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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

For entry in the academic year 2019-2020
<https://engd.cs.st-andrews.ac.uk>



Our vision for the EngD is an industry-focused doctoral research programme with unique benefits: an unmatched, 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 four-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 is an individually tailored set of advanced, taught modules at the University, in a range of areas, including specialist technical modules. The RTC is specific to each RE, and 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.



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 – 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 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 funding support.
- 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 **£TBC** pa for entry in September 2019 for EU/UK citizens (**£TBC** otherwise). The RE will be paid a tax-free stipend of £16,000 pa. (Fees and stipend subject to review beyond 2019-2020.) The fees and stipend will normally be paid by the Industry Sponsor, but The Data Lab is offering funding support that will pay up to 50% of these costs for eligible Industry Sponsors.



This is an exciting opportunity for industry to attract talented new graduates, as well as to encourage key existing personnel into focusing on industry problems as research challenges.

Professor Saleem Bhatti
EngD Director, University of St Andrews

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, for example 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 website has links to the relevant admission forms to be completed. We are especially keen to encourage:

- 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 website, 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 website.

Important dates

The deadline for applications for admission to the EngD programme for entry in September 2019 is:

09:00 UK local time on Monday 25 February 2019

However, we encourage early applications: we will interview and make offers for specific vacancies as soon as we have suitable candidates.

REs will normally be expected at the University on the first day of the 2019/2020 academic year, which is Monday 09 September 2019. *However, start dates are flexible, and we would encourage potential REs and Industry Sponsors to get in touch and discuss their needs.*

Partnering with The Data Lab

The University of St Andrews is excited to be partnering with The Data Lab to provide funding support to REs undertaking data-driven or data-intensive research. The Data Lab is offering support 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 funding support from The Data Lab, 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. The Data Lab will provide up to 50% of the fees and stipend for a Research Engineer for the four-year EngD programme.



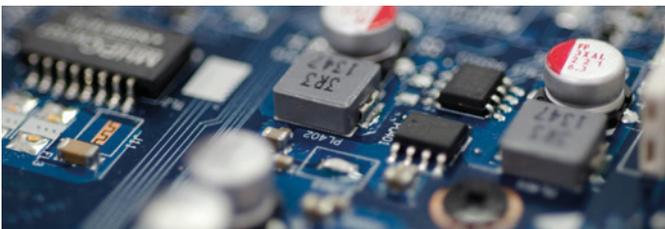
Data Lab Funding Support

The Data Lab will offer up to 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. Please see the EngD website for full details.



Engagement with The Data Lab

REs who are awarded funding support will be invited to various activities and events with The Data Lab in its remit to build, encourage and support a community of scientists, engineers, practitioners and problem owners in data science.



Intellectual Property (IP)

The default arrangement for recipients of Data Lab funding will be that IP generated from the work will be shared equally between the RE, the Industrial Sponsor, and the University of St Andrews. However, award of the funding 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 should apply as soon as possible to be considered for funding from The Data Lab. We encourage early applications: we will interview and make offers for specific vacancies as soon as we have suitable candidates.

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.

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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.

Contacts

Cheryl Stewart <cheryl.stewart@thedatalab.com>

Neil Brown <neil.brown@thedatalab.com>

The Data Lab, 15 South College Street, Edinburgh, EH8 9AA, UK

<https://www.thedatalab.com>



University of
St Andrews

School of Computer Science

University of St Andrews, St Andrews, Fife, KY16 9SX, UK.

engd-admin-cs@st-andrews.ac.uk

<https://engd.cs.st-andrews.ac.uk>

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