We'd love your feedback on our website

Tell us what you think →

Don't ask me again ✕

Select country: UK   India   Malaysia

University of Southampton

About   Visit   Alumni   Departments   News   Events   Contact

🔍

PhDs and research degrees ▶   Create your own research project   **Find a PhD project**   Funding your research degree

More ⌄

← **View all current projects**

Postgraduate research project

Sustainable Generative AI models

£ Funding
Fully funded (UK and international)

⌛ Type of degree
Doctor of Philosophy

✓ Entry requirements
2:1 honours degree
View full entry requirements

🏛 Faculty graduate school
Faculty of Engineering and Physical Sciences

📅 Closing date
27 Jan 2026

About the project

About the project

This project aims to pioneer advancements in the energy-efficient Generative AI models (GenAI), focusing on achieving faster inference times and reduced model sizes without compromising performance and increasing carbon emissions.

As GenAI becomes increasingly central to a wide range of applications, from generating images to generating videos and music, their computational demand and the time required for training and inference have escalated. This research seeks to address these challenges by developing innovative techniques for efficiency, including architectural innovations, compression strategies, algorithmic improvements, and system level optimizations.

The goal is to enable the deployment of state-of-the-art GenAI models across broader scenarios of computing environments, from high-end servers to consumer-level machines.

This project will contribute to making GenAI more democratic, efficient, and scalable, paving the way for their application in real-time and resource-constrained scenarios. The main research objectives are:

→ to develop cutting-edge techniques for model compression, such as pruning, quantization, and knowledge distillation, tailored for GenAI models

→ to design and experiment with new GenAI architectures that are more efficient, requiring less computational power and memory

→ to create new algorithms and system wide optimizations to accelerate both training and inference processes for GenAI, making them more suitable for deployment across a variety of computing environments

→ to develop and utilize benchmarks and metrics specifically designed to evaluate the energy-aware efficiency and performance of GenAI under various computational constraints.

You will conduct comprehensive experimental validation and testing. This approach seeks to push the boundaries of what's possible with GenAI, setting new standards for efficiency and accessibility in AI technologies.

This is part of the UKRI AI Centre for Doctoral Training in AI for Sustainability (SustAI), a 4-year integrated programme (iPhD). You will be part of a dynamic and diverse cohort, benefiting from expert mentorship and interdisciplinary collaboration. The programme includes comprehensive training in sustainability, AI and machine learning, and digital design, preparing students for a career at the forefront of research in this area. Students will have access to state-of-the-art facilities and resources, fostering an environment of innovation and excellence.

The School of Electronics & Computer Science is committed to promoting equality, diversity inclusivity as demonstrated by our Athena SWAN award. We welcome all applicants regardless of their gender, ethnicity, disability, sexual orientation or age, and will give full consideration to applicants seeking flexible working patterns and those who have taken a career break. The University has a generous maternity policy, onsite childcare facilities, and offers a range of benefits to help ensure employees' well-being and work-life balance. The University of Southampton is committed to sustainability and has been awarded the Platinum EcoAward.

Next
Potential supervisors

Part of the

RUSSELL GROUP

Information

For visitors

For staff & students

For schools & colleges

For researchers

For employers & recruiters

For parents & guardians

For international students

Contact us

Tel: +44(0)23 8059 5000
Fax: +44(0)23 8059 3131

University of Southampton
University Road
Southampton
SO17 1BJ
United Kingdom

Get directions →

Connect with us

Download a copy of our prospectus or order a printed copy to be delivered to your door.

Get a prospectus →

© 2025 University of Southampton

Site map   Accessibility   Privacy   Data protection & freedom of information   Terms & conditions   Conta

Jobs

Hello, I am Hartley, your Virtual Assistant. Please say 'Hi' to get started