Michael Hunt

Physics PhD and aspiring data scientist

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Currently

I have worked as a lecturer in the HE in FE sector for 19 years, having previously been a research physicist in Switzerland and France for 6 years. I have written, managed and delivered a number of HE courses up to Masters level, including a BSc Renewable Energy and Carbon Management. In the last two years, in an effort to develop my data modelling and analysis skills, I have successfully completed many (>25) MOOCs in statistical analysis, machine learning, big data and more, mainly using R, and Python but also Matlab, MS Azure and other tools. I have so far used these new skills to carry out market research, to model heat flows in old buildings, to simulate wind speed and solar variation and to model a pumped storage energy solution for a local town. The heat flow work was part of a long running collaboration with conservation officers within Cornwall Council, funded by a Townscape Heritage Initiative lottery money. It was published last year and presented at an international conference (EECHB, 2016). I am now embarking on a machine learning/IoT project to develop a biologger and C++ based software to determine the state of movement of farm animals from accelerometer data alone.

Employment

1998– **Cornwall College** HE lecturer, course manager and curriculum area manager.

1997–1998 **CNRS Lab. Louis Neel** OXSEN Research Fellow, developing magnetic transistors.

1996–1997 **Physics Department, University of Zuerich** Oxygen isotope investigations of Hi Tc superconductors using dilatometry.

1995–1996 **ABB Applied Physics Group, Corporate Research Centre, Baden Daettwil** Dilatometric studies of 1 MW Hi Tc superconducting current limiter.

1995–1996 **Solid State Physics Lab., ETH Zuerich** Low temperature studies of transport properties in metals

1981–1982 **Research Centre, British Gas, Solihull, UK** Coding in FORTRAN and assembly to support gas dispersion investigations.

Education

1989–1992 **University of Bristol** PhD Physics
"A de Haas-van Alphen Investigation of the heavy fermion superconductor CeCu2Si2"
Supervisor: Mike Springford

1987–1988 **University of Sussex** MSc Physics by Research
"A de Haas-van Alphen investigation of lithium" (*Distinction*)

1982–1985 **University of Cambridge** BA Natural Science (Physics)

Presentations

2016 EECHB: Life Cycle Analysis of Historic Buildings in Cornwall(*EECHB*, Brussels, Belgium)

Publications

I have 24 publications in peer reviewed journals, almost all dating from my years as a post-grad and post-doc 1989-1998. See my profiles on Research Gate or Google Scholar for listings of these. One paper was published in Nature and has over 300 citations. More recently (2016) I presented work at an international conference (EECHB, 2016) on energy efficiency in historic buildings. This was an analysis carried out using R of heat flow through thick, solid walls.

Certifications

Many online courses completed in 2015-2016. The code written for most of these can be found in my GitHub repo. Most courses required between 20 and 100 hours of work over 4 - 12 weeks.

2015

Platform	Course	Institution	Grade
Coursera	The Data Scientist's Toolbox	JHU	100%
Coursera	R Programming	JHU	100%
Coursera	Getting and Cleaning Data	JHU	100%
Coursera	Exploratory Data Analysis	JHU	100%
Coursera	Reproducible Research	JHU	100%
Coursera	Statistical Inference	JHU	100%
Coursera	Regression Models	JHU	100%
Coursera	Practical Machine Learning	JHU	100%
Coursera	Developing Data Products	JHU	100%
Coursera	Data Analysis and Statistical Inference	Duke	99%
edX	The Analytics Edge	MITx	96%
FutureLearn	Big Data	U. Warwick	100%
Coursera	Introduction to Big Data	U. San Diego	100%
Coursera	Hadoop Platform and Application Framework	U. San Diego	100%
Coursera	Introduction to Big Data Analytics	U. San Diego	100%
Coursera	Programming for Everybody	U. Michigan	100%

	Coursera	Using Python to Access Web Data	U. Michigan	100%
	Coursera	Using Databases with Python	U. Michigan	100%
	edX	Introduction to Computer Science and Programming using Python	MITx	98%
	edX	Introduction to Computational Thinking and Data Science	MITx	97%
	edX	Data Science and ML Essentials	Microsoft	93%
2016				
	Lagonita	Statistical Learning	U. Stanford	88%
	edX	Machine Learning	U. Stanford	100%
	edX	Statistics and R	HarvardX	100%
	edX	Introduction to Linear Models and Matrix Algebra	HarvardX	100%
	edX	Stat. Inference and Modeling for high-throughput Experiments	HarvardX	98%
	edX	High-Dimensional Data Analysis	HarvardX	100%
	edX	Annotation and Analysis of Genomes and Genomic Assays	HarvardX	99%
	edX	High-performance Computing for Reproducible Genomics	HarvardX	99%
	edX	Case Studies in Functional Genomics	HarvardX	99%
	edX	Global Warming Science	HarvardX	100%
	edX	Case Studies in Functional Genomics	MITx	100%
	FutureLearn	Causes of Climate Change	U. Bergen	100%
	Coursera	Introduction to programming with Matlab	Vanderbilt U.	100%

Technical skills

Python
R
C++
MATLAB
Statistics
Modelling
LaTeX
Git
Excel
Machine learning
Bash
Data visualisation

Awards

2017 Cornwall College Internal Research Funding: *From relationships to disease.....Real time tracking of social interactions, locomotion and grazing patterns and their potential associations with common production challenges: A pilot study* (with Anna Walker)

Interests

Trail running - several times a week, most weeks.
Project Euler - 181 problems solved so far, using Python, C++, Mathematica, Matlab, R and pen and paper.
Homing in on the UK top 50

Links

email
GitHub
twitter
Research gate
Google scholar

References

Available on request.