BENJAMIN GUTTERIDGE

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EDUCATION

University of Oxford (2021-2025): DPhil in Engineering Science
— Selected for Centre for Doctoral Training in Autonomous Intelligent Machines and Systems (AIMS CDT), competitive PhD programme in AI and machine learning, funded by UKRI EPSRC.
— Specialising in graph machine learning; ongoing projects in graph rewiring in MPNNs.

University of Oxford (2017-2021): MEng Engineering Science
— **First Class** with ≥82% for Machine Vision, Robotics, Control and Mathematics modules.
— Final year dissertation in variational inference and Gaussian processes, scored 73%.
— Recipient of Academic Scholarship.

A-Levels (2017): A*A*A*A | GCSEs (2015): 10 A*s, 2As

RESEARCH AND INDUSTRY EXPERIENCE

Spring into Quant Finance, *G-Research* **Apr 2023**
— Selected for competitive Spring Insights programme with training in ML, data science and finance; opportunities to network with senior researchers, and a summer internship fast-track.

HumBug Project, *Machine Learning Research Group,* Oxford **Jun 2020 – Sep 2021**
— Project using ML and neural networks (NNs) to detect and classify disease-carrying mosquito species from recordings of their 'buzz' taken on inexpensive smartphones in developing countries.
— Developed voice activity detection and removal system for recordings; tested convolutional NNs and Gaussian mixture models, achieving **97%** speech removal with 75% mosquito/noise preservation.
— Developed and tested benchmark models for mosquito audio dataset paper, accepted with oral presentation at NeurIPS 2021. Used Bayesian/residual NNs on time-series data, achieving ROC/PR AUC scores **0.93**/**0.9** for mosquito event detection and **92.7**/71.6 for multi-species classification.

Intern, *QinetiQ,* Malvern **Jul–Sep 2018, Jun–Sep 2019**
— Awarded student scholarship; undertook two internships in RF, Secure Networks and Comms.
— Worked with team developing Counter-UAV Radar system; completed projects in MATLAB including data analysis of calibration files to optimise calibration of a phased array radar, and used Monte Carlo simulation to probabilistically determine tolerance to errors in experimental setup.

OTHER EXPERIENCE

ML Project Leader, *Engineers Without Borders Oxford* **Sep 2020 – Jun 2021**
— Led a team of ten in conducting a biomedical data analysis project, using ML techniques for identification of seizures and extracting biological information from noisy data.
— Also served as Director of Partnerships (Aug 2019 – Jul 2020).

STEP UP Ambassador, *New College, Oxford Access & Outreach Dept.* **Nov 2017 – Jun 2020**
— State school ambassador; led tours of college, produced revision materials for Oxford entrance exam.

PUBLICATIONS

Gutteridge, B., Dong, X., Bronstein, M., and Di Giovanni, F.: "DRew: Dynamically Rewired Message Passing with Delay" (2023). *International Conference on Machine Learning 2023*.

Sinka, M. E., Zilli, D., Li, Y., Kirkham, D., Wang, L., Chan, H., Rafique, W., Kiskin, I., **Gutteridge, B.**, Herreros-Moya, E., Portwood, H., Roberts, S. and Willis, K. J.: "HumBug – Introducing An Acoustic Mosquito Monitoring Tool" (2020). *Methods in Ecology and Evolution*.

Kiskin, I., Sinka, M., Cobb, A.D., Rafique, W., Wang, L., Zilli, D., **Gutteridge, B.** et al: "HumBugDB: A Large-scale Acoustic Mosquito Dataset" (2021). *Proceedings of the Neural Information Processing Systems Track on Datasets and Benchmarks*.