

# Kelvin Simatwo

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## Profile


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Second Year PhD student at Loughborough University researching computationally efficient algorithms for augmentative and alternative communication, benefitting individuals with speech disabilities. A strong team worker with excellent academic, communication and technical skills. Enjoys researching and working on AI projects that have a positive impact on society.

## Education

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### **Augmentative and Alternative Communication | PhD** **Loughborough University**

 01/2023 – 12/2025

Researching computationally efficient embedded classification algorithms for augmentative and alternative communication for individuals with speech impairments, working in partnership with The Ace Centre.

### **Data Science | MSc** **Loughborough University**

 10/2021 – 10/2022

Grade: Distinction

### **Electrical and Electronic Engineering | BEng** **The University of Sheffield**

 09/2018 – 06/2021

Grade: First Class Honours

## Awards

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 2019

**Sir Harold West Award - The University of Sheffield**

 2019

**Northern Consortium UK Undergraduate Scholarship**

 2020

**Northern Consortium UK Undergraduate Scholarship**

## Publications

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**Matthews, A.S., Simatwo, K., Narracott, A., Ambrogio, S., Walker, A. and Fenner, J.W., 2023. Quality Assuring a Ring Vortex Flow Phantom in Real-Time. Open Journal of Medical Imaging, 13(01), pp.11-29.**

<https://www.scirp.org/journal/paperinformation?paperid=123507>

**Data Study Group Team. (2023). Environmental Investigation Agency (EIA) Identifying Tiger Stripes with Machine Learning. The Alan Turing Institute.**

<https://doi.org/10.5281/zenodo.10033690>

**Simatwo, K., Elsahar, Y., Hu, S., Wade, W. and Fleming, J. Computationally Efficient Breath Pattern recognition for Augmentative and Alternative Communication. IEEE Journal of Biomedical and Health Informatics. - Currently Under Review**

## Work Experience

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### **Turing Internship Network Data Science and AI Intern The Alan Turing Institute**

📅 01/2024 – 07/2024

- Working with The Alan Turing Institute's partner to solve their challenges involving data science and AI.
- Researching effective ways to enhance, classify and cluster noisy audio data, making use of available pretrained architectures.

### **Summer Research Placement Student Insigneo Institute for in silico Medicine**

📅 06/2021 – 08/2021

- Refined MATLAB code that governed the working of a ring-vortex complex flow phantom and integrated its encoder into an Arduino structure.
- Designed and constructed laser circuitry that measured the velocity of ring vortices to an accuracy of 98%.
- Refined Doppler probe MATLAB code that measured micro-flow velocity.
- Integrated the encoder, Doppler probe and laser circuitry into one workflow.
- Designed and 3D-printed casings to hold transducers and electronics.
- Created a user interface that simplified the operation of the entire workflow.

## Extra Curricular Activities

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### **Data Study Group The Alan Turing Institute**

📅 05/2023

- Worked in a team of 10 doctoral researchers and industry partners from The Environmental Investigation Agency to classify tigers based on their unique stripe patterns.
- Contributed to the exploratory data analysis and found a high class imbalance in the tiger image data. Recommended generating synthetic data as a solution.
- Reviewed and tested the model pipeline. Compared results obtained with and without masking. Gained experience with PyTorch deep learning framework.
- Contributed to the writing of the final report and preparation of presentation slides.

### **Microsoft Embrace Hackathon Loughborough University**

📅 04/2022

- Collaborated with 3 team members over 2 days to design a technology-focused solution for discrimination in sport and took first place in the hackathon.
- Designed a logic app using Microsoft Azure for tweet sentiment analysis in sports-related posts on Twitter.
- Further collaborated with my team and refined the logic app after the hackathon to detect hate speech in Twitter posts.

### **Innovation and Technology Enactus Sheffield**

📅 02/2019 – 02/2021

- Provided technical support to Code Creators team and made Blackboard Collaborate software tutorials for lecture delivery.
- Won the 'Outstanding Contribution' award in July 2020.
- Was part of a team that won the 'Most Effective Team' award during the 2020 training weekend.
- Made sustainability checklists for teams in the Commercial Portfolio so that each team could work towards social, economic and environmental sustainability.
- Helped in designing and publishing the Enactus Sheffield website.

**Skills** 

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**ⓘ TECHNICAL**

MATLAB <b>Proficient</b>	C Programming <b>Proficient</b>	Python <b>Proficient</b>	Machine Learning <b>Proficient</b>
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**ⓘ SOFT SKILLS**

Communication <b>Proficient</b>	Teamwork <b>Proficient</b>	Leadership <b>Proficient</b>	Time Management <b>Proficient</b>
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Problem Solving  
**Proficient**