Alison Peard

DPhil in Geography and the Enviroment, University of Oxford

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Education

Oct 2021 – ongoing
DPhil Geography and the Environment
School of Geography and the Environment (SoGE) | St Peter's College, Oxford
- Title: Deep Learning for Large Scale Coastal Risk Assessment
- Supervisor: Professor Jim Hall

Oct 2020 – Oct 2021
MSc Mathematical Modelling and Scientific Computing
Mathematical Institute (MI) | St Peter's College, Oxford
- Final grade 60.5%
- First and second class honours in all project work

Sep 2016 – May 2020
BSc Mathematical Sciences
University College Cork (UCC)
- First-class honours

Jan 2019 – Jun 2019
UCEAP Student
University California San Diego (UCSD)
- 4.0 GPA

Awards and Scholarships

2021 – 2024
EPSRC Scholarship – Social Sciences Division, Oxford

2016 – 2020
College Scholar Award – University College Cork, Cork
Women in Technology Scholarship – McAfee EMEA, Cork

Teaching Experience

Trinity 2024
Instructor – Software Carpentry Workshop in Practical Programming Skills
School of Geography and the Environment, Oxford
- Content covered: Introductory program design, data analysis, version control, and task automation (Python and shell)
- Activites: Contributed to workshop planning, prepared and hosted tutorial sessions, answered questions during hands-on sessions

Hilary 2023
Teaching Assistant – Statistics for Geographers (A10122)
School of Geography and the Environment, Oxford
- Content covered: hypothesis testing, regression, correlation, uncertainty (R, Excel)

Michaelmas 2023
Teaching Assistant – Geographic Data Science (Undergraduate FHS option)
School of Geography and the Environment, Oxford
- Content covered: spatial analysis, timeseries analysis, nonstationarity (R, ArcGIS)

Academic Administration Experience

Michaelmas 2021, Michaelmas 2022
Interview Assistant – Undergraduate Mathematics Admissions Interviews
Oriel College, Oxford
- Activities: taking interview minutes, providing hints, reviewing candidates performances

Research Experience

May 2023 – Mar 2024

Research Assistant – National Supply Simulation Model (NSSM) Project
Environment Agency, Ofwat, University of Oxford

- Description: Project testing solutions to medium to long-term water resource challenges on the national scale in the UK
- Activities: Geospatial processing, generalised linear models, and machine learning to predict water restrictions, report writing (Python, R, QGIS)

Mar 2023 – Sep 2023

Research Assistant – Country Climate and Development Reports (CCDR) for Eastern Caribbean States (OECS)
Oxford Infrastructure Analytics, World Bank Group

- Description: Testing critical infrastructure exposure to climate hazards in Dominica, St Lucia, Grenada, and St Vincent and the Grenadines
- Activities: Geospatial data processing, network flow modelling, data visualisation, report writing (Python, QGIS)

Aug 2022 – Dec 2022

Research Assistant – Bangladesh Climate Resilient Infrastructure Assessment
UNOPS, Global Center on Adaptation, University of Oxford

- Collaboration with Bangladesh's MoEFCC and CEGIS to quantify the impact of climate risk to critical infrastructure services in Bangladesh with results published in Nature Climate Change
- Activities: Geospatial data processing, generalised additive models, proportion testing, presentations, report writing (Python, QGIS)

Additional Information

Programming: Python, R, Google Earth Engine (Java), MATLAB, shell
Interests: Active member of St Peters College Boat Club

Publications and Conference Papers

2024

1. Adshead, D., Paszkowski, A., Gall, S. S., Peard, A. M., Adnan, M. S. G., Verschuur, J. & Hall, J. W. Climate threats to coastal infrastructure and sustainable development outcomes. *Nature Climate Change,* 1–9 (2024).

2023

2. Murgatroyd, A., Peard, A., Becher, O., Coxon, G., Wilson, J., Fallon, E., Pritchard, D., Rowan-Robinson, R. & Hall, J. W. Optimal drought indicators to predict water supply failure in England. *AGU23* (2023).
3. Peard, A. & Hall, J. Combining deep generative models with extreme value theory for synthetic hazard simulation: a multivariate and spatially coherent approach. *NeurIPS 2023 Workshop: Tackling Climate Change with Machine Learning (CCAI)* (2023).

Academic Project Work

2023

1. Estimating Investment Needs for Climate Adaptation in the Eastern Caribbean
   World Bank CCDR Report for OECS
   - Radiation model over network for estimating traffic routing (Python)

2021

1. Data Visualisation Bootcamp
   DeMoS Institute, FishEthoBase
   - Network science methods to visualise fish welfare database (Python)

MI 2020 – 2021

1. Identifying Unbiased Mesoscale Structures in Spatial Networks
   Dissertation – Grade: 63%
2. Stochastic and Deterministic SIR Epidemic Models
   Special Topic for Further Mathematical Biology – Grade: 70%
3. Dynamical Community Detection in Directed Networks
   Special Topic for Networks – Grade: 75%
4. Modularity Network Clustering Using the Louvain Algorithm with Gravity Null Models
   Special Topic for Python in Scientific Computing – Grade: 69%
5. Chimeras in Fragmented Landscape
   Group case study in Mathematical Modelling– Grade: 68%
6. Population Growth in a Closed System
   Group case study in Scientific Computing – Grade: 61%

UCC 2016 – 2020

1. North Atlantic Phytoplankton Abundance Forecasting Using Autoregressive Methods
   Current Topics in Statistics (ST4090) – Grade: 92%
2. Modelling the Vertical Dynamics of Phytoplankton Populations in Freshwater Systems
   Current Topics in Applied Mathematics (AM4090) – Grade: 79%

UCSD 2019

1. Finite Difference/Element Methods for Reaction-Diffusion Equations
   Projects in Computational and Applied Mathematics (MATH 179) – Grade: A^+