

CHRIS MATTHEW

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I am midway through my PhD at University College London in modelling low carbon energy systems to better understand the technological pathways to meet net zero emissions goals. I am passionate about using data-driven analysis to understand how energy systems of the future can minimise impacts on the environment.

ACADEMIC

University College London

October 2019-Present

PhD in Sustainable Energy and Resource Use for the Scottish Islands

EPSRC funded project investigating ways of transforming the Scottish Islands into *sustainable resource and energy* hubs. Includes investigating, understanding and modelling *energy systems*, the *resource nexus*, *circular economies* and the potential impacts of *technology scenarios*.

Includes developing a bottom-up energy supply/demand model representative of low carbon technologies, *synthesizing analytical techniques, collating and cleaning varied data* types to model energy flows. Tools include the energy market simulation software *PLEXOS* and *Python*.

Understanding of net-zero energy systems through analysing technology scenarios will help identify potential bottlenecks and commonalities to make *informed policy recommendations*

University of Edinburgh

2011-2016

FIRST - Masters of Mechanical Engineering with Renewable Energy

Five-year integrated Masters Course covering *traditional engineering principles* (such as dynamics, fluid mechanics, engineering design and manufacturing, solid mechanics and thermodynamics) and specific focus on *renewable energy principles and systems*.

Interdisciplinary projects include leading a small team in the *design and manufacture of a small wind turbine* and a *feasibility study for a gas power plant* with carbon capture and storage.

Dissertation developing a *roadmap for marine energy in Panama*, detailing the resource, infrastructure, finances and legislation first at a global scale to then compare to the local landscape; *winner of the Institution of Mechanical Engineers Best Project Certificate*.

Robert Gordon's College

2009-2011

Scottish Advanced Highers (2 A's and 1 B):

Scottish Highers (5 A's):

Mathematics (A), Applied Mathematics (A) and History (B).

Mathematics, Physics, Chemistry, History and English.

International School of Stavanger

2005-2009

International General Certificate of Secondary Education (IGCSE) – Mathematics (A*), Double Award Science, English Language, English Literature, History, Geography (6 A's) and Art (C).

WORK EXPERIENCE

Graduate Fire Engineer

Mott MacDonald, London

October 2017- May 2019

Multi-disciplinary and international engineering consultancy firm working to develop *bespoke engineering solutions* in fire and life safety for a *wide variety of projects and clients*. Includes utilising both prescriptive guidance and analysis from engineering first principles as required.

Helped to establish the structural fire engineering capabilities of the team via *research into industry best-practice, producing analytical models in Excel and Python (forming a coding club to share best practice)* and *collaboration* with the structures team.

Requires high level of *presentation skills, report writing capability* and ability to convey essential technical aspects of work to at times non-technical clients *clearly and succinctly*.

Lab Supervisor

School of Engineering, University of Edinburgh

February –May 2016

Management of a Thermodynamics lab and marking of reports: *developed teaching and communication skills* to aid students and provide them and the course organiser with feedback.

Energy Engineer

James Jones and Sons, Lockerbie

January –July 2015

Working on a large sawmill site to *reduce electricity consumption by ~ 3% annually* (300,000 kWh), with further aspects for improvement handed over. This required *detailed, independent investigation* of the site to develop a deep understanding of the processes involved and identify potential savings.

Various aspects identified were managed (determining the extent of savings, any adverse effects and the cost effectiveness), often simultaneously, with the help of other engineering staff, to *evaluate and maximise the energy saved*.

CAD Draftsman

Welding Alloys, Cambridge

August- September 2012

Worked for a company producing bespoke welding machines. Gained insight into *engineering design as part of a small team of professional engineers* with Solid Works, as well as interfacing with the workshop.

Software Internship

Rabbitsoft, Cambridge

June 2011

Internship with a small software company prior to the release of a new software, *working closely as a team* to troubleshoot and *provide methodical feedback* to identify and correct problems in a timely manner.

VOLUNTEERING EXPERIENCE

In2Science Mentor

Online

August 2020/21, annually

Mentoring A-level aged students from disadvantaged backgrounds hoping to get into STEM subjects; providing them with *guidance and advice*, helping them with university applications and discussing concerns.

Global Citizenship Navigator

University College London, London

November-March 2019/20

Organising and facilitating the sustainability strand of the programme; *setting up and leading students through workshops* to critically assess and better understand sustainability issues in society today.

Ecosummit London Ambassador

Volunteering at a conference in 2016 for sustainable engineering startups and investors to ensure the *event ran smoothly* as part of team, as well as to attend talks and *network with industry figures* attending.

ADDITIONAL EXPERIENCE

Warehouse Worker

Freeze Pro Shop, Edinburgh

September 2016- March 2017

Help manage the warehouse of a busy ski shop, sorting incoming and outgoing online orders *efficiently and smoothly under a tight deadline* to ensure shipments to multiple couriers were each day.

House Team Member

Edinburgh University Students' Association, Edinburgh

August 2014

Worked to maintain the largest venue of the Edinburgh Fringe Festival, requiring a strong work ethic to present the best image to customers at all times and *prioritise tasks in a hectic and stressful environment*. Quickly developing a strong working relationship with other employees was also crucial.

INTERESTS & ACHIEVEMENTS

Bouldering

Placed 1st (2012/13/14) and 2nd (2016) in the Scottish Student Sports competition and group 2nd (2012/13), coming individual 4th in 2013, and 3rd (2014) in national student competition.

I train 4-6 times weekly in preparation for climbing outdoors, having visited South Africa, Thailand, the US and destinations across Europe with friends and peers to *improve and widen my skillsets*.

Training independently without a coach or club requires *high level of dedication and self-motivation* to improve; to this end I have previously designed and built a home wall to train on.

Model United Nations (MUN)

Took part in the MUN for two years, as well as in the Security Council at the 2009 IMUN Conference in Lisbon, developing skills of *negotiation and cooperation in an international forum*.

Other Skills and Hobbies

Sailing- Royal Yachting Association (RYA) Competent Crew certified, having sailed in Norway, Croatia, Turkey and the Caribbean; *high level of responsibility* involved to ensure safety at sea.

French- conversational French due to attending a bilingual international school in Texas as a child.

Driving License- full and clean UK driving license held for 7 years.

Software- Extensive experience with *Python*, Microsoft Word/ Excel and Solid Edge CAD software, as well as fluency with MATLAB, Abaqus FEA, Pyrosim Fire Dynamics Simulator and BRANZFire.