

PROJECTS from supervisors eligible for taking on Ada Lovelace students		
Please talk to supervisors who work on your area of interest, as there may be updates or possibilities for alternative projects		
Dr Rebecca Bell; Prof. Gary Hampson, Dr. Alex Whittaker, Department of Earth Science and Engineering; Dr. Mark Vardy, SAND Geophysics; Dr. Margaret Stewart, BGS; Mr. Abdulqadir Cader, GeoTeric	Geological and geophysical investigation of the environmental evolution of the southern North Sea for offshore wind applications	Info Sheet - Bell Geo
Prof. Martin Blunt	Pore-Scale Imaging, Analysis, and Data-Driven Pore-Scale Modelling	Info Sheet - Blunt Pore-Scale Imaging
Prof. Martin Blunt	Topology, wettability and fluid flow in porous materials	Info Sheet - Blunt Topology
Prof. Martin Blunt, Dr Branko Bijeljic, Prof. Jerry Heng (Department of Chemical Engineering)	Minimal surfaces in porous materials: wettability design for optimal flow performance	Info Sheet - Blunt Infuse
Dr Pablo Brito-Parada, Prof. Stephen Neethling	Modelling and predicting flotation froth stability	Info Sheet - Brito-Parada Froth Stability
Dr. Jacob Kegereis, Prof. Gareth Collins	Simulating impacts onto Earth: from enabling early life to causing extinction	Info sheet - Ice Impacts
Prof. Gareth Collins, Dr Navjot Kukreja (Department of Computer Science, University of Liverpool), Associate Prof. Nicholas Warner (Department of Geological Sciences, SUNY Geneseo, USA)	Automated Crater Detection and Classification with Machine Learning	Info Sheet - Collins ACDC
Prof. Gareth Collins	Decoding inner solar system bombardment from impact crater populations	Info Sheet - Collins Crater Scaling
Prof. Gareth Collins	Meteoroid fragmentation in planetary atmospheres and the formation of crater clusters on Earth and Mars	Info Sheet - Collins Meteoroid Fragmentation
Prof. Gareth Collins, Dr Tom Davison, Prof. Phil Bland (Curtin)	Multiscale modeling of compaction of primitive solar system materials	Info Sheet - Collins Multiscale
Dr. Jacob Kegereis, Prof. Gareth Collins, Dr. Paul Estrada (NASA)	Simulating impacts onto Saturn's icy moons and rings	
Prof. Gareth Collins, Mark Wieczorek (IPGP)	Impact Processing of Planetary Crust	Info Sheet - Collins Impact Porosity
Prof. Gareth Collins, Prof. Matthew Piggott, Prof. Sue Dawson (Dundee)	Simulating submarine slide tsunami inundation of the Shetland Islands	Info Sheet - Collins Shetlands
Dr Fangxin Fang, Prof. Christopher Pain	Rapid Response Modelling for Assessment of Pollution and Toxic Releases in Complex Urban Environments	Info Sheet - Fang ROM
Dr Fangxin Fang, Prof. Christopher Pain	Optimisation of sensor locations for observation of air flows/pollutions	Info Sheet - Fang Sensor
Dr Fangxin Fang, Prof. Christopher Pain, Dr Paul Wilkinson (British Geological Survey), Dr Oliver Kuras (British Geological Survey), Dr Jorg Herwanger (MP Geomechanics)	Anisotropic Geoelectrical Imaging - can Artificial Intelligence (AI) replace conventional resistivity inversion approaches?	Info Sheet - Fang Anisotropic Geoelectrical Imaging
Dr Fangxin Fang, Prof. Christopher Pain	New generation data assimilation and rapid response models for urban flooding	Info Sheet - Fang Flooding
Prof. Saskia Goes, Dr Ian Bastow	Mapping thermal and compositional structure of cratons	Info Sheet - Goes Cratons
Prof. Saskia Goes, Dr Gareth Roberts	Structure and Evolution of the African Plate from Geophysical Observations	Info Sheet - Goes Africa Joint Tomography
Prof. Saskia Goes, Dr. Alexandra Renouard, Prof. Peter Stafford (Civil), Dr. Alex Whittaker	Earthquake Forecasting Using Machine Learning	Info sheet - Earthquake Forecasting
Dr Gerard Gorman, Prof. Paul Kelly (Department of Computing), Dr Fabio Luporini	Redundancy, retiming and data flow in compiling finite-difference applications for many core architectures	Info Sheet - Gorman OPESCI
Dr Claire Heaney, Prof. Christopher Pain	Applying Dimensionality Reduction to Solutions on Finite Element Meshes with Autoencoders	Info Sheet - Heaney Autoencoders

Dr Claire Heaney, Prof. Christopher Pain	Large Scale AI Modelling for Environmental Flows	[Info Sheet - Heaney Environmental Flows]
Dr Claire Heaney, Prof. Christopher Pain, Prof. Matthew Jackson	Simulation of geo-thermal wells with reduced order modelling and data assimilation	[Info Sheet - Heaney ROM DA NORMS]
Prof. Matthew Jackson, Dr Haiyang Hu, Professor Jon Blundy (University of Oxford)	Fluid dynamics of magma reservoirs	[Info Sheet - Jackson CFD]
Prof. Matthew Jackson, Dr Pablo Brito-Parada, Prof. Stephen Neethling	Electrokinetic enhanced in-situ resource utilisation (EK-ISRU) for green copper production	[Info Sheet - Jackson EK-ISRU]
Prof Matthew Jackson, Prof. Gary Hampson	Efficient numerical modelling of subsurface hydrogen storage for low carbon energy	[Info Sheet - Jackson Subsurface Hydrogen Storage]
Prof. Matthew Jackson, Prof. Gary Hampson, Dr Marko Aunedi, (Electrical and Electronic Engineering)	Developing the world's largest geobattery: ultra-high-temperature underground thermal energy storage for large-scale electricity storage in the UK	[Info Sheet - Jackson Geobattery]
Prof. Matthew Jackson, Prof. Gary Hampson, Prof. Alexandra Porter (Department of Materials), Dr Geoff Fowler (Department of Civil and Environmental Engineering)	Storage and transport of microplastics in groundwater	[Info Sheet - Jackson Microplastics]
Prof. Matthew Jackson, Prof. Chris Pain, Dr Claire Heaney	Rapid modelling of reactive flow using machine learning and dynamic mesh optimisation	[Info Sheet - Jackson Reactive Flow]
Dr Sam Krevor	Global CO2 storage capacity: Modeling limitations of geography and injectivity	[Info sheet - Global CO2 Storage capacity]
Dr Sam Krevor and others TBA	Reservoir characterisation and modelling of CO2 storage underground	[Info sheet - Reservoir characterisation and modelling of CO2 storage underground]
Dr Philippa Mason, Dr James Lawrence (Civil Engineering, Imperial College London), Prof. Richard Ghail (Earth Sciences, Royal Holloway UK)	Developing time-series InSAR for understanding changes to the ground surface, subsurface, biosphere and environment	[Info Sheet - Mason Time-Series InSAR]
Dr Philippa Mason, Prof. Richard Ghail (Earth Sciences, Royal Holloway UK), Dr Gareth Roberts	Understanding surface processes on Venus: in support of the EnVision mission	[Info Sheet - Mason Surface Processes Venus]
Dr Ben Moseley, Prof. Christopher Pain	Learning fast and generalizable climate models with neural differential equations	[Info Sheet - Moseley NDEs]
Prof. Stephen Neethling	Simulation of charge-slurry interactions in tumbling and stirred mills	[Info Sheet - Neethling Simulation of Mills]
Prof. Stephen Neethling	The impact of mineral texture on the relationship between particle size, surface exposure and mineral liberation: A key to coarse particle flotation	[Info Sheet - Neethling Coarse Particle Flotation]
Prof. Christopher Pain, Dr Claire Heaney	AI modelling of underground water for heating buildings	[Info Sheet - Pain Underground Water Heating]
Dr Adriana Paluszny and Dr Ronny Pini	PhD Studentship: Numerical Modelling of Cycling Subsurface Fluid Storage	[Info Sheet - Paluszny Numerical Modelling]
Prof. Matthew Piggott	Understanding and minimising the potential environmental impacts of tidal range (lagoon) based renewable energy generation via advanced numerical modelling	[Info Sheet - Piggott Tidal Lagoons]
Prof. Matthew Piggott, Dr R. Iestyn Woolway (University of Reading), Prof. Stephen Maberly (UK CEH)	Accelerating Scientific Discovery of Complex Scientific Applications with Process-Guided Deep Learning: Aquatic Eco-Dynamics in Lakes	[Info Sheet - Piggott Lakes]
Dr Yves Plancherel	Modeling the global Pb cycle: from industrial emissions to the bottom of the ocean	[Info Sheet - Plancherel Pb Cycle]
Dr Yves Plancherel, Dr Pablo Brito-Parada, Dr Philippa Mason	Tracking Illegal Gold Mining Safely with Earth Observations and Machine Learning	[Info Sheet - Plancherel Illegal Gold Mining]
Dr Yves Plancherel, Prof. Mark Rehkamper, Prof. Tina van de Fliedert	Exploiting the GEOTRACES toolbox to characterize ocean biogeochemical processes: trace elements, isotopes and new quasi-conservative tracers	[Info Sheet - Plancherel GEOTRACES]
Dr. Gege Wen	Machine learning for subsurface multiphase flow in the energy transition	[Info sheet - Machine Learning for Multiphase Flow]