# Emma Rocheteau

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## PERSONAL PROFILE

I am a PhD Student in Machine Learning for Healthcare. I studied medicine before intercalating in 3rd year engineering and starting my PhD, so I have an unusual skill set.

## EDUCATION

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| *Current (expected 2021)* | **Doctor of Philosophy**, University of Cambridge<br>*Department of Computer Science and Technology*<br>Machine Learning for Healthcare, supervised by Prof. Pietro Liò |
| *Current (expected 2023)* | **M.B. B.Chir**, University of Cambridge<br>Completed Final MB Part I (4th Year Medicine), on hold until 2021 |
| JUNE 2016 | **Bachelor of Arts**, University of Cambridge<br>Part IIA Engineering — CLASS I (16th percentile)<br>Part IB Medical and Veterinary Sciences — CLASS I (12th percentile)<br>Part IA Medical and Veterinary Sciences — CLASS I (7th percentile) |
| AUG. 2013 | **A levels**, The Crossley Heath School, Halifax, UK — 6 A*s<br>Maths, Further Maths, Physics, Biology, Chemistry & General Studies |

## PEER REVIEWED

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|---|---|
| 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.* ArXiv: 2101.03940 |
| 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).* ArXiv: 2006.16109<br>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.* ArXiv: 2011.04475 |
| 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

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|---|---|
| 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 $\Delta KPQ$-Scn5a murine atria.* Physiology 2016, Dublin, Ireland |

## Reviewing

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| 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

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| Summer 2019 | **Research Intern, Microsoft Research, Cambridge** <br> 13-week research internship with the Healthcare Intelligence Team. <br> Submission in development for MLHC 2020 |
| Summer 2018 | **Data Science Intern, Featurespace, Cambridge** <br> 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** <br> 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** <br> 8-week experimental project in cardiovascular science. |

## Selected Awards and Prizes

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| Feb. 2021 | 2nd 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 |
| 2014/15/16 | Churchill College Medical and Veterinary Prize |
| 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

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| Jan. 2017 - Present | Supervisor of Physiology, 1st year medical students, Cambridge |
| Oct. 2019 - June 2020 | MPhil Project Supervisor (Advanced Computer Science), Cambridge |
| | Can Graph Neural Networks Learn Spatial Chemistry? |
| Oct. 2018 - June 2019 | Part II Project Supervisor (Computer Science Tripos), Cambridge |
| | Using Reinforcement Learning for Finding Optimal Sepsis Treatment |

## Hackathons

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| 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

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| Jan. 2021 | **Mediterranean Machine Learning School (M2L)** |
| | Competitive school designed for PhD students and postdocs. |
| Aug. 2020 - Present | **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 designed for PhD students and postdocs. 12.5% acceptance. |
| Spring 2018 | **Technology iTeams (now Innovation iTeams)** |
| | This is an intense 9-week program which I did alongside my PhD. In a team of 7, I conducted market research for a startup company called Voice for Good (http://voiceforgood.org). More information about the program can be found at https://iteamsonline.org/innovation-i-teams. |
| Sept. 2017 | **Data Science Study Group at The Alan Turing Institute** |
| | Over 5 days, our team analysed 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