivate and be part of a winning team.

OUTREACH AND WELLBEING

The 1st African Caribbean Hackathon (AC-HACK)
📅 2022-present   ⚙ Lead Organiser   👥 60+

Through my role as the PhD EDI representative and in collaboration with the African Caribbean Society, with the goal of encouraging more Afro-Caribbean students to apply to Imperial to pursue both undergraduate and postgraduate degrees, we set up and ran the first AC-HACK. Here Afro-Caribbean students competed in a series of computer science challenges. Speakers: Shakir Mohamed and Maggie Aderin-Pocock. Please see the news story.

Weekly Departmental Socials
📅 2021-present   ⚙ Lead Organiser   👥 150+

To improve the social life in the department of computing and to increase the number of people visiting campus following the pandemic, I set up and run the 'The Social Committee'. Through this committee, we run weekly socials known as 'Pizza Fridays' where PhD students, staff (support and academic) are invited for drinks and pizza every Friday. This is a hugely successful initiative.

The 1st, 2nd, 3rd, 4th Imperial Computing Conference (ICC)
📅 2021-present   ⚙ Committee Member   👥 200+

Committee member organising the bi-annual PhD winter and summer conference. Here we arrange a series of inspiring talks (see website for past speakers), fun events and opportunities for students to show off their work e.g. 1-minute madness and poster sessions.

TEACHING

Deep Learning - 70010
Course Support Lead   📅 2020-present

- Lectured large audiences on complex problem sets.
- Designed, created and deliver all coursework. This represents 50% of the weighting on the module marks.
- Organise and lead large team of $\approx$ 20 GTAs (large cohorts 300+).
- Created and maintain series of fun online quizzes which have been taken in excess of 15,000 times.
- Lead tutorial sessions

Intro to Machine Learning - 70050
Course Support Lead   📅 2020-2022

- Upgraded auto-grading software and tests for automatic marking of coursework submissions.
- Created series of fun online quizzes which have been taken in excess of 10,000 times.
- Led and managed large group of GTAs.
- Led tutorial sessions.

Python Programming - 70053
Course Support Lead   📅 2020-present

- Designed and delivered lecture and tutorial content.
- Created challenging tutorial material such as tasking students to create their own COVID-19 contact tracing algorithms.
- Lead tutorial sessions.

Ethics, Privacy, AI in Society - 70052
Teaching Assistant   📅 2020-2021

- Marked coursework and attended tutorials

SUPERVISION

- Chia-Hsin Lin, 'Characterising and Controlling for unmeasured confounders in AI in the audio domain', 📅 start April 2023
- Zhaoyu Wang, 'Self-Supervised Learning for Auditory Representation Learning', 📅 start April 2023
- Jonah Anton, 'Audio Barlow Twins: Self-Supervised Audio Representation learning', 📅 2022. ★ Corporate Individual Project Prize.
- Chenchen Liu, 'Are COVID-19 Detection from Audio Models simply Symptoms classifiers?', 📅 2022
- Matthew Barker, 'FIBS - a toolkit for automated bias detection', 📅 2022
- Weitong Zhang, 'COVID-19 Pre-diagnosis by Deep Learning based Speech Analysis', 📅 2021
- Roopa Anthony, 'Mosquito species classification from wingbeat acoustics', 📅 2021

PROFESSIONAL ACTIVITIES

The Safe and Trustworthy AI Workshop (ICLP 2023) - Confounding in AI

📅 2023   ⚙️ Speaker

AIUK - COVID-19 Detection from Respiratory Audio: A Case Study in Confounders

📅 2023   ⚙️ Speaker and Session Lead

Here I delivered a talk and also ran a workshop presenting the lessons learnt from the COVID-19 pandemic for AI. In the talk I focused on how confounders in AI had falsely led large communities to believe that COVID-19 detection from respiratory audio was possible. At the workshop, through a series of fun interactive activities e.g. soundscape immersion, I educated attending policy makers, academics and industry employees on the dangers of inflated performance of AI tech in a public health setting and presented state of the art methods to combat it.

The UK Heath Security Agency (UKHSA) Annual Conference

📅 2022   ⚙️ Invited to present work

Invited to submit an abstract for our work on Confounders in COVID-19 detection from respiratory audio. Presented to policy makers and academics. Speakers at the event included Sir Chris Whitty and Dame Jenny Harries.

The ACM Multimedia 2022 Computational Paralinguistics Challenge: Vocalisations, Stuttering, Activity, and Mosquitoes

📅 2022   ⚙️ Challenge Organiser   👥 100+

Organised the Mosquito detection and species classification from in the wild audio recordings tract for the 2022 Computational Paralinguistics Challenge at ACM International Conference on Multimedia.

Imperial Computing Conference (ICC)

📅 2021,22,23   ⚙️ Committee member   👥 200+

Committee member for the organisation of this biannual winter and summer conference within Imperial College London.

FUNDING, GRANTS AND APPLICATIONS

UKRI: Artificial intelligence innovation to accelerate health research

📅 2023

Currently in the process of applying for research grants with colleagues in The Turing-RSS Health Data Lab and The Group on Language, Audio Music (GLAM) at Imperial for £750,000 respectively. As at the time of application I was a PhD student, I am not a CI. However, through helping with the application process I was able to gain valuable insight into the grant application processes.

WORK EXPERIENCE AND VOLUNTEERING

Shepherd
Spent my summer months herding and milking sheep, making cheese, topping the fields for hay, helping with sheep care such as vaccination and carrying out manual labour such as tilling fields and assisting with the general up keep of the family farm. 📅 2014-2020

Client Support Agent at Hargreaves Lansdown
During my undergraduate university holidays, I assisted clients, topped up their accounts, placed deals in shares, funds and ETFs and trained several new employees. 📅 2014-2016

Volunteered weekly at Southmead Hospital, Bristol
Assisted cardiac and respiratory patients and, once trained, performed more complex tasks including ECGs and feeding patients. 📅 2012-2014

NHS Organ Donation Campaigner
Organised a series of talks (by myself and a Transplant Surgeon) at sixth-forms across Bristol, enabling students to sign up to the NHS Organ Donor Register. 📅 2012-2014

Independent travel to Arizona at age 15
Four weeks volunteering at a nature reserve: we were on call to remove venomous snakes from private property and return them safely to the wild. I also assisted undergraduates in the collection of scientific data, including the collection of Gila monster venom for medical applications. 📅 2012

EXTRA-CURRICULAR ACTIVITIES

I love independent travel and exploring the unknown. Amongst other adventures, one of my favourite trips was motor biking across the Himalayas on a 1940s Royal Enfield motorcycle: Driving over the Khardung La Pass, the world's highest motorable road. Along with exploration, I enjoy playing rugby and football, climbing and walking with friends and have recently taken up gardening and spearfishing.

PUBLICATIONS TOTAL CITATIONS: 243, H-INDEX: 6, I10-INDEX: 5, * JOINT POSITION

Audio-based AI classifiers show no evidence of improved COVID-19 screening over simple symptoms checkers

Harry Coppock, George Nicholson, Ivan Kiskin, Vasiliki Koutra, Kieran Baker, Jobie Budd, Richard Payne, Emma Karoune, David Hurley, Alexander Titcomb, Sabrina Egglestone, Ana Tendero Cañadas, Lorraine Butler, Radka Jersakova, Jonathon Mellor, Selina Patel, Tracey Thornley, Peter Diggle, Sylvia Richardson, Josef Packham, Björn W. Schuller, Davide Pigoli, Steven Gilmour, Stephen Roberts and Chris Holmes

📃 Nature Machine Intelligence   📅 2022   🕐 to appear

A large-scale and PCR-referenced vocal audio dataset for COVID-19

Jobie Budd, Kieran Baker, Emma Karoune, **Harry Coppock** et al.

📃 Nature Scientific Data   📅 2022   🕐 in submission

Statistical Design and Analysis for Robust Machine Learning: A Case Study from COVID-19

Davide Pigoli, Kieran Baker, Jobie Budd, Lorraine Butler, **Harry Coppock**, et al.

📃 Royal Statistical Society, Series A   📅 2022   🕐 in submission

The ACM Multimedia 2022 Computational Paralinguistics Challenge: Vocalisations, Stuttering, Activity, Mosquitoes

Harry Coppock, Ivan Kiskin, Marianne Sinka, Stephen Roberts

📃 30th ACM International Conference on Multimedia   📅 2022

Audio Barlow Twins: Self-Supervised Audio Representation Learning

Jonah Anton, **Harry Coppock**, Pancham Shukla, Björn W Schuller

📃 ICASSP 2023   📅 2022

Climate Change Computer Audition: A Call to Action and Overview on Audio Intelligence to Help Save the Planet

Björn W. Schuller, Alican Akman, Yi Chang, **Harry Coppock**, et al.

📃 arXiv   📅 2022

COVID-19 detection from audio: seven grains of salt

Harry Coppock, Lyn Jones, Ivan Kiskin, Björn W Schuller

📃 The Lancet Digital Health   📅 2021

[Book] Omics approaches and technologies in COVID-19 [Chapter 16] Artificial intelligence in COVID-19

Mina A.Nessiem, **HarryCoppock**, Mostafa M.Mohamed, Björn W.Schuller

📃 Elsevier, Academic Press   📅 2021

Evaluating the COVID-19 Identification ResNet (CIdeR) on the INTERSPEECH COVID-19 from Audio Challenges

Alican Akman*, **Harry Coppock***, Alexander Gaskell, Panagiotis Tzirakis, Lyn Jones, Björn W. Schuller

📃 Frontiers in Digital Health   📅 2021

A Summary of the ComParE COVID-19 Challenges

Alican Akman*, **Harry Coppock*** et al.

📃 Frontiers in Digital Health   📅 2021

End-2-End convolutional neural network enables COVID-19 Detection from Breath & Cough Audio: a pilot study

Harry Coppock, Alexander Gaskell, Panagiotis Tzirakis, Alice Baird, Lyn Jones, Björn W Schuller

📃 BMJ innovations   📅 2021

Detecting COVID-19 from Breathing and Coughing Sounds using Deep Neural Networks

Mina Nessiem, Mostafa M. Mohamed, Alexander Gaskell, **Harry Coppock**, Björn W Schuller

📃 IEEE CBMS   📅 2021   ⭐ Best Student Paper

Vector Quantised-Variational Autoencoders (VQ-VAEs) for Representation learning

Harry Coppock, Georgios Rizos, Björn W Schuller

Imperial Master's Thesis · 2020 · ★ Distinguished Project

IN THE NEWS

AI is no better at detecting covid-19 than simple symptom survey

NewScientist · 2023

Discussion with Journalist for up and coming work on 'Vocal Biomarkers'

📰 Wall Street Journal 📅 2023 🕐 In Press

Interview with journalist on confounders in COVID-19 detection from audio

📰 TechCrunch 📅 2023 🕐 In Press

Do I sound sick?

📰 The Lancet Digital Health 📅 2021

Audio Recordings that Reliably Detect COVID-19 not Quite Ready for Use

📰 The Well News 📅 2021

Discussion with Journalist for up and coming work on 'Vocal Biomarkers'

📰 Wall Street Journal 📅 2023 🕐 In Press

Interview with journalist on confounders in COVID-19 detection from audio

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