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Postgraduate Research Study

Professor Nigel Topham
Informatics Graduate School Director

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What is a PhD, and what will I learn?

- PhD is a research degree
  -Training you to be a professional researcher in your field
- You'll discover what is current in your subject
- You'll know how to make an original contribution
- You'll have mastered the appropriate methods, and can build on them
- You will learn to communicate your results effectively
- It's like your final year/MSc project, only longer and you have the responsibility to drive the project

Motivation for doing a PhD

- ☺ Advancing the frontiers of knowledge
- ☺ Personal satisfaction
- ☺ Passion for the subject
- ☺ Improved job prospects

- ☹ 3+ years of sustained work
- ☹ Success not guaranteed, but failure is rare

What does doing a PhD involve?

- PhD study is a research apprenticeship
- Challenging work, requires continuous dedication over several years

… on an original research topic

... with the help of experienced researchers:

  - principal supervisor + assistant supervisor (often complementary expertise)
  - often within a research group of post-docs or further PhD students
  - within an Informatics Research Institute and/or CDT

What does doing a PhD involve?

Typical timeline of activities (for non-CDT PhDs)…

First year:

- Fill in gaps in background, learn about current research directions, decide exact topic, develop a research plan, and start…

Second year:

- Follow plan and achieve goals 1, 2, 3, discover that goal 4 is unachievable, change to plan B, achieve goal 4B…

Third year:

- Write thesis outline, achieve more goals from plan, write thesis, look for jobs, submit thesis…

Fourth year:

- Oral thesis examination (viva)

What else will you do?

- Practice presenting your research

  - Talks, papers, workshops, conferences

- Learn more

  - Seminars, MSc courses, summer schools

- Learn to teach

  - Tutorials, other teaching assistance

- Transferrable skills training

  - Presentation skills, management skills, entrepreneurship skills, …

- Some students go on short-term internships to other labs, companies

Post-doctoral career options?

- Many options:
  - academic positions, university research
  - corporate research
  - start-ups
  - consultancy firms
  - government departments

- Our graduates are in high demand

The role of PhD students in Informatics?

- PhD students are the largest constituency in the School
  - 578 research students across all research degrees
  - 67 different nationalities represented

- PhD students are involved in every aspect of research
  They make a massive contribution towards the success of the School

☺ There is a strong and thriving community

☺ There are a large range of opportunities to get involved in, beyond your direct study

Do you have a chance?

- Need at least a 2:1, but 1st or MSc Distinction is more realistic
- We expect to admit ~120 new students
- Funding is key limiter:
  - Informatics will be able to fund approx. 45 places
- UK students funding
  - 5 Centres for Doctoral Training (CDT)
- EU/Overseas students:
  - Having your own national funding helps enormously
  - Be aware of any scholarships you can apply for – apply in good time!
  - University and Informatics scholarships are available (some in the CDTs)
- More information on Informatics PGR website: https://informatics.ed.ac.uk/study-with-us/our-degrees/postgraduate-research-programmes-and-centres-doctoral-training

Funding

- There are scholarships for 2025 entry ☺
- Funding is limited, and therefore not guaranteed, but Informatics is well-placed
- Wide range of funding sources
  - Some open and competitive (academic excellence + strong research proposal)
  - Some for specific topics (supervisor has project and associated student funding)
  - Many in specific research areas
- See:https://informatics.ed.ac.uk/study-with-us/our-degrees/postgraduate-research-and-cdts/postgraduate-research-funding-opportunities

To apply

- https://informatics.ed.ac.uk/study-with-us/our-degrees/postgraduate-research-programmes-and-centres-doctoral-training
- Find out about our research
- Approach potential supervisor(s)
- Decide what you want to do
- Write a provisional research proposal, discuss with supervisor
- Find two referees
- Submit an application NOW
- Understand your funding options and take action if necessary
- Wait for the result

Application deadlines – 2025 entry

- CDT application deadlines:
  - AI for Biomedical Innovation: 20 Jan 2025
  - AI CDT in Responsible and Trustworthy-in-the-world NLP: 9 Jan 2025
  - Dependable and Deployable AI for Robotics: Applications to open early 2025
  - Quantum Informatics: 15 Jan 2025 (Applications to open in November)
  - Machine Learning Systems: 22 Jan 2025
- Scholarships for regular PhD applications have the following application deadlines:

PhD scholarships (IGPS, CDTs)	All applicants
Round 1 applications submitted	25 Nov 2024
Round 2 applications submitted	17 Feb 2025

- Full information on application deadlines and procedures: https://informatics.ed.ac.uk/study-with-us/our-degrees/postgraduate-research-and-cdts/application-guidance postgraduate-research-0

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Overview of CDTs and Institutes

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Research Institutes

Institute for Adaptive and Neural Computation

BRAIN
Neuroinformatics, Machine Learning

Artificial Intelligence and its Applications Institute

ARTIFICIAL INTELLIGENCE
Intelligent Planning, Proof Planning, Security Engineering, Applied Computational Logic, Knowledge Engineering, Virtual Worlds

Institute for Computing Systems Architecture

COMPUTER SCIENCE
Parallel Computing, Micro Architectures, Wireless Protocols & Apps, Iterative Compilation, Self Timed Circuits

Institute of Perception, Action and Behaviour

ROBOTICS
Robotics, Vision

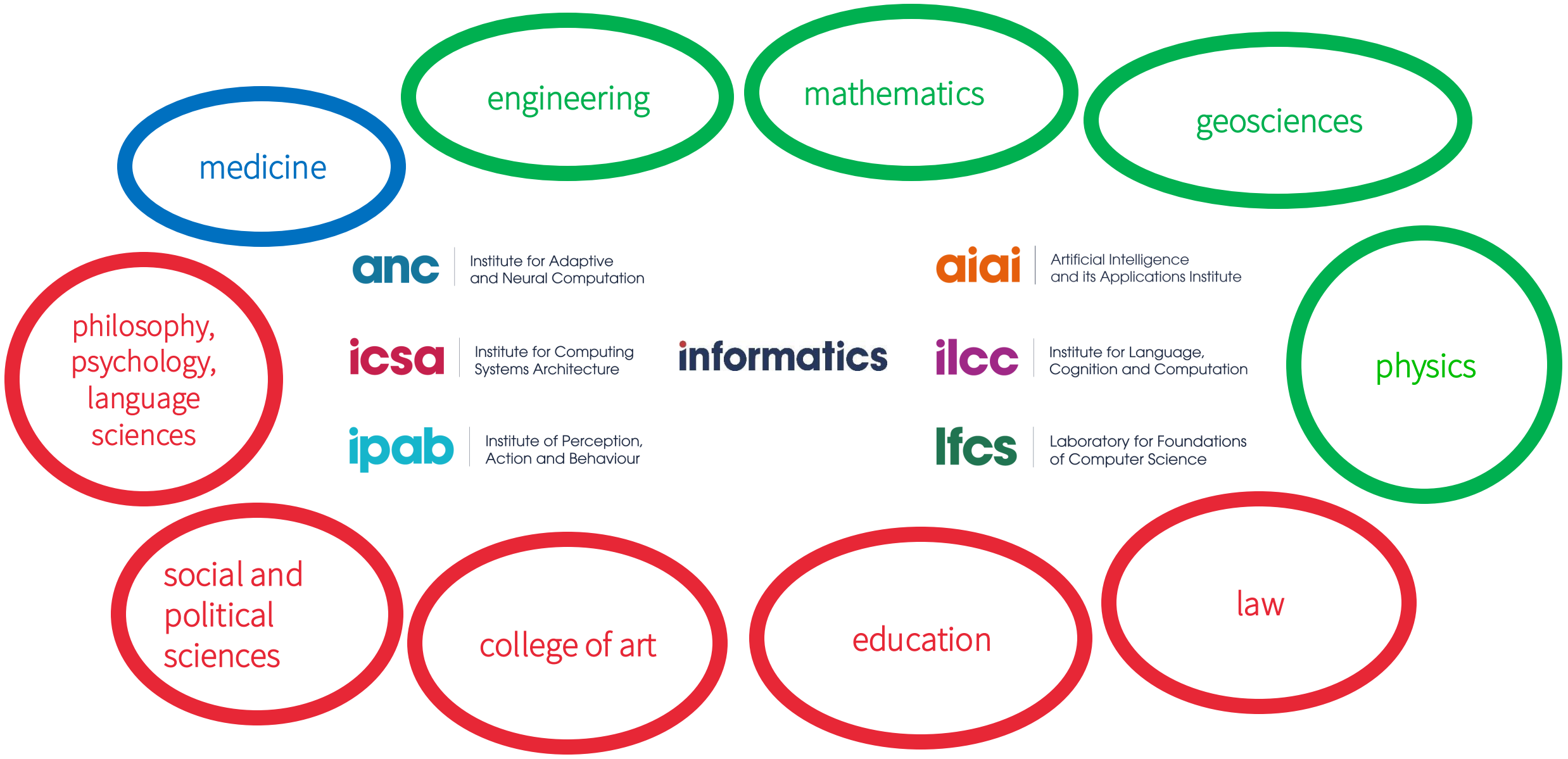
Laboratory for Foundations of Computer Science

THEORY
Databases Languages, Semantics, Complexity & Algebra Concurrency & Modelling, S/W Engineering Theory

Institute for Language, Cognition and Computation

LANGUAGE
Natural Language Processing, Multi Modal Interaction, Information Extraction, Speech Synthesis

Linkages


medicine
engineering
mathematics
geosciences
anc
Institute for Adaptive and Neural Computation
aiai
Artificial Intelligence and its Applications Institute
philosophy, psychology, language sciences
icsa
Institute for Computing Systems Architecture
informatics
ilcc
Institute for Language, Cognition and Computation
physics
ipab
Institute of Perception, Action and Behaviour
lfcs
Laboratory for Foundations of Computer Science
social and political sciences
college of art
education
law

AI for Biomedical Innovation

UKRI Centre for Doctoral Training (4yr PhD with integrated study)

What the CDT offers

An **interdisciplinary** training programme covering technical AI skills, biomedical foundations and individually tailored training on responsible research, innovation & entrepreneurship.

Work Placement/Internships

Leading academic, clinical, industrial and public sector partners will co-create and co-supervise innovative research projects meeting **real world needs** and using the **latest AI methodologies**. All students undertake a 3-month placement project during their PhD studies and will visit external partners throughout their time in the programme. There will also be opportunities to intern through our **extensive partner network**, take part in hackathons, challenges, and join a bespoke entrepreneurship training programme. Students will have a **generous budget to attend conferences, workshops, and make international research visits**. The programme is supported by new **state-of-the-art computational facilities** for data intensive research.

Training and Support

We have developed a rich programme of training opportunities, delivered by the University and our external partners. Along with your supervisor, build up your own training programme to excel at skills such as **interdisciplinary communication** and **shaping policy and public understanding of science**.

AI CDT in Designing Responsible Natural Language Processing

UKRI Centre for Doctoral Training (4yr PhD with integrated study)

What the CDT offers

Equips students with the fundamental skills for advanced interdisciplinary research in applied NLP, with an emphasis on developing practical knowledge on how to collaborate in teams of hybrid expertise of relevance to applied NLP. The CDT will provide foundations in: advanced responsible NLP data, programming, machine learning and modelling techniques; human-AI interaction and collaboration; explainable NLP and data visualisation; AI and data ethics; law and regulation of NLP; and co-creation of NLP systems with users and citizens.

Work Placement/Internships

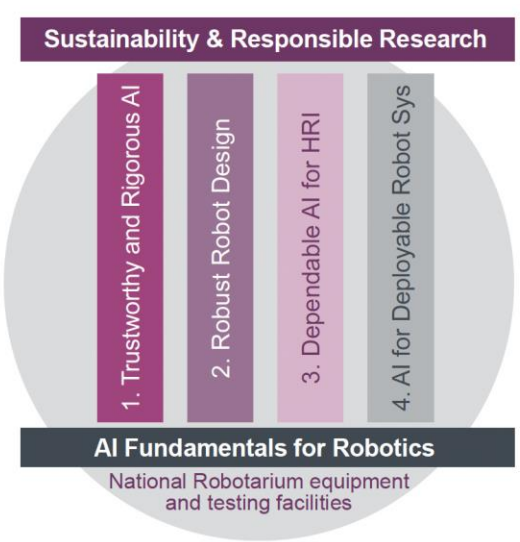
Opportunities to work with our 71 partners such as DeepMind, Microsoft Research, Cohere, NatWest, National Museums of Scotland, the Ada Lovelace Institute, OFCOM. We have funding for students to visit international research groups and labs, and to experience placements with policy and government partners.

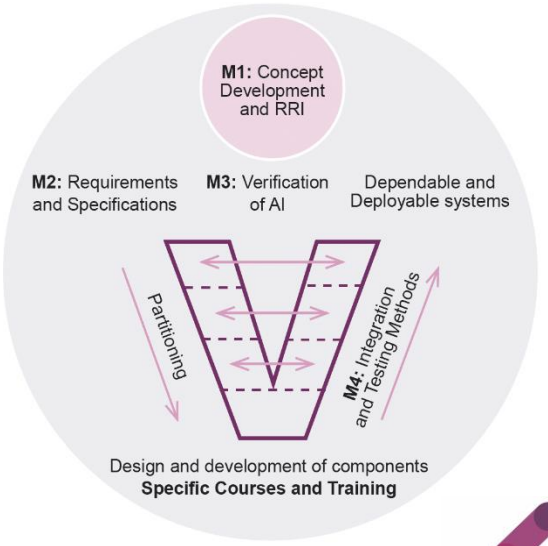
Training and Support

- Apply skills learnt in the classroom to your PhD project
- Take courses relevant to your research
- Programme structure is flexible to accommodate a diverse range of backgrounds such as Computer Science, AI, Design, HCI, Maths and Statistics, Linguistics, Law (amongst others).

Dependable and Deployable AI for Robotics

UKRI Centre for Doctoral Training (4yr PhD with integrated study)





4 Year PhD Programme

1. Technical Training

- Core course involving four modules cutting across disciplines
- Electives from ~50 courses
- Software Bootcamp/Hackathons, Competitions and challenges

2. Innovation Training

- Innovation Training and Innovation Fund
- Gateway Events
- Soft skills, e.g. presentation skills

3. International Experience

- Industry internships and/or International lab placements

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EDINBURGH CENTRE FOR ROBOTICS
Innovation Ready

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Quantum Informatics

EPSRC Centre for Doctoral Training (4yr PhD with integrated study)

What the CDT offers

The new Centre for Doctoral Training in Quantum Informatics will provide advanced training in the structure, behaviour, and interaction of quantum hardware, software, and applications.

The training programme spans computer sciences, mathematics, physics, and engineering, and will enable the use of quantum technology in a way that is integrable, interoperable, and impactful, rather than developing the hardware itself.

Work Placement/Internships

The programme includes bespoke training by the National Quantum Computing Centre, and the opportunity to work with over 30 industry partners.

It is possible to be jointly supervised by experts from quantum hardware and software companies. If so, you will be able to undertake research with these partners, and you will also be able to undertake hands-on experience in placements or internships where appropriate. You will also have the option to take part in entrepreneurship training through Venture Builder or ConceptionX programmes.

Training and Support

- You will be taught by experienced staff who are experts in their field, with guest lectures from expert industry practitioners.
- In Year 1, you will take a mixture of taught courses and projects to establish a base level of quantum informatics knowledge necessary to succeed in your studies.

Machine Learning Systems

EPSRC Centre for Doctoral Training (4yr PhD with integrated study)

What the CDT offers

This CDT will develop researchers with expertise across the systems-ML stack.

This ML Systems PhD involves training collaborative researchers with experience across systems and ML.

The programme is about machine learning that works to deliver for a need. It involves a holistic view of machine learning and systems that includes both a user-centric approach and an understanding of how to make things work.

Work Placement/Internships

Company engagement is an integral part of the programme with built-in internships alongside entrepreneurship training.

As part of your studies, you will do an internship either in a company or the public sector (usually for 3-6 months) or an alternative form of engagement.

Training and Support

- The programme is flexible to accommodate students from varying backgrounds
- training delivered by Edinburgh staff and invited lecturers
- peer interaction and learning opportunities

Postgraduate Virtual Open Days – CDT sessions

- **Quantum Informatics** Centre for Doctoral Training introduction:

  Tue 12 Nov, 14:00-15:00

- AI Centre for Doctoral Training in **Biomedical Innovation** introduction:

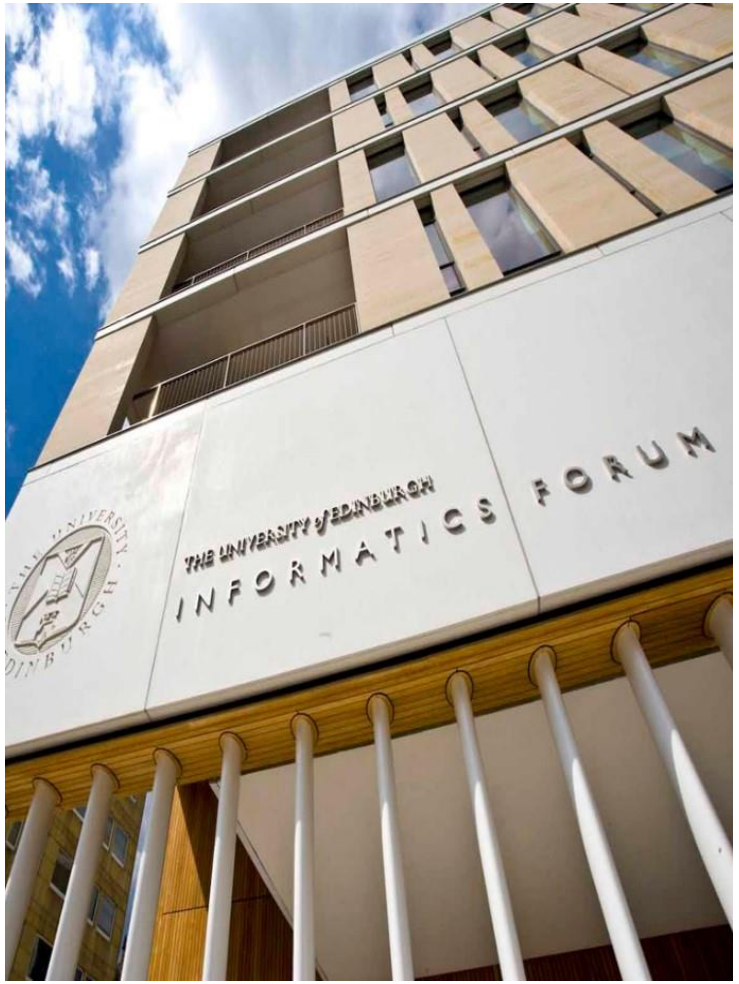
  Tue 12 Nov, 15:00-16:00

- Centre for Doctoral Training in **Machine Learning Systems** introduction:

  Wed 13 Nov, 15:00-16:00

- AI Centre for Doctoral Training in **Designing Responsible NLP** introduction:

  Thu 14 Nov, 12:30-13:30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INFORMATICS FORUM

Contact details for follow-up questions

- We apologise if we did not get through all of your questions in the time allotted for this session.
- If you have further questions that have not been answered, please email: phd-admissions@inf.ed.ac.uk

Next steps…

https://virtualvisits.ed.ac.uk/pg

https://edin.ac/student-chat-pg