

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 biollogger and 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 <i>“A de Haas-van Alphen Investigation of the heavy fermion superconductor CeCu₂Si₂”</i> <i>Supervisor: Mike Springford</i>
1987–1988	University of Sussex MSc Physics by Research <i>“A de Haas-van Alphen investigation of lithium” (Distinction)</i>
1982–1985	University of Cambridge BA Natural Science (Physics)

Presentations

2016	EECHB: Life Cycle Analysis of Historic Buildings in Cornwall(<i>EECHB</i> , Brussels, Belgium)
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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 in 2015-2016. The code written for most of these can be found in repos on my GitHub page. Most courses required between 20 and 100 hours of work over 4 - 8 weeks.

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%
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	Statistical 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
LaTeX
Git
Linux
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 and R. Homing in on the UK top 50

Links

 email
 GitHub
 twitter
 Research gate
 Google scholar

References

Available on request.