University of St Andrews | FOUNDED 1413

THE DATA LAB
value from data

Engineering Doctorate (EngD) in Computer Science

School of Computer Science, University of St Andrews
in partnership with The Data Lab

Information for Industry

https://engd.cs.st-andrews.ac.uk
goes live on 09 May 2016

This is a pre-launch edition and so details may be updated.
Applicants and offer holders will receive such updates automatically.
Distribution restricted to recipient.

Our vision for the EngD is an industry-focused doctoral research programme with unique benefits: an unmatchable, in-depth research training experience for Research Engineers, as well as innovative solutions to problems faced by the Industry Sponsors. The EngD can be viewed as an advanced, research apprenticeship, suitable for new recruits as well as for existing employees.

The Doctorate for Industry

The Engineering Doctorate (EngD) is a 4-year graduate research programme. All EngD students – *Research Engineers (REs)* – will complete a taught programme of advanced modules as Research Training. In parallel, they will undertake Individual Research, tackling problems posed by their Industry Sponsor, defining, designing and evaluating solutions in collaboration with the Academic Supervisor. The Individual Research is within an industrial setting, allowing REs to develop knowledge, understanding skills, and experience in application areas of the Industry Sponsor.

Research Training

Each RE will undertake a *Research Training Component (RTC).* This will require completion of a set of advanced, taught modules at the University, in a range of areas, including specialist technical modules, data analysis, or management. The RTC will provide a solid grounding in knowledge and skills to allow the RE to undertake novel research in addressing problems from the Industry Sponsor. Completion of the modules can be spread over the first two years of the EngD programme, with the RE spending one semester (15 to 17 weeks) at the University in each of the first two years of the EngD, in parallel with research activities.

Individual Research

At the heart of the EngD is an *Individual Research Component (IRC)* based in industry. The RE will have an Industry Sponsor, who provides an Industrial Supervisor, in complement to the Academic Supervisor. REs will conduct research as a series of *Individual Research Projects (IRPs)*, each IRP making a novel contribution to knowledge. The IRPs will be collated into a portfolio and submitted as a dissertation to be examined. IRPs can cover a broad range of scientific and/or engineering topics, but require critical analysis and evaluation by the RE in order to show the efficacy of their proposed solutions.

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> "This is an exciting opportunity for industry to attract talented new graduates, as well as to encourage key existing personnel into focussing on industry problems as research challenges."
>
> *Prof Saleem Bhatti*
> *EngD Director, University of St Andrews*

The EngD at St Andrews is a unique offering. The flexibility of the programme allows Industry Sponsors to apply research directly within the context of their industrial domain, whilst maintaining a strong link with their employees.

Benefits to Industry

The Association of Engineering Doctorates (AEngD – http://www.aengd.org.uk) lists key benefits to industry from an EngD:

- Human capital and skills development, benefiting individual careers, collective knowledge and skills of the industrial sponsor, and sector-wide impact via improved quality.
- Generation of new knowledge for short-, mid- and long-term application.
- Innovation, including outputs such as the potential for patents, spinouts and commercialisation.
- Knowledge networks and collaboration, establishing links between academia and industry, as well as between industries.

At the University of St Andrews, there are the following added benefits:

- Our partnership with The Data Lab to support data-driven and data-intensive research, including Prize Studentships.
- Scope and flexibility of topics for research as our EngD programme is not specifically targeted at one topic.
- The ability for an applicant's previous education history to be considered for entry directly into the second year of the EngD programme.
- Non-traditional entry routes for admission on to the EngD programme.
- Flexibility in undertaking the taught modules across the first two years of the programme, rather than in a single year.

Intellectual Property

A key outcome from an EngD will be the generation of new knowledge and Intellectual Property (IP). For promoting scientific goals, such as reproducibility and increased velocity in research outcomes, as well as for promoting open research, the default IP agreement will be that any IP generated is shared equally between the RE, Industrial Sponsor, and the University of St Andrews. However, before starting the IRC, each RE will have in place an individually-tailored IP agreement and contract with the University of St Andrews, to suit the specific requirements of the RE and the Industrial Sponsor, and so arrangements other than the default case are possible.

Costs

Fees will be £4,121 pa for entry in September 2016 for EU/UK citizens (£18,300 otherwise). The RE will be paid a tax-free stipend of £16,000 pa. (Fees and stipend subject to review beyond 2016/17.) The fees and stipend will normally be paid by the Industry Sponsor, but The Data Lab is offering Prize Studentships that will pay up to 50% of these costs for the Industry Sponsor.

Eligibility

We welcome applicants from all nations and backgrounds: the University is committed to equality, diversity and inclusion. Applications are particularly welcome from women, who are under-represented in Research and Development posts.

For admission, we would normally expect at least a Bachelors degree in a relevant subject from Computing, Informatics, Mathematics or Engineering. We would expect an applicant for the EngD to have achieved a First Class honours degree, or a Distinction at MSc level.

However, we recognise that some applicants, e.g. employees of Industry Sponsors, may have other suitable experience and qualifications. So, we are keen to work with The Data Lab and Industry Sponsors to recognise other qualifications as well as practical experience, and explore routes for entry onto the EngD programme. This may involve an interview and other *ad hoc* assessment of an applicant's suitability, as deemed appropriate, on a case-by-case basis. We will enter into discussion with the applicant, the Industry Sponsor, as well as taking advice from the St Andrews admissions team on qualifications, as required. If the applicant also applies for a Data Lab Prize Studentship, we will also take advice from The Data Lab.

Application process

Applications will be through the University of St Andrews. The EngD web site has links to the relevant admission forms to be completed. Online forms are available for:

- Applications for admission as a Research Engineer with an Industry Sponsor (e.g. an existing employer).
- For Industry Sponsors looking for promising applicants to take on as Research Engineers. We are happy to make your interest known publicly on the EngD web site, ahead of the application deadline, in order to attract applicants.

Industry Sponsors will need to provide information about staff members who will take on the role of the Industrial Supervisor for a RE. Potential Industrial Supervisors should ideally hold an EngD, PhD or other doctorate in a relevant topic, or show an established research record, and also have experience in mentoring. Further details for Industrial Supervisors is given on the EngD web site.

Important dates

The deadline for applications for admission to the EngD programme for entry in September 2016 is:

0900 UK local time on Monday 27 June 2016

All applicants will be notified as soon as possible, and not later than Friday 19 August 2016.

REs will be expected at the University on the first day of the 2016/17 academic year, which is Monday 05 September 2016.

Partnering with The Data Lab

The University of St Andrews is excited to be partnering with The Data Lab to provide Prize Studentships to REs undertaking data-driven or data-intensive research. The Data Lab is offering Prize Studentships to outstanding applicants, as detailed below.

The Data Lab offers a unique set of resources and expertise, and will be delighted to discuss possibilities with potential Industry Sponsors and collaborators.

"The partnership between the University of St Andrews and The Data Lab will develop innovative solutions for industry, with the application of data science through collaborative research."

Brian Hills
Head of Data, The Data Lab

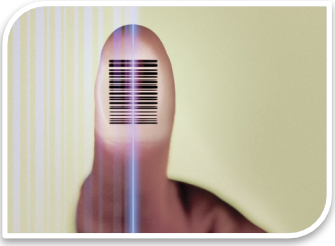
Applicants can apply for a Data Lab Prize Studentship, which will be awarded to Research Engineers who are judged by The Data Lab to be offering the most exciting and innovative proposals for pursuing data-driven or data-intensive research. A Data Lab Prize Studentship will provide up to 50% of the fees and stipend for a Research Engineer for the 4-year EngD programme.

Data Lab Prize Studentships

The Data Lab will offer 50% of fees and stipend costs at UK/EU rates for successful applicants. Subject to eligibility, applicants can be of any nationality, but awards will be made only on the basis of UK/EU fees rate. The awards are at the discretion of The Data Lab.

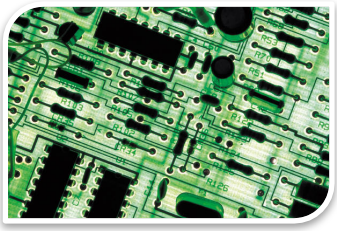
Engagement with The Data Lab

REs who are awarded Prize Studentships will also engage with various activities and events at The Data Lab, in its remit to build, encourage and support a community of scientists, engineers, practitioners and problem owners in data science. It is expected that each Prize Studentship holder would engage in up to two events each year.



Intellectual Property (IP)

The Data Lab Prize Studentships are funded through the Scottish Government, and so the default arrangement for recipients will be that IP generated will be shared equally between the RE, the Industrial Sponsor, and the University of St Andrews. However, award of the Studentships will be based on technical merit, and negotiations on IP arrangements will be possible on a per-applicant basis.



Application process (including deadlines)

Applications are invited from those with an Industry Sponsor already in place, as well as those without an Industry Sponsor. Applicants must apply via the EngD website by ***0900 UK local time on Monday 27 June 2016*** to be considered for the Data Lab Prize Studentships.

Industry Sponsors should have a research or operational base in Scotland, at which the Research Engineer will be based for undertaking the activities of the Individual Research Component. Industrial Sponsors can be organisations of any size.

The Data Lab works with industry and academia to create a pipeline of talented data scientists, equipped with the relevant knowledge, skills and understanding to apply cutting edge research within industry.

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http://www.thedatalab.com

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