Dylan Green

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Dylan Green ORCID

PhD student at the University of Oxford researching floating wind turbine wake dynamics using high-performance computing. Interests include computational fluid dynamics and large-scale simulation, with a focus on applications to renewable energy engineering.

Education

PhD (DPhil) Wind & Marine Energy Systems & Structures *2023–Present*
University of Oxford — Oxford, Uk

- Investigated the impact of floating platform motions on the floating wind turbine wakes using the Actuator Line Model (ALM).
- Developed and extended the in-house OpenFOAM-based ALM code.
- Performed high fidelity large eddy simulations using OpenFOAM on high-performance computing (HPC) clusters to resolve transient wake behaviour.
- Validated numerical model against open-source experimental results.
- Extensive use of ARCHER2 and ARC HPCs.
- Used Python and Paraview for data visualisation.

EPSRC Centre for Doctoral Training *2023–2024*
University of Strathclyde — Glasgow, Uk

- Short intensive courses providing a holistic understanding of offshore renewable energy engineering.

MMathPhys Master of Mathematics & Physics with Honours *2019–2023*
University of Manchester — Manchester, Uk

Grade: First-class honours (82%)

- Took a mix of applied and therotical courses focusing on continuum mechanics, numerical methods and scientific computing.
- MMath Project: *Finite Element Solutions to the Helmholtz Equation*. Developed a C++ finite element solver for the Helmholtz equation. Assessed boundary conditions for wave scattering problems, including perfectly matched layers, Dirichlet-to-Neumann maps, and approximate radiation conditions
- MPhys Project: *Quantifying Correlation Between Geometric Uncertainties in Rectum Contouring and The Resulting Patient Toxicity*. Applied a deep learning algorithm to standardize rectal contouring. Performed statistical analysis to determine the correlation between patient outcomes and contour deviations. Resulted in publication.

Experience

Conference Organiser *2026–Present*
Wind & Marine Systems & Structures Centre for Doctoral Training — Oxford, Uk

- Organiser of student-led Future Wind & Marine Conference hosted in Oxford in April 2027.
- Responsible for fundraising and bookkeeping of event.

Lab Demonstrator *2025–Present*
Department of Engineering Science, University of Oxford — Oxford, Uk

- Supervised & supported several groups of 24 students in the material testing and computational labs.
- Assisted in experimental design, data interpretation and provided one-on-one support for algorithm design and debugging.
- Responsible for marking through interview style assessment

Research Intern *2022*
Manchester Centre for Nonlinear Dynamics, University of Manchester — Manchester, Uk

- Project: *Biometric Modelling of Retinal Injections* - Experimental work aimed at identifying nonlinear dynamics in retinal injections focusing on viscous fingering instabilities.
- Designed and executed fluid injection experiments, analysed and presented results to multi-disciplinary research team.

Work Experience: Low Frequency Demand Disconnection Team *2019*
National Grid — Warwick, Uk

- Worked as part of Low Frequency Demand Disconnection team wherein I utilised low-order models to optimise demand disconnection procedure during the event of generation failure. Produced report summarising effects of sudden generation failure on system stability.

Skills

Programming:
- Python
- C++
- C
- MatLab
- Linux

Data Analysis & Visualisation:
- Python:
  - Numpy
  - Matplotlib
  - Pandas
  - Scipy
- Paraview
- VTK

Build & Job Automation:
- bash
- SLURM
- Make
- CMake

High-Performance Computing:
- CUDA
- HIP
- OpenMPI
- OpenMP

Type Setting:
- LaTeX
- Beamer
- Word

Version Control:
- Git
- GitHub

CFD / Numerical Methods:
- OpenFoam
- Finite Element Analysis

Awards & Certificates

- NVidia - CUDA Programming on NVIDIA GPUs (C++)
- University of Oxford - CUDA Programming
- Zero Institute - Climate Tech Hackathon First Place