Emma Rocheteau

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PERSONAL PROFILE

As a medic with a PhD in machine learning for healthcare, I offer a unique perspective that allows me to develop novel solutions for improving patient outcomes.

EDUCATION

Expected 2023 — **M.B. B.Chir**, University of Cambridge

DEC. 2022 — **Doctor of Philosophy**, University of Cambridge
Department of Computer Science and Technology, with Prof. Pietro Liò
Representation Learning for Patients in the Intensive Care Unit

JUNE 2016 — **Bachelor of Arts**, University of Cambridge

Part IIA Engineering	CLASS I (16th percentile)
Part IB Medical and Veterinary Sciences	CLASS I (12th percentile)
Part IA Medical and Veterinary Sciences	CLASS I (7th percentile)

AUG. 2013 — **A levels**, The Crossley Heath School, Halifax, UK — 6 A*s
Maths, Further Maths, Physics, Biology, Chemistry & General Studies

PEER REVIEWED PAPERS & EXTENDED ABSTRACTS

DEC. 2022 — **E. Rocheteau**, I. Bica, P. Liò, A. Ercole. "Dynamic Outcomes-Based Clustering of Disease Trajectory in Mechanically Ventilated Patients". *Learning from Time Series for Health (TS4H) Workshop at NeurIPS*
Also accepted for spotlight oral presentation at the AI for Social Good (AI4SG) Workshop and the Health Intelligence (W3PHAI) Workshop at AAAI 2023

SEPT. 2022 — **E. Rocheteau**. "On the role of artificial intelligence in psychiatry". *British Journal of Psychiatry*

APR. 2021 — **E. Rocheteau**, P. Liò, S. Hyland. "Temporal pointwise convolutional networks for length of stay prediction in the intensive care unit". *Proceedings of the Conference on Health, Informatics and Learning (ACM CHIL '21)*

FEB. 2021 — **E. Rocheteau***, C. Tong*, P. Velickovic, N. Lane, P. Liò. "Predicting Patient Outcomes with Graph Representation Learning". *Deep Learning on Graphs (DLG-AAAI'21) & Health Intelligence (W3PHIAI-21) workshops at AAAI*

DEC. 2020 — **E. Rocheteau**, P. Liò, S. Hyland. "Predicting Length of Stay in the Intensive Care Unit with Temporal Pointwise Convolutional Networks". *Machine Learning for Health (ML4H) at NeurIPS (Extended Abstract)*
Also accepted for spotlight oral presentation at the Healthcare Systems, Population Health, and the Role of Health-Tech (HSYS) Workshop at ICML 2020

DEC. 2020 — **E. Rocheteau***, D. Kim*. "Deep Transfer Learning for Automated Diagnosis of Skin Lesions from Photographs". *Machine Learning for Mobile Health Workshop at NeurIPS*

Dec. 2020	**E. Rocheteau***, J. Deasy*, K. Kohler, D. Stubbs, P. Barbiero, P. Liò, A. Ercole. "Rapid Design and Implementation of a Data-Driven Forecast of ICU Strain from COVID-19 for Early Surge Planning in England". *ESICM LIVES Digital*
Sept. 2017	**E. Rocheteau** "How to organise a summer research placement"' *Student BMJ* (2017) DOI: 10.1136/sbmj.j2888
July 2017	**E. Rocheteau** "What will British healthcare look like in 20 years' time?" *Cambridge Medicine Journal* 1-2 (2017) DOI: 10.7244/cmj.2017.07.003

Other Conference Presentations

Aug. 2020	**E. Rocheteau**, J. Deasy, L. Roggeveen, A. Ercole. *ICUnity: A software tool to harmonise the MIMIC-III and AmsterdamUMCdb databases.* Machine Learning for Healthcare, Clinical Abstracts Track. Virtual Meeting
Dec. 2018	R. Samanta, **E. Rocheteau**, O. Oloyede, S. Morini, C. Summers. *Decanting the Salt from the (Data) Swamp.* SOA18, London
Apr. 2018	**E. Rocheteau** K. Leung, K. Joshi, D. Bloxham, B. Manasse, A. Hodson, M. Prahladan. *Acute Megakaryocytic Leukaemia Presenting with Osteolytic Lesions, Hypercalaemia and Acute Renal Failure.* British Society for Haematology 2018, Liverpool
Feb. 2018	**E. Rocheteau**, P. Liò. *Predicting outcomes in psychiatric disorders using automated reinforcement learning analysis of Electronic Health Records.* 2nd Human Brain Project Student Conference, Ljubljana, Slovenia
Sept. 2016	A. Hammond-Kenny, **E. Rocheteau**, N. Wilkinson, V. M. Bajo, A. J. King & F. R. Nodal. *Neural correlates of multisensory behavior in the auditory cortex.* Basic Auditory Science, Cambridge
July 2016	**E. Rocheteau**, J. A. Fraser. *The effect of heart rate on action potential shape and conduction velocity in normal, hypo-perfused and ΔKPQ-Scn5a murine atria.* Physiology 2016, Dublin, Ireland

Conference Organisation

Nov. 2021 - Feb. 2022	Track Chair, Conference on Health Inference and Learning (CHIL)
Apr. 2021 - Dec. 2021	Publications Chair, Machine Learning for Health (ML4H)

Notable Speaker Invitations

Oct. 2023	Keynote Speaker, 36th Annual Congress, European Society for Intensive Care Medicine (ESICM LIVES) Representation learning for Intensive Care Medicine
Apr. 2023	Digital Mental Health in Adults and Older People, Royal Society of Medicine The role of artificial intelligence in psychiatry
Jan. 2021	Inaugural Event Student Showcase, Cambridge Centre for AI in Medicine Predicting Patient Outcomes with Temporal Pointwise Convolutional Networks

Reviewing

May 2023	Machine Learning for Healthcare Conference (MLHC)
Mar. 2023	Conference on Health Inference and Learning (CHIL)
Feb. 2022	Conference on Health Inference and Learning (CHIL)
Oct. 2021	Machine Learning for Health (ML4H) Symposium
Apr. 2021	Machine Learning for Healthcare Conference (MLHC)
Mar. 2021	Machine Learning for Preventing and Combating Pandemics (MLPCP) Workshop at ICLR
Nov. 2020	Trustworthy AI for Healthcare (TAIH) Workshop at AAAI
Oct. 2020	AMIA Informatics Summit
Oct. 2020	Machine Learning for Health (ML4H) Workshop at NeurIPS*
	*My ML4H reviews were explicitly recognised as excellent by metareviewers
June 2020	Graph Representation Learning and Beyond (GRL+) Workshop at ICML
Sept. 2019	Graph Representation Learning (GRL) Workshop at NeurIPS
Sept. 2019	Machine Learning for Health (ML4H) Workshop at NeurIPS

Work Experience

Summer 2019	**Research Intern, Microsoft Research, Cambridge** 13-week research internship with the healthcare intelligence team.
Summer 2018	**Data Science Intern, Featurespace, Cambridge** 8-week Python project involving feature engineering from mouse/keyboard data; used to identify financial fraud using a random forest classifier.
Summer 2016	**Research Student, University of Oxford** 11-week MATLAB project analysing Local Field Potential data recorded from ferret auditory cortices while they did a behavioural task.
Summer 2015	**Research Student, University of Cambridge** 8-week experimental project in cardiovascular science.

Selected Awards and Prizes

Feb. 2023	Best Paper Award, W3PHIAI Workshop at AAAI
Apr. 2022	Eliot Slater Prize in Psychiatry, University of Cambridge
Feb. 2021	Runner-Up for Best Short Paper Award, W3PHIAI Workshop at AAAI
Dec. 2020	Best Talk Prize, Oxbridge Women in Computer Science Conference
Feb. 2018	Best Poster Prize (49 submissions), 2nd HBP Student Conference
Nov. 2017	AC Comfort Essay Prize, Royal Society of Medicine
June 2017	Cambridge Medical Journal Essay Competition, 1st Prize
Nov. 2016	3rd Year Computer-Based Project Prize, Department of Engineering
July 2016	Gold Rob Clarke Award for Undergraduate Research in Physiology
May 2016	French CEFR Level B2 (approximately equivalent to A Level): Merit
June 2016	Medical and Veterinary Third Year Prize, Churchill College
June 2015	Medical and Veterinary Prize, Churchill College
June 2014	Medical and Veterinary Prize, Churchill College
Aug. 2013	Maths Advanced Extension Award: Distinction
Feb. 2013	Gold Award in the British Biology Olympiad, Royal Society of Biology
Jan. 2013	Gold Award in the British Chemistry Olympiad, Royal Society of Chemistry
Nov. 2012	Gold Award (& top 100) in the British Physics Olympiad, University of Oxford

Academic Teaching

Jan. 2017 - Present	Supervisor of Physiology, Jesus College, Cambridge (∼300 hours)
Oct. 2021 - June 2022	MPhil Project Supervisor (Computer Science): Ryan Crowley Graph Representation Learning for Child Mental Health Prediction
May 2020 - Aug. 2020	Supervisor of Physiology, Churchill College, Cambridge
Oct. 2019 - June 2020	MPhil Project Supervisor (Computer Science): Stefan Ivanov Can Graph Neural Networks Learn Spatial Chemistry?
Oct. 2018 - June 2019	Part II Project Supervisor (Computer Science): Sam Gooch Using Reinforcement Learning for Finding Optimal Sepsis Treatment

Hackathons

Jan. 2020	Milan Critical Care Datathon	N/A
Jan. 2019	Hack Cambridge 4D	3rd Place (73 submissions)
Sept. 2018	AIMed Critical Care Datathon	1st Place (~15 submissions)
Mar. 2018	Santander Hackathon	2nd Place (~15 submissions)
Feb. 2018	HackCity	1st Place (28 submissions)
Feb. 2018	CEMEX Hackathon	2nd Place (13 submissions)
Nov. 2017	HackKings	1st Place (19 submissions)
Sept. 2017	TADHack	Joint 1st Place & Vidyo Sponsor Prize (~10 submissions)
July 2017	NHS Hack Day	3rd Place (~15 submissions)

Other

Oct. 2021 - June 2023	Co-founder and Teaching Lead for the Society of AI in Medicine
Jan. 2021	Mediterranean Machine Learning School (M2L) Competitive school designed for PhDs and postdocs
Aug. 2020 - Aug. 2021	Academic Director of the Institute for Medical AI Institute dedicated to advancing patient-centered care with medical AI
Aug. 2020	Oxford Machine Learning Summer School (OxML) Competitive school for PhD students and postdocs. 12.5% acceptance rate
Spring 2018	Technology iTeams (now Innovation iTeams) Intense 9-week program in a team of 7 conducting market research for a startup company
Sept. 2017	Data Science Study Group at The Alan Turing Institute 5-day datathon analysing data from Queens A&E department to predict which patients were going to be admitted

Languages

Proficient: Python3 (especially PyTorch, Keras, pandas & numpy), SQL, LaTeX
Competent: MATLAB, Bash