Samuel Thompson, PhD MEng

Data Scientist, Mechanical Engineer

A Mechanical Engineer by training using machine learning to revolutionise the way we design. Currently exploring the capabilities of Artificial Intelligence methods within the ballistic domain; using neural networks to identify trends in experimental data where analytical methods fall short.

Libraries: numpy, pandas, keras, SciPy, matplotlib +

Education

SEP 2017 – Current

PhD Candidate
The University of Edinburgh

Researching the capabilities of machine learning within the ballistic domain. Focused on developing Generative Adversarial Networks (GAN) capable of generating new ballistic data.

Highlights

- Published a book chapter and two academic papers on AI/Machine Learning in ballistics
- Presented my AI research on ballistics at the AUXDEFENSE 2020 Conference
- Supervised a Master's student and developed a comprehensive AI/Python training manual using JupyterBook and Jupyter Notebooks
- Developed complete meshing algorithm for DEM truss-like elements in MATLAB
- Used MATLABs App Designer to create a complete GUI allowing the user to create geometry, apply boundary conditions and loading scenarios and evaluate deflections and stress distributions.

SEP 2012 – SEP 2017

MEng in Mechanical Engineering (1st Class)
The University of Edinburgh

- 1st Class Degree (76 % overall)
- Senior Discipline Class Representative for Mechanical Engineering
- Runner up at Engineers Without Borders (EWB) UK Finals
- Developed excellent proficiency with MATLAB

Master Thesis Title
"Low Energy Impact on Non-Homogenous Slender Structures"

Developed an algorithm in MATLAB to study the mechanical response of wind turbine blades subjected to bird strike impact.

SEP 2005 – SEP 2012

Ashton Sixth Form College
Darnton Rd, Ashton-under-Lyne OL6 9RL

- A Level: Maths, Physics, Biology
- AS: Chemistry

West Hill High School
Stamford St, Stalybridge SK15 1LX

- Prize for Overall Academic Achievement

Experience

Publications

OCT 2019 **An Artificial Intelligence-based Hybrid Method for Multi-Layered Armour Systems**
State of the Art and Future Trends in Material Modelling, pp 381-400
F. Teixeira-Dias, S. Thompson, M. Paulino

NOV 2020 **Ballistic Response of armour plates using Generative Adversarial Networks**
Expert Systems and Applications, pp 381-400
S. Thompson, F. Teixeira-Dias, M. Paulino, A. Hamilton

Conference

JUL 2020 **AUXDEFENSE 2020 – 2nd World Conference on Advanced Materials for Defence**

Personal Info

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GitHub
github.com/samph4
Portfolio
samph4.github.io/

Technical Skills

Matlab, Python, HTML, SQL

●●●●○ Advanced

Machine Learning

●●●●○ Advanced

Data Visualisation

●●●●● Expert

Soft Skills