EPSRC
Engineering and Physical Sciences
Research Council

Quick Reference

Please note that you must read the full Call document for guidance before submitting your proposal

Responsible Natural Language Processing for Intelligent Interfaces

Call type: Invitation for proposals

Closing date: 16:00 24 September 2019

Funding Available: £4 million available to support a range of proposals

How to apply: Invitation for proposals

Assessment Process: Full proposals will undergo peer review, followed by panel (if reviewers are suffienctly supportive), resulting in a rank ordered list.

Key Dates:

Activity	Date
Call Live on JeS	29 July 2019
Closing date – full proposals	24 September 2019
Prioritisation panel	10 February 2020
Funding Decision	31 March 2020

Additional information: To encourage full and committed engagement in the proposed work, applicants must ensure that proposals include at least one new fully engaged collaborator. The collaborator can be academic or industrial. Responsible Innovation considerations and application of the AREA framework in the proposal development are required in this call.

Please note that this call document was changed on 12 August 2019 to remove the requirement for the new collaboration to be from a different discipline and how to detail the new collaboration in your application. See Change Log for details.

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Responsible Natural Language Processing for Intelligent Interfaces

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Related themes: ICT, Digital economy, Mathematical Sciences

Contents of this call document

Summary

The Engineering and Physical Science Research Council (EPSRC) is investing up to £4 million to support novel research projects in natural language processing, with a particular focus on areas of research which support advances in the development of intelligent interfaces and data science.

We wish to encourage research which has a strong focus on Responsible Innovation, fostering collaborations with academic, industry or end users to anticipate and react to potential impacts (social, ethical, economic or otherwise) of the research. Applicants should note the eligibility requirements below.

Once full proposals are submitted they will go directly to peer review before being progressed to a prioritisation panel if reviews are sufficiently supportive.

Background

The natural language processing research area was assigned a grow action category during our current delivery plan (2016-2020).

While developing the strategy for this research area we were influenced by the pivotal role natural language processing challenges play in the development and successful adoption of intelligent technologies. We noted in our published rationale for the research area that "it must grow if the foci on data science and intelligent interfaces are to be achieved in parallel with maintenance of mainstream statistical NLP capability." It is therefore intended that this call will encourage impactful research in the area of NLP for intelligent interfaces, where there is a need to address natural language processing challenges in order to ensure the associated intelligent technology/interface can be adopted by end users or applied to new sectors.

This call recognises that many of the challenges addressed by natural language processing are collaborative in nature, drawing upon expertise from a range of techniques including, but not limited to, machine learning, semantic techniques, reasoning, statistical analysis and the social sciences. In order to contribute a step change in this area proposals must contain a new collaboration with one or more partners (academic or industrial).

Implications of intelligent technologies are wide reaching, including risks such as privacy and security, and should be understood and managed responsibly. It is therefore intended that this call will encourage a responsible innovation approach to research in this area, ensuring the benefits of intelligent technologies can be realised for the UK.

Responsible Innovation

Responsible Innovation is a process that seeks to promote creativity and opportunities for science and innovation that are socially desirable and undertaken in the public interest. Responsible Innovation acknowledges, that innovation can raise questions and dilemmas, is often ambiguous in terms of purposes and motivations and unpredictable in terms of impacts, beneficial or otherwise. Responsible Innovation creates spaces and processes to explore these aspects of innovation in an open, inclusive and timely way. This is a collective responsibility, where funders, researchers, stakeholders and the public all have

an important role to play. It includes, but goes beyond, considerations of risk and regulation, important though these are.

Proposals submitted through this call will have societal, ethical, philosophical, legal and regulatory implications, opportunities, issues and risks. Consideration of these is essential to ensure that the research carried out is considered within a societal context and that any such issues that are raised are fully explored as the research develops.

As a public funder of research, we have a responsibility to ensure that our activities and the research we fund, are aligned with the principles of Responsible Innovation, creating value for society in an ethical and responsible way.

Objectives

Our aim for this call is to support a suite of ambitious and novel projects that make significant contributions to natural language processing research in a responsible way. We hope this will grow the size of the EPSRC funded portfolio and make clear steps towards achieving our delivery plan ambitions; supporting technical advances to ensure the benefits of digital technologies can be realised for the UK. As a result we aim to generate longer term growth of research activity and to stimulate sustainable collaborative activities across the research community.

Our objectives of this call are to:

1. Fund a range of novel research proposals in natural language processing, which contribute to the broad objectives in Artificial Intelligence and Data Science

2. Encourage new collaborations between natural language processing and academic or industry partners

3. Promote a responsible research and innovation approach to natural language processing research

Scope

Applications to this call must be within the scope of the published research area definition and must contribute to our research area strategy. The natural language processing research area definition is:

Natural Language Processing (NLP) is concerned with the exploration of computational techniques to learn, understand and produce human language content. NLP technologies can assist both human-human communication (e.g. machine translation) and human-machine communication (e.g. conversational interfaces and automated personal assistants), and can analyse and learn from the vast amount of textual data available online.

The full research area rationale and associated strategy can be found by visiting the EPSRC website:
https://epsrc.ukri.org/research/ourportfolio/researchareas/natlangproc/

The scope of 'intelligent interfaces' for this call is broad and does not dictate the need to develop an intelligent interface within the proposal (although this may be the case). It acknowledges that natural language processing challenges are pivotal in the advancement and development of intelligent technologies. For this call, proposals must communicate how their advances in NLP techniques or technologies contribute to the broad challenges in Artificial Intelligene and Data Science. For example by:

- Development of an interface for communicating between humans and systems, dialogue management and multimodal interfaces. For example, linking NLP with the related fields of Speech Technologies, Human Computer Interaction and Human-Robot Interaction and by exploring and exploiting the links between language and vision.

- Work on enabling extraction of knowledge from large-scale textual data. The opportunity exists for researchers to target interdisciplinary work in this area (for example in the area of medical records) and to address the challenges in understanding and extracting information from unstructured data sources.

- Working towards the goal of computing with meaning, contributing to the broad objective in Artificial Intelligence (AI) of developing computational methods for ascribing semantics to human behaviours (e.g. natural human interaction)

- Developing explainable intelligent systems, which can provide natural language explanations of decisions being made by an intelligent system which can be understood by potential non-expert end users.

This is not an exhaustive list and proposals should detail the novel NLP techniques and systems being developed and how they will advance intelligent interface or data science challenges they have chosen to address. These may be in application specific areas.

Researchers also have the opportunity to play an important role in delivering the objectives of EPSRC's Future Intelligent Technologies and Data Enabled Decision Making cross-ICT priorities. Details of these priorities can be found on the EPSRC website:
https://epsrc.ukri.org/research/ourportfolio/themes/ict/introduction/crossictpriorities/

Applicants submiting to this call must include the following in their application

- A new collaborative partnership with one or more partners not previously worked with. Collaborations can be between academic or industrial/non-academic partners from any chosen discipline. Details of how the collaboration will be managed should be presented in the proposal.

- Details of the Responsible Innovation considerations taken in the preparation of the proposed work, and how these will be continually assessed and managed throughout the proposed work. Applicants should demonstrate how they have applied the AREA framework in the development of their proposed research. Details of the AREA framework can be found by visiting the EPSRC website:
https://epsrc.ukri.org/research/framework/area/

Applicants can consider requesting support to fund activities to support Responsible Innovation and may wish to be aware of ORBIT, which provides services to promote and support responsible research and innovation. More information about ORBIT can be found at https://www.orbit-rri.org/

Funding available

There is up to £4m available to support a range of proposals. The size of grant available is flexible. Applications for feasibility studies to explore new collaborations will be considered within this call.

We expect applicants to request funding to undertake the actions listed in the proposal to promote approaches to responsible innovation. Resources for these activities should be requested as part of the Pathways to Impact and must be justified in the application.

To build and maintain partnerships with potential users of research, applicants can request resource to support secondments of researchers (either research assistants or investigators) in to user environments. Resource could also be requested to support secondments from user environments to academic environments. Please note that user salaries cannot be supported through EPSRC funding and that a project partner listed in the Je-S form cannot directly receive funding from the grant.

Equality, Diversity and Inclusion

The long term strength of the UK research base depends on harnessing all the available talent. EPSRC expects that equality and diversity is embedded at all levels and in all aspects of research practice and funding policy. We are committed to supporting the research community, offering a range of flexible options which allow applicants to design a package that fits their research goals, career and personal circumstances. This includes career breaks, support for people with caring responsibilities, flexible working and alternative working patterns. With this in mind, we welcome applications from academics who job share, have a part-time contract, or need flexible working arrangements.

Peer review is central to EPSRC funding decisions, we require expert advice and robust decision making processes for all EPSRC funding initiatives. We are committed to ensuring that fairness is fully reflected in all our funding processes by advancing policy which supports equality, diversity and inclusion. Please see our Equality and Diversity webpages https://epsrc.ukri.org/funding/equalitydiversity/ for further information.

Guidance on Journal-based metrics

As part of our commitment to support the recommendations and principles set out by the San Francisco Declaration on Research Assessment (DORA; https://sfdora.org/read/), UKRI reviewers and panel members are advised not to use journal-based metrics, such as journal impact factors, as a surrogate

measure of the quality of individual research articles, to assess an investigator's contributions, or to make funding decisions.

The content of a paper is more important than publication metrics, or the identity of the journal, in which it was published, especially for early-stage researchers. Reviewers and panel members are encouraged to consider the value and impact of all research outputs (including datasets, software, inventions, patents, preprints, other commercial activities, etc.) in addition to research publications. We advise our peer reviewers and panel members to consider a broad range of impact measures including qualitative indicators of research impact, such as influence on policy and practice.

Equipment

Equipment over £10,000 in value (inc. vat) is not available through this call. Smaller items of equipment (individually under £10,000) should be in the Directly Incurred - Other Costs heading.

For more information on equipment funding, please see: https://epsrc.ukri.org/research/facilities/equipment/

Eligibility

To encourage full and committed engagement in the proposed work, applicants must ensure that proposals include at least one new fully engaged collaborator. The collaborator can be academic or industrial. Please detail how the collaboration is new in your case for support or in a cover letter.

Proposals that do not meet these eligibility requirements will be rejected by EPSRC prior to being sent to peer reviewers.

Please ensure sufficient time to create Je-S accounts for Investigators who do not currently have one.

For information on the eligibility of organisations and individuals to receive EPSRC funding, see the EPSRC Funding Guide: https://epsrc.ukri.org/funding/applicationprocess/fundingguide/

A list of eligible organisations to apply to EPSRC is provided at: https://www.ukri.org/funding/how-to-apply/eligibility/

How to apply

Submitting an application

You should prepare and submit your proposal using the Research Councils' Joint electronic Submission (Je-S) System (https://je-s.rcuk.ac.uk/).

When adding a new proposal, you should select:

- Council 'EPSRC'

- Document type 'Standard Proposal'

- Scheme 'Standard'

- On the Project Details page you should select the 'Responsible Natural Language Processing for Intelligent Interfaces' call.

Note that clicking 'submit document' on your proposal form in Je-S initially submits the proposal to your host organisation's administration, not to EPSRC. Please allow sufficient time for your organisation's submission process between submitting your proposal to them and the call closing date. EPSRC must receive your application by **16:00** on **24 September 2019**.

Guidance on the types of support that may be sought and advice on the completion of the research proposal forms are given on the EPSRC website (https://epsrc.ukri.org/funding/applicationprocess/) which should be consulted when preparing all proposals.

Guidance on writing an application

As well as the Je-S form the following documents must be submitted:

Case for support – 8 pages in total including

- Two page track record

- Six page description of the proposed research and how it fits the scope and objectives of the call. An explicit mention of novel natural language processing research and the contribution to the broader challenges in Artificial Intelligene and Data Science should be made here, as well as a clear vision for how the applicants have addressed the Responsible Innovation considerations of their proposed work.

- You may detail which collaboration in your proposal is new here, or in a cover letter.

Pathways to Impact – 2 pages in total detailing the activities which will help deliver potential impact from this work. The application of the AREA framework in the development of the proposed research should be detailed here.

More information about preparing the pathways to impact document can be found here:
https://www.epsrc.ac.uk/funding/howtoapply/preparing/impactguidance/

Justification of Resources – 2 pages in total. This should be a narrative description of the need for the resources requested.

Workplan – 1 page in total. This should include a diagrammatic work plan such as a Gantt chart.

Applicants should use the Ethical Information section on the Je-S form to demonstrate to peer reviewers that they have fully considered any ethical issues concerning the material they intend to use, the nature and choice, current public perceptions and attitudes towards the subject matter or research area. EPSRC will not fund a project if it believes that there are ethical concerns that have been

overlooked or not appropriately accounted for. All relevant parts of the Ethical Information section must be completed. If the research will involve human participation or the use of animals covered by the Animals (Scientific Procedures) Act 1986 it is recommended that applicants pay particular attention to the guidance highlighted below. EPSRC reserves the right to reject applications prior to peer review if the Ethical Information sections are not completed correctly.

Further guidance on completing the Je-S form can be found at https://je-s.rcuk.ac.uk/Handbook/pages/GuidanceonCompletingaStandardG/EthicalInformation.htm. Other relevant guidance includes: EPSRC's policy on animal use in research (https://www.epsrc.ukri.org/about/standards/animalresearchpolicy/) and the Responsible Innovation Framework (https://epsrc.ukri.org/research/framework/).

Please note that on submission to EPSRC **all** non-PDF documents uploaded onto Je-S are converted to PDF, the use of non-standard fonts may result in errors or font conversion, which could affect the overall length of the document.

For advice on writing proposals see:

https://epsrc.ukri.org/funding/howtoapply/preparing/

Assessment

Assessment process

Proposals in this call will be reviewed via peer review. Proposals with sufficiently supportive reviews will be assessed at a prioritisation panel. The assessment criteria detailed below will be used for all stages of the process.

Assessment criteria

- Quality of research (Primary)

    o The novelty, relationship to the context, and timeliness

    o Ambition, adventure and transformative aspects identified

    o Appropriateness of the proposed methodology

- Importance (Secondary Major)

    o Contributes to, or helps maintain the health of other disciplines contributes to addressing key UK societal challenges and/or contributes to future UK economic success and development of emerging industry(s);

    o Meets national needs by establishing/maintaining a unique world leading activity

    o Complements other UK research funded in this area including relationship to the EPSRC portfolio

- Fit to call (Secondary)

- Fits to the published natural language processing research area definition and contributes to its strategy

- Provides a clear case for how the team has considered the Responsible Research and Innovation implications when planning the work and how these considerations will be addressed throughout the lifetime of the proposal.

- Details a new collaboration between natural language processing and other academic or industrial/non-academic partners.

- Pathways to Impact (Secondary)

    - How complete and realistic are the impacts identified for this work

    - The effectiveness of the activities identified to help realise these impacts, including the resources requested for this purpose

    - The relevance and appropriateness of any beneficiaries or collaborators.

- Ability of applicant team to deliver the research (Secondary)

    - Appropriateness of the track record of the team

    - Balance of skills of the team including project partners

- Resources and Management (Secondary)

    - Effectiveness of the proposed planning and management of the project

    - Whether the resources requested are appropriate and fully justified.

Feedback

Feedback will consist of reviewer's reports and, if they are sufficiently supportive, the ranking position at the prioritisation panel. The prioritisation panel may provide specific feedback if deemed necessary, but this will not be given as standard.

Guidance for reviewers

When completing your assessment please use the section marked 'Proposal Assessment' to address the Fit to Call criterion. When assessing the pathways to impact document please also address the application of the AREA framework to the application.

Information about the EPSRC peer review process and guidance for reviewers can be found at: https://epsrc.ukri.org/funding/assessmentprocess/review/

Guidance for reviewing standard grants can be found here:

https://epsrc.ukri.org/funding/assessmentprocess/review/formsandguidancenotes/standardgrants/

Moving forward

Submissions to this call will count towards the Repeatedly Unsuccessful Applicants Policy. Further information about the policy can be found at: https://epsrc.ukri.org/funding/howtoapply/basics/resubpol/rua/

Key dates

Activity	Date*
Call Live on Je-S	29 July 2019
Closing date – full proposals	24 September 2019
Prioritisation panel	10 February 2020
Funding Decision	31 March 2020

*EPSRC aims to adhere to the key dates as published, however there may be exceptions where the sift, prioritisation or interview meeting may have to change due to panel member availability.

Contacts

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Change log

Name	Date	Version	Change
Laura Cadman		1	N/A
Laura Cadman	12 August 2019	2	Eligibility: requirement for the new collaboration to be from a different discipline removed. Details of where to include how the collaboration is new included.

Appendices (includes Attachment Checklist and Fund Headings)

Je-S attachments Check List

Standard:

Attachment Type	Maximum Page length	Mandatory/Optional	Extra Guidance
Case for Support	Eight pages	M	Comprising up to two A4 sides for a

			track record, and six A4 sides describing proposed research and its context.
Pathways to Impact	Two pages	M	Include application of AREA framework to proposed work
Workplan	One page	M	
Justification for Resources	Two pages	M	
CVs	Two pages each	As Required by EPSRC	For named and visiting researchers, and researcher co-investigators only.
Project Partner Letters of Support	No page limits	As Required by EPSRC	Must be included from all named project partners. Must be on headed paper, and be signed and dated within six months of the proposal submission date.
Letters of Support	No page limits	As Required by EPSRC	In exceptional circumstances a maximum of three letters can be submitted.
Proposal Cover Letter	No page limit	Optional	The cover letter can be used to highlight any important information to EPSRC. This attachment type is not seen by reviewers or panel members.
Other attachment	No page limit	Not required	

Please ensure you adhere to the above attachment requirements when submitting your proposal. Any missing, over length or unnecessary attachments may result in your proposal being rejected.