

# William Hampshire

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Physics undergraduate at the University of Sheffield, with extensive programming knowledge and a passion for data science & engineering. Keen to further develop Python & ML techniques and advancing SQL knowledge with “big data” projects, to drive well informed decision making. Equipped to deliver valuable insights in a data science role, using both physics skills and data literacy.

## Education

- 2021 - present **BSc Physics with Year in Industry**, University of Sheffield, Predicted First Class
- 2019 - 2021 **A levels**, The Sixth Form College, Colchester, *Physics (A) Maths (A) Electronics (A) Chemistry (A)*
- 2014 - 2019 **9 GCSEs, 1 BTEC**, Maltings Academy, *Average 7.6 with 9 in Physics. Dist\* in Business.*

## Employment

June 2023 - **Design Physicist Intern**, AMETEK Land Instruments International  
June 2024

- Analysed 15,000 logging scripts in Python, revealing a disparity, hinted at by experimental data. Discovered the source and presented findings, preventing future issues & increasing product reliability.
- Analysed and visualised another 10,000 logs, resulting in updates to quality control parameters for 5 product lines, enhancing threshold accuracy 3x, enabling delivery and quality of 7 figure orders.
- Developed serial logging Python application to pre-approve viable instruments, enabling simultaneous measurements and reducing manual hours by 90%.

Overall, data science leveraged to make impactful contributions to the Physics team at Land, world leaders in non-contact temperature measurement solutions, furthering innovation and performance.

October 2022 - **Volunteering**, Student Staff Committee, University of Sheffield  
present

Volunteering for the Student Staff Committee, facilitating feedback from students to lecturers & faculty. Demands clear and effective communication, and good interpersonal understanding.

## Personal Projects

The following projects along with others are further detailed on [williamhampshire.com](https://williamhampshire.com) and on [github page](#).

### LSTM & Dense Network Machine Learning of Motor Activity Predicting MADRS Score without Clinical Diagnosis

- Neural network trained with LSTM and Dense layers, that predicts results to <1% accuracy, with 70/30 test split.
- Uses activity from an Actigraph watch, meaning there is large room for expansion (currently 23 sets).

### 2024 Sheffield Local Election - data mining & visualisation

- Extracted raw html from [sheffield.gov.uk](https://sheffield.gov.uk), and created Python script to iterate through constituencies.
- Using sqlite3, executed queries within Python to create tables of data scraped, then queried the data.
- Visualised using Tableau - bubble chart showing total votes for each party, and bar chart showing the most “popular” candidates - published on [Tableau Public](#).

## Technical and Personal skills

- Programming Languages:** Python (pandas, scikit-learn, seaborn, & more), SQL, JavaScript/HTML/CSS. Basic proficiency in C, Matlab, VBA, React.js/Next.js
- Industry Software:** Excel, Git, Tableau, Adobe CS/CC.
- General Business Skills:** Presentation and documentation skills, Works productively with a team driving progress, Understanding of business models, operation and goals.

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## Interests and extra-curricular activity

- Data Analysis & ML projects; investigate interesting/useful datasets (e.g. WBOD, Kaggle) with Python.
- Electronic projects, using Arduino, Raspberry Pi; RGB LED control powered by MOSFETs.
- 3D Printing, CAD, RC hobbyist; using Fusion 360 for 3D printing and modelling projects, building racing drones.
- Music & sports; play Saxophone, Piano and Bass guitar. Toured Germany with jazz orchestra. Play field hockey and squash.