Harvey Devereux

Email: harvey@devereux.io
Personal website: devereux.io
Github handle: harveydevereux

Education and Awards

University of Warwick, 25/9/17 - 2021

PhD candidate on the Mathematics for Real World Systems MSc+PhD program (PhD end date 30/09/2022). Interested in studying Machine Learning and collective dynamics.

PhD: Collective Motion and Behavior: 1/10/18 - Est. 30/09/21
Exploring the dynamics and individual behaviors of insect and animal systems using cutting edge non-equilibrium physics and machine learning, with data driven and theoretical approaches.

Supervisors: Prof. Matthew Turner (University of Warwick)
Dr. Shashi Thutupalli (NCBS India)

MSc Mathematics for Real World Systems: Distinction
Individual Project: "MIPS in Insects" 11/6/18 - 10/9/18
Supervisor: Prof. Matthew Turner

Group Project: "Machine Learning in Julia" 19/3/18 - 11/6/18
Supervisors: Dr. Sebastian Vollmer (U. Warwick/Alan Turing Inst.)
Mike Innes (Julia computing)

Aberystwyth University, 22-09-2014 - 30-06-2017

BSc (Hons) Joint Mathematics and Physics: first class
Project: "Information Theory and Statistical Mechanics"
Mike Jones Memorial Prize: recipient 2015 - 2016
"The best undergraduate performance in Mathematics and Physics"
IMA Award 2016-2017
"The best graduate performance in Mathematics"
Colin Easthope Award 2016 - 2017
"Outstanding performance of any undergraduate"

Institute and Faculty of Actuaries

Financial Mathematics (CT1) for non-members: Pass 02/12/2015

Publications

Devereux HL, Twomey CR, Turner MS, Thutupalli S. 2021 Whirligig beetles as corralled active Brownian particles. *J. R. Soc. Interface* 18: 20210114. https://doi.org/10.1098/rsif.2021.0114

Conferences

DARS-SWARM 2021 (June 1st - 4th)

(a) Corralled Active Brownian Particles: Whirligig Beetles show a density dependent speed with MIPS-like, co-existing high and low density phases, Devereux HL (Presenting), Twomey CR, Turner MS, Thutupalli S.

(b) Bottom-up models of swarming and the entropy of visual states, Devereux HL (Presenting), Turner MS.

Programming

Proficient Languages: Julia, Python, C++ (11,14,17), CUDA, Intel MPI (C++), Slurm Wordload Manager, Kotlin (Android Apps), MySQL, and Javascript/PHP/HTML (web development).

Frameworks: Google Cloud (hosting devereux.io), Amazon Web Services.

Project Experience:

Initial/Code contributor [1] to MLJ during a MSc group research project with the Alan Turing Institute.

Software engineering for x80Security, using MySQL, Amazon Web Services, Julia and Python (subject to NDA).

Github Projects: AlphaShapes.jl [Julia package], Consensus algorithms for flocking [Python], Hierarchical Triangular Mesh [C++]

Past Employment

Working with x80Security, 8th June 2020 - Onwards
Teaching assistant for Interdisciplinary Computer Modelling in Julia (7th Jan-16th March 2019)
Teaching assistant for the MathSys 2018 GPU Programming summer school (11th-12 July 2018)

[1] Blaom et al., (2020). MLJ: A Julia package for composable machine learning. Journal of Open Source Software, 5(55), 2704, https://doi.org/10.21105/joss.02704