Freddie Freeth

CONTACT DETAILS

Email: m17285@surrey.ac.uk
Social Media: LinkedIn
View My Work: GitHub

EDUCATION

University of Surrey *Guildford*
PhD, Artificial Intelligence in Veterinary Medicine *01/2023–present*

The University of Essex *Colchester*
BSc (Hons), Mathematics *10/2018–07/2021*

- Graduated with First Class Honours.
- Produced a dissertation in mathematical neuroscience: *A Comparison in Neural Synchronisation.* I developed novel high-speed algorithms to analyse the existence and conditions of neural synchronisation in a variety of neural network topologies, theorised to be a cause of pathologies such as seizures, and its relation to the information flow capacity of a neural network. Grade: 85%.

WORK EXPERIENCE

Department of Veterinary Medicine, University of Surrey *Guildford*
Research Fellow in Epidemiology and Mathematical Modelling *06/2021–present*

- Lead the development of a new mathematical framework to model epidemics and the transmission of intestinal parasites in impoverished communities in Asia. Publication in final stages of completion.
- Other responsibilities include supporting members of a multidisciplinary group in areas of mathematics and computing. Furthermore, I attended and gave talks to members of the research group, a visitor from the World Health Organisation, and collaborators from South-East Asia.
- I lead the development of the expansion in scope in in the OH-EpiCap tool, an RShiny app that evaluates the effectiveness of epidemiological surveillance and intervention programs and is used by governments and institutions across Europe.
- I developed a mathematical model to determine the effectiveness of parasitic infection diagnostic kits, to determine a "Gold Standard" test.

University of Essex, Department of Mathematical Sciences *Colchester*
Research Assistant *10/2019–02/2020*

- Investigated and quantified a variety of psychological phenomena such as anxiety and its effects on future attainment of students at the University of Essex.
- Responsibilities included managing the collection, storage and analysis of sensitive psychological data, and to build models to support the project.

University of Essex, Department of Mathematical Sciences *Colchester*
Summer Research Placement *07/2019–10/2019*

- Using biosensor data, I investigated the effects of lameness on a herd of dairy cows in south-east England as part of a large project to improve animal welfare on farms. I built statistical models that investigated behavioural changes of a cow before and after lameness onset.

University of Essex, Student's Union *Colchester*
Web Developer *10/2018–11/2019*

- My roles were to lead the design, construction and maintainance of webpages for all three of the campuses that form The University of Essex.
- Most pages I created formed an integral part of a large-scale project called *The Big Plan*, a movement to radically modernise, improve and restructure the university's facilities.

RELEVANT SKILLS

- *Programming/Scripting Languages:* Python, R, MATLAB, Java, HTML, CSS and C++.
- *Other Technical Skills:* Mathematical Modelling, Data Analysis, High-Performance Computing, Microsoft Office, LaTeX.
- *Other Skills:* Project Management, Interdisciplinary Collaboration, Communication Skills.

AWARDS AND PRIZES

- Academic excellence prize of £500.00.
- Added to the *Dean's List for Excellence* for every year of undergraduate study.
- Awarded the Big Essex Gold Award in 2021.