

DSTL/ Royal Academy of Engineering: Research Chairs and Senior Research Fellowships in Information Fusion

Applicant guidance notes

Deadline: Thursday 14 March 2024, 4 pm GMT

This call is a pilot generously funded by the **Defence Science and Technology Laboratory**.

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1. Introduction

The Royal Academy of Engineering (the Academy) offers Research Chairs and Senior Research Fellowships to strengthen the links between industry and academia. The special round of the scheme supports exceptional academics at UK higher education institutions to undertake use-inspired research that meets the needs of Dstl.

This special round will accept applications in “**Architectures for information fusion in sensor networks for military intelligence, surveillance and reconnaissance (ISR)**”.

How, where, and when should information be processed in sensor networks to provide military commanders with effective information?

The Defence Science and Technology Laboratory (Dstl), which is part of the UK Ministry of Defence (MOD), invites proposals for a Royal Academy of Engineering Research Chairs and Senior Research Fellowship to undertake research that will advance the fundamental theory of information fusion in decentralized sensor networks.

For full details on the research topic for this special round please refer to [Annex 2](#). Potential applicants are invited to attend an **online seminar** where additional details of the call will be explained and an opportunity will be provided to have questions answered. This seminar will be held on 8 February 2024. Those wishing an invitation to attend should contact research@raeng.org.uk. This email address may also be used to submit questions in advance.

Awardees are expected to:

- Establish or enhance a world-leading engineering research group.
- Deliver ‘use-inspired’ research that meets the needs of Dstl.
- Disseminate the outcomes of their research for appropriate academic use.
- Become a self-sustaining research group by the end of the award (by securing substantial external grant income).

This round of the scheme provides funding for five years, capped at a maximum contribution of **£475,000 over the five-year period**. Dstl will fund up to 80% of the full economic costs (fEC). The Research Chair/Senior Research Fellowship must be held at a UK higher education institution.

The proposed research programme should naturally align with the interests of Dstl and its 'use-inspired research' should be underpinned by world-class research. The collaborative research proposal must be of mutual benefit to both Dstl and host institution. Please note the proposal should not be a consultancy work.

In addition to the direct financial support, scheme benefits include:

- Mentoring support from an Academy Fellow to offer independent expert advice and guidance on research related matters throughout the duration of the award.
- Training, events and additional Academy funding opportunities.
- Reduction of teaching and administrative duties to enable the awardees to focus on delivering use-inspired research, that creates impact for Dstl.
- Access to the [Awardee Excellence Community](#), that brings together awardees from all career stages and disciplines to share their expertise, to collaborate and to contribute new perspectives to the Academy's work. The community will give you the opportunity to meet, learn from and support other awardees beyond your immediate cohort, as well as a broader cross section of Academy Fellows through a programme of events, and opportunities to connect in person and online.

2. Diversity and inclusion

The Academy is committed to diversity and inclusion and welcomes applications from all underrepresented groups across engineering. It is the Academy's policy to ensure that no applicant is disadvantaged or receives less favourable treatment because of age, disability, gender reassignment, marriage and civil partnership, pregnancy and maternity, race, religion or belief, sex, or sexual orientation.

3. Access Mentoring support

The Academy aims to provide additional support to applicants from groups that are persistently underrepresented within UK engineering through the grant application process. This [positive action](#) will contribute to improving diversity in the talent pipeline and widening the diversity of applicants and awardees within the Academy's research grant schemes.

To be eligible for Access Mentoring support, applicants must meet the eligibility criteria of the Research Chairs and Senior Research Fellowships scheme and must be either:

- **Women**
- **Black people, including those with any mixed ethnicity with Black ethnic background(s)**
- **Disabled people.**

The Academy accepts applicants' self-declaration on the above identified underrepresented groups under the host institution's guidance.

Access Mentoring is a resource limited opportunity. Applicants do not need to wait until the deadline to submit their application and can be matched with a mentor as soon as the application is approved. Early submission is encouraged. For more information on Access Mentoring please see the [guidance](#).

4. Part-time and flexible working

The Academy wants to support applicants to achieve a balance between their personal and work demands and will consider individual requirements and part-time and other flexible working arrangements.

The Academy will expect the awardee to contribute no more than four hours per week towards administration/teaching duties during their award (this will be pro-rated for part-time awards). Awardees may engage in other employment or academic activities outside of the time allocated to their award.

Research Chairs and Senior Research Fellowships can be held part time (at no less than 25% of full-time equivalent) must be clearly stated within the application.

Research Chairs and Senior Research Fellowships are entitled to maternity, paternity, adoption, sick or carers leave and any conversions to part-time working under the UK higher education institution's contractual conditions of employment. The Academy will extend the duration of the award pro-rata to take these requests into account.

5. Eligibility criteria

- By applying to this RC/SRF scheme the applicant is agreeing to be vetted to SC clearance¹. Applicants are asked to declare any reasons why they

¹ Details of requirements for SC security clearance can be found at <https://www.gov.uk/government/publications/united-kingdom-security-vetting-clearance-levels/national-security-vetting-clearance-levels>.

might not be eligible to work in this area (see Statement of Support and Declaration in the application form). If the awardee does not meet the security vetting requirement, the RC/SRF award will be withdrawn.

- Awards must be held at a UK higher education institution.
- The applicant must have a permanent academic position or an unconditional offer of such a position. The host institution's letter of support must make clear that they have offered a permanent position to the applicant stating the starting date. The permanent position must start before the award.
- Awards made in this round must start between 1 September and 31 October 2024.
- Research Chairs are professorial appointments, so applicants should already be a **professor or equivalent**.
- Senior Research Fellowships are senior academic appointments, so applicants should already be **reader or lecturer or equivalent**.
- Applicants should be able to demonstrate an outstanding research profile including a proven track record in securing external grant income and developing collaborations.
- Applications from any engineering field that adequately addresses the call, are welcome. Engineering is defined in its broadest sense, encompassing a wide range of diverse fields. If you are unsure whether your collaborative research project falls within the Academy's engineering remit area, please contact research@raeng.org.uk
- The duration of an award is five years. This applies to both full and part-time awards. Applications for shorter time periods will not be accepted.
- The proposed research programme should naturally align with the interests of Dstl and its 'use-inspired research' should be underpinned by world-class research. The collaborative research proposal must be of mutual benefit to both Dstl and host institution. Please note the proposal should not be a consultancy work.
- The Research Chairs/Senior Research Fellowship cannot be jointly hosted by more than one higher education institution/university.

A new eligibility criterion updated as of February 2024

- The applicant must be a UK Citizen (not a dual national) and should have been living and working in the UK for the past 5 years. To obtain unrestricted Security Check clearance applicants must have lived and worked in the UK for the last 5 years. Not having 5 years UK residency over the last 5 years will require a residency waiver from United Kingdom Security Vetting (UKSV) and may impact the ability to get security

clearance and will delay the vetting process – this will be considered when looking at the proposals as it places a risk on the intended start date.

6. Submission deadline

The submission deadline for this round of applications will be **Thursday 14 March 2024, 4.00 pm GMT**. Incomplete applications will not be accepted.

7. Contracts

For successful applications, a bilateral contract will be drawn up between the host institution and Dstl. Contracts must be completed before the award start date.

8. Mentoring and monitoring

Awarded Research Chairs and Senior Research Fellows will work with the Academy to identify an Academy Fellow to be their mentor. The mentor will provide independent expert advice and guidance on research-related matters throughout the duration of the award. The mentor will also formally monitor the progress of the awardee on behalf of the Academy.

The awardee must submit an annual progress report to the Academy, which will be reviewed and evaluated by the assigned mentor. At the annual review meeting, the awardee, the host institution's head of department/school, a representative of Dstl, the mentor, and a member of Academy staff will discuss progress and agree future plans. Dstl will provide a technical partner who will act as the principal point of contact for the awardee and the mentor with Dstl.

Annual reports should follow the reporting guidelines available [here](#), and will cover aspects such as: the progress made against the proposed programme, performance indicators, team size, realised impact and exploitation, and any dissemination activities undertaken over the past year.

9. How to apply

Create an account

All applications must be submitted by the applicant themselves via the Academy's online Grant Management System (GMS) available at <https://grants.raeng.org.uk>. All applicants must first register with the online system and provide some basic login details to create a profile.

Before completing the application form, applicants are asked to complete a **Diversity Monitoring Form** to help the Academy monitor and assess its [equality, diversity and inclusion policy](#). The information will be treated as strictly confidential, non-attributable and only reported when collated. It is gathered, stored, and used in compliance with the [Academy's Privacy Notice](#) in line with the General Data Protection Regulations 2018. The information will only be used for statistical purposes with access restricted to staff involved in processing and monitoring the data. It will not be seen by anyone involved in any selection processes. No information will be published or used in any way that identifies individuals. The Academy will retain personal information as per our [Data Retention Policy](#).

Applicants must get approval and support for their proposal from the host institution's dean or pro-vice chancellor (or similar) and the research grants office prior to applying. We advise consulting them as soon as possible about a potential application. We recommend leaving plenty of time to complete the application form ahead of the deadline and thoroughly going through your application prior to submission.

The application form has seven sections and should take approximately one hour to complete, assuming you have answered the questions offline and merely need to enter the information, rather than compose it. To compose the application in its entirety will take significantly longer.

Many of the questions have prescribed word limits, which are designed to keep your answers focused and to give you an indication of the level of detail we require. In such cases, the number of words you have used will be displayed beneath the question and updated in real time.

Applicants can download a PDF of their application after submission, which is recommended for reference. Assessment of the application will consist of a multi-stage process and those meeting the eligibility criteria will enter the assessment stages.

Please note that all applications must comply with Academy guidelines this includes, "the use of generative AI in the grant application process" (see [Annex – 3](#)) and "national security guidelines" (See [Annex – 4](#)).

10. Completing the application form

After registering and logging into the GMS, select the 'RAENG Portal' tab on the top left-hand side of your screen. Here you will be presented with a list of all Academy schemes that are currently accepting applications.

Find the Dstl/ Royal Academy of Engineering: Research Chairs and Senior Research Fellowships in Information Fusion scheme and click on 'Start an application'. You should be presented with the 'Instructions' screen, where you will see general instructions on how to use the system, and links to the seven sections of the application form listed below:

- Contact details and application grade
- Applicant details/person specification
- Project details
- Case for support
- Potential impact
- Funding requested
- Letters of support and declaration

You can save your work at any stage in the application process and return to it later. You can answer the questions in any order you like, so you may freely skip some sections and return to them later if you so wish. Please read the guidance provided in this document in detail before starting an application.

You should also ensure that you have all the necessary documentation to complete the application, such as a copy of your CV and letters of support.

- **Contact details and application grade**

Q – Application grade

Select from the options from the dropdown menu to indicate the grade of application you are making, for example Research Chair (professor) or Senior Research Fellow (reader/lecturer).

The applicant must have a permanent academic position or an unconditional offer of such a position. The host institution's letter of support must make clear that they have offered a permanent position to the applicant stating the starting date. The permanent position must start before the award.

Q – Applicant's contact details

Please provide your name, current job title and contact details including postal address and a telephone number. Some of your details and those of your institution should be automatically generated by the system, as you provided these at registration. Please ensure the contact email address is correct and will be valid for the entirety of the application process as this will be the main method of communication for your application.

Q – Contact details of the host institution

Please provide the name and contact details of your host institution in this section.

- **Applicant's details/person specification**

This section requests details about the quality and suitability of the candidate and is where your CV should be uploaded.

Q – Applicant's CV

The format and content of your CV is left to your discretion. You do not need to include contact details here again as these are included earlier in the application. As a minimum, please include the following in your CV:

- Your research track record.
- Details of external grant income secured.
- List of key publications and conference presentations.
- PhD students supervised, and awards/prizes received (if any).
- Please ensure you acknowledge any career breaks if you would like the panel to take this into consideration when reviewing your application.

Please do not include personal information (e.g., gender, date of birth, and nationality) in the CV. The CV must be uploaded in a single PDF and the file size should be less than 5MB.

Q – Applicant's track record

Outline how your professional experience and academic track record makes you suitable for this award. Include details of any relevant experience you believe demonstrates this and a summary of results and outcomes of your recent research. You may also wish to include:

- Any relevant previous collaborative work/partnerships with other researchers, research organisations, industries or other beneficiaries, both nationally and internationally
- The economic and/or societal impact of your research
- Details of any external grant income secured (funder, value, PI/CoI)
- Any other information regarding your research track record.

500 words maximum.

Q – Applicant’s most significant achievements

Please describe three to five of your most significant achievements in your research career. We would like to emphasise that all achievements and outputs are welcome and considered valuable to the Academy, not just peer-reviewed publications. Outputs also include, and are not limited to code, patents, spin-out companies, events, public engagement, and policy impact. Please briefly explain the significance of the achievement in a way that will explain it to a researcher from your discipline who may not be familiar with latest work in the particular field.

500 words maximum.

The Academy’s research programmes are aligned with the principles of the [Declaration on Research Assessment \(DORA\)](#). If research articles published in peer-reviewed journals are to be included in an application, we would therefore like to emphasise that the scientific content of a paper is much more important than publication metrics or the identity of the journal in which it was published.

Q – Impact of COVID-19 (optional question)

The Academy understands that the impact of the coronavirus pandemic on researchers and their work has been varied. If you wish, please provide a summary of how the pandemic has affected your research activities that reviewers and panel members should consider. Reviewers and panel members will be advised to take into consideration the unequal impacts that COVID-19 related disruptions might have had on individuals. The impact can include, but is not limited to, the following examples: pause on experiments/research plans, reduced ability to work due to additional caring responsibilities, delays in publishing/submitting a key paper(s) (please note pre-prints can be included in your publications list).

500 words maximum.

- **Project details**

In this section you will be asked to provide a detailed summary of your research project.

Q – Project start date

Please enter your proposed start date: 1 September – 31 October 2024.

Q – Type of award – full time or part time

Pick from the drop-down menu the average percentage of working time you anticipate dedicating to the project: 25-100%.

Q – Work pattern during the fellowship

If your fellowship will be held part-time, please provide details of the format of the fellowship including anticipated part-time working pattern, any travel and accommodation arrangements, and how you propose to balance your university and industry commitments.

250 words maximum.

Q – Project title

The essence of the research should be captured in the title and should be as informative as possible. Please use **no more than 10 words** and ensure that it is **understandable to a non-specialist reader**.

Please note that the position will be known as the 'Dstl/Royal Academy of Engineering Research Chair (or Senior Research Fellow) in Information Fusion'. This succinct title will be beneficial for media/outreach activities.

Q – Abstract

Describe the research and expected outcomes in terms that can be understood by a non-specialist reader. Demonstrate a knowledge and understanding of past and current work in the subject area both in the UK and abroad.

250 words maximum.

Q – Subject category

Select one single broad engineering category that best describes your research proposal. The category selected will be used to identify reviewers and panel members for the assessment process. If your research proposal fits into several categories, please pick the category that is most applicable to your proposal. Please see Annex 1 for further information.

Q – Please provide keywords relating to the project

List 10 keywords to help us identify suitable reviewers for your application.

- **Case for support**

This section forms the main part of your application and asks you to provide details on your project and the activities you intend to undertake as part of the Research Chair/Senior Research Fellowship.

Q – Goals and objectives

Please state the goals and objectives for the project, in order of priority. Please note that if awarded, the awardee's performance will be assessed against these objectives.

250 words maximum.

Q – Timeliness and novelty

Outline why the proposed project is of sufficient novelty to warrant consideration for this prestigious Research Chair/Senior Research Fellowship. Describe why this research is important and how it addresses the brief.

250 words maximum.

Q – Programme, methodology and key deliverables

Describe the five-year work programme, indicating the research to be undertaken and the methodology to be used in pursuit of the research. Outline specific deliverables anticipated. Also include details on how novel, realistic/ambitious the project is, and include milestones by which to measure progress. The plan should be realistic and robust over the 5-year award.

2,000 words maximum.

Q – Images and pictures (optional)

Upload any images and/or diagrams related to your project that add value to your application. Any images/diagrams uploaded must be referenced in the application form. **The images/diagrams must be collated and uploaded as a single PDF** in the order you wish them to be viewed. **The file size should be less than 5MB.**

Q – Project timeline

Upload a Gantt chart or equivalent to show the schedule of activities for the duration of the project. Please ensure major milestones are clearly plotted. You may wish to include a diagram showing how the work packages and your collaborations will interact. **The chart/diagram must be collated and uploaded as a single PDF.**

Q – Reference List (optional)

Upload a list of the reference material referred to in your application. Where possible include web-links to any open access articles. You may want to highlight the most relevant ones. **The reference list must not exceed one page and should be uploaded in a single PDF.**

Q – Choice of host institution

Provide justification for the strategic importance of this relationship to your host institution. Provide justification for the choice of your host institution and

background to the research group/centre of excellence, including comparison with other centres in the UK and its scale (including how large it is, staff numbers, funding, research facilities).

200 words maximum

Q – Expected benefits

Outline what would be the expected benefits for Dstl by co-funding this appointment. Provide details of what has been achieved so far through any existing collaborations and what the overall perceived long-term vision is.

200 words maximum

Q – Managing the relationship with Dstl

Provide details on how you plan to manage the relationship with Dstl.

250 words maximum

Q – Why the Academy should support this application

Provide a statement outlining the added value that would accrue from the Academy funding, for example how will the support from the Academy benefit your research programme, the awardee, Dstl, the centre at the host institution and the UK?

400 words maximum.

Q – Team development

Identify routes for expanding the awardee's research team and career. What training/skills will be provided and how will they be obtained? What will be the anticipated make-up of the team created (for example, numbers of PhDs and postdocs)?

200 words maximum.

Q – Risk management

Identify and assess any risks that may jeopardise the success of the project. Outline any contingency plans designed to mitigate these risks.

200 words maximum.

- **Potential impact**

In this section, you are required to describe your future plans, ambitions, dissemination strategies and the related impact.

Q – Strategic collaborations

Describe any existing and future collaborations, in addition to your collaboration with Dstl on this project, and how these will contribute to or enhance the project.

200 words maximum.

Q – Beneficiaries and impact

Identify the groups in society that will benefit from the research, as well as any positive societal and economic impacts it will have.

What are the benefits of this research and for who? Quantify the extent of the benefits and identify potential beneficiaries. If the benefits do not directly relate to wealth creation and/or to improving the quality of life, give details of other beneficiaries and explain their importance. Also indicate when these impacts will become apparent. Beneficiaries should extend to a wider community than those of the applicant's immediate professional circle and Dstl.

300 words maximum.

Q – Academy's strategic goals (optional)

How do you align with the Academy's strategic priorities? Note this is not an assessment criterion and is for staff use only. We want to understand the extent to which our programmes as a whole meet our strategic aims, but your answer will not influence the decision and applications are judged purely on merit. The strategic plan is available on our website [here](#).

Select the answer that best describes the strategic aims your research will address:

- sustainable society
- inclusive economy
- both
- neither.

Please give a short explanation for the answer you have selected.

100 words maximum.

Q – Diversity and inclusion

The Academy strives to create cultures in which everyone can thrive, and we believe that diverse perspectives enrich our collective performance.

What does diversity and inclusion mean to you, and what are you and your team doing to address it? Consider your team, collaborators and universities, the implications on your research design and topic and the overall contribution this will have on your success.

250 words maximum.

Q – Exploitation

How will the results be exploited, both in general terms and more specifically by Dstl? You have already explained what the benefits of the research are. Here you should also explain how the benefits and exploitation mentioned will be achieved. Identify what mechanisms are in place for identification, protection and subsequent exploitation of any deliverable that may arise from the research (including details of any specific collaborative agreement, where relevant). You should also indicate when these routes to exploitation are likely to be implemented, including your plans beyond the period of the award.
300 words maximum.

- **Funding requested**

Please provide a breakdown of the funding requested. You must consult with the host institution for support in completing this section. **Each application is capped at a maximum contribution from Dstl of £475,000 over the five-year period.** When completing the costs table, some of the cells are auto calculated and all values submitted should be rounded up to the nearest pound.

Dstl will fund up to 80% fEC and the host institution is expected to cover the remaining balance. The funding requested can be used flexibly in the following cost categories:

- Salary Costs
- Indirect Costs
- Estates Costs
- Other costs

The Academy expects the awardees to gain additional funding from other sources. Where applicants hold existing grants that cover for specific spend, such as salary, to avoid double counting the Academy's funds can be reinvested into the Research Chair/Senior Research Fellowship programme in another way, providing it is sensible and justified.

Please note, one of the assessment criteria will be the level of support that the university is willing to contribute towards the award.

Table A: Total cost (100% fEC) of Research Chair/Senior Research Fellowship

Please provide a full cost breakdown (fEC) in terms of gross salary, indirect costs, estates costs and other costs.

The following can be considered as other costs:

- Personnel costs (not your salary so that it's not double counted); researchers, technicians and other supporting staff to the extent employed on the project.
- Costs of equipment and instruments, to the extent utilised on the project.
- Costs of conducting research and of external consultancy and contractual research or other knowledge assets, including patents bought or licensed from outside sources.

Applicants should consult with their host institution research support office regarding the completion of the required costings table (see below).

Salary increments over the period of the project should be considered, but possible future pay awards should not be anticipated. **Please note that Dstl does not pay inflation and inflation should not be applied to the costs.** In addition, Dstl is not able to cover the costs of the apprenticeship levy on research grants.

	Year one	Year two	Year three	Year four	Year five	Total
Salary costs						
Indirect costs						
Estates costs						
Other costs						
Total						

Table B: Contribution from Dstl

Dstl will fund up to 80% of the full economic costs (fEC) in Table A. The allowed costs are gross salary, indirect costs, estates costs and other costs. **Please use the 'Total' from Table A for this calculation.**

Dstl's contribution will be capped at a maximum of £475,000 over five years.

Please try to spread the cost evenly across the five years as much as possible.

	Year one	Year two	Year three	Year four	Year five	Total
Salary costs						
Indirect costs						
Estates costs						
Other costs						
Total						

Table C: Contribution from the host institution

The host institution should contribute a minimum of £225,000.

This can be used flexibly to support the project and may include both cash and in-kind contributions (for example provision of PhD studentships, postdocs, equipment, consumables). In-kind support should be fully costed. The host institution is expected to make up any shortfall in the total cost (fEC) of any proposed application.

	Year one	Year two	Year three	Year four	Year five	Total
Cash contribution						
In-kind support						
Total						

Q – Provide details of in-kind support from the host institution

Include any in-kind support that the host institution is willing to provide. This can include, for example, provision of PhD studentships, postdocs, equipment, consumables.

200 words maximum.

- **Letters of support and declarations**

This section seeks confirmation for the support that host institution will provide. A declaration of support is also required from the applicant's host institution grants/research office or equivalent. **The submission deadline will not be extended due to an individual's unavailability.**

Q – Host institution letter of support

A pro-vice-chancellor, dean or equivalent at the host institution must provide a letter of support. It should be on headed paper, signed by the author and uploaded by the applicant as a PDF.

The letter should address the following points:

1. Details of how the candidate's current teaching (and related) duties will be covered during the award (the Academy will expect the awardee to contribute no more than four hours per week towards administration/teaching duties as this is a full-time award, this will be pro-rated for individuals on part-time fellowships).
2. The host institution's commitment to the proposed collaborative research project and partnership with Dstl. The strategic alignment with institution strategy and research priorities including details of previous and planned investment and support to facilitate the development of this research group.
3. Details of how the host institution intends to reinvest any salary savings back into the research project (provision of PhD studentships, postdocs, teaching replacement).
4. Impact of COVID-19 on the host institution's support (if necessary). The host institution can use the letter of support to highlight the impact of the coronavirus pandemic on their support for the award if they wish. Reviewers and panel members will be advised to consider the unequal impacts that COVID-19 related disruptions might have on the host institution's support for the award.

If these areas are not clearly addressed, the letter will be returned for revision prior to review.

The Academy expects institutions to be committed to, and provide support that aligns with, principles set out in The Concordat to Support the Career Development of Researchers, The Concordat for Engaging the Public with Research, and [DORA](#).

Q – Host institution declaration letter

The host institution declaration letter must be completed by an appropriate individual from the host institution's research support office or equivalent. The letter must be on headed paper and should carry the signatory's name, position, contact details, and the institution's official stamp (if available). The letter must confirm the application has been approved by the institution and **must contain the wording given in the box below**, as well as any remarks that the institution wishes to make. **Please note that the wording provided in the box below is specific to the Research Chairs and Senior Research Fellowships scheme, and the wording is updated and different to previous rounds.**

On behalf of the host institution, I can confirm that I have read and accept the application guidance and other information regarding this award scheme, which is provided on the Royal Academy of Engineering's website, and I also confirm that:

- The costs provided in this application are correct and sufficient to complete the project as envisioned.
- Any shortfall in funding discovered after the award has been made will be covered by the institution, potentially through other grants.
- If awarded, the applicant will be given full access to the facilities, equipment, personnel, and funding as required by the application.
- The applicant will be employed by the institution for the duration of the award.
- The applicant's teaching and administrative and non-research duties will be restricted to a maximum of four hours per week during their award (this will be pro-rated for individuals on part-time awards).
- I am authorised to approve the submission of applications for funding and confirm this application has successfully met the eligibility criteria and all of our internal approval procedures.
- The institution will have an appropriate bilateral agreement or equivalent in place with Dstl by the proposed start date as stated in the application and agrees to share this with the Academy.

Q – Applicant's declaration

This section will ask the applicant to confirm that all the information they have submitted in their application is accurate and that they will update the Academy on any changes that may affect the project.

This section will also ask the applicant to acknowledge that the Academy will disclose the information contained within this application to external parties for the purpose of assessing the case.

Once you have read and understood the declaration included in the application form, please tick the check box. A grey '**submit application**' button will become available once the application form is completed.

Please note that once submitted the application cannot be edited and updated, but you may view it from your GMS account.

Q – Marketing: where did you hear about the scheme? (optional question)

This question is optional, but it helps the Academy to understand which marketing materials are most successful at reaching the academic community to improve future communications work.

11. Assessment process

Stage 1: expert review

The full application will be assessed by a minimum of three expert reviewers (usually Academy Fellows). Expert reviewers will provide comments and score against each of the following assessment criteria, the overall quality of the application and a recommendation on whether they should proceed to interview. Full reviewer guidance notes are available in the webpage.

Quality of the applicant

- Quality of the applicant's research track record and the academic quality of the underpinning basic research.
- Quality of the applicant's research vision and their potential to establish or enhance a world-leading research group at the host university in their chosen field of engineering.

Quality of the collaborative research programme

- The quality and significance of the proposed 'use-inspired' collaborative research programme (including timeliness, novelty, vision, and ambition).
- Quality and effectiveness of the proposed planning and management and whether the requested resources are appropriate and have been fully justified.
- Consideration of diversity and inclusion in research and team development.

Strength of the strategic partnership

- The plans to build a long-term sustainability of the strategic partnership between the Dstl and the host institution.
- The commitment and level of support from the host institution.

Beneficiaries and impact

- Extent to which Dstl and other beneficiaries will benefit from the proposed collaborative research programme.
- The potential to translate research outcomes into societal and economic impact.

Financial costing of the proposal

- Quality and level of the financial contribution from the host institution.

Sift panel

The Academy staff will collate all reviewers' comments and scores into a summary table and rank the applications by overall score and the Yes/No recommendations. These are presented to the sift panel for a final decision on which applications should proceed to interview stage. Those applicants not asked to attend an interview will be informed of this decision as soon as possible following the sift panel's decision.

Stage 2: interview

The interview will be conducted by a generalist panel consisting of at least three Academy Fellows and an expert provided by Dstl. Each interview will take about 50 minutes. Panellists will provide comments against the assessment criteria outlined above.

The ranking of candidates during the preceding sift panels will have no bearing at interview. All interview candidates are considered to have equal standing. Following the interviews, the panel will rank the applications and select the top ranked candidates for awards.

Interviews will take place virtually in 4 and 5 July 2024.

Please ensure that the interview dates are added to your diaries and to the ones of pro-vice chancellor (Research) and/or dean. **All the parties are required to attend the interview.** Shortlisted applicants will be invited for interview by end of June 2024.

The applicants will be notified of the outcome of the interview by end of July 2024.

Declaration on Research Assessment (DORA)

The Academy's research programmes are aligned with the [Declaration on Research Assessment \(DORA\)](#), which is a set of principles aiming to improve the ways in which the output of research is evaluated by funding agencies, academic institutions, and other parties. The outputs from research are many and varied,

and as a funder of engineering research the Academy needs to assess the quality and impact of these outputs to make awards - it is imperative that research output is measured accurately and evaluated wisely.

In the assessment of research output, we would like to emphasise that all outputs are welcome and considered valuable to the Academy. Outputs can include open data sets, software, publications, commercial, entrepreneurial or industrial products, clinical practice developments, educational products, policy publications, evidence synthesis pieces and conference publications. With regard to research articles published in peer-reviewed journals, the scientific content of a paper is much more important than publication metrics or the identity of the journal in which it was published.

We value and appreciate the time and effort that reviewers give to support our research programmes. A good, helpful review for the Academy is one that assesses research on its own merits rather than by surrogate measures, such as on the basis of the journal in which research is published.

12. Key dates

Process	Date
Seminar – Submitting your application questions and answers	8 February 2024
Applications for Access Mentoring support deadline (optional support).	4.00pm GMT on Thursday 15 February 2024
Applications deadline.	4.00pm GMT on Thursday 14 March 2024
Stage 1 – expert review Applicants are informed of the stage 1 outcomes.	By end of June 2024
Stage 2 – interview (online).	4 July and 5 July 2024
Interviewed applicants are informed of the stage 2 outcomes.	By end of July 2024
Awards start.	1 September 2024 – 30 October 2024

For all queries, please contact the Royal Academy of Engineering’s research programmes team at research@raeng.org.uk

13. Annex 1 – Subject category

1) Civil, construction and environmental

Including aspects of civil and structural engineering; construction materials; earthquakes; wind and fire engineering; building engineering physics; construction management; numerical modelling; environmental engineering; water resources and flooding; offshore and coastal engineering; hydraulics; climate change and sustainability; waste management; geotechnical engineering; geomatics/surveying.

2) Materials and mining

Including metallurgy; metal forming; corrosion; failure analysis; structural integrity; non-destructive testing; inspection technologies; failure prevention; fabrication and repair technologies; welding and joining technologies; discovery and development of mineral resources; extraction and processing of minerals; mining engineering; materials performance; materials research; plastics and composites; structural materials (excluding materials specifically covered elsewhere).

3) Chemical and process

Including all aspects of chemical and process engineering; aspects of fuel technology; oil; coal and gas technologies; carbon; carbon sequestration; clean technology; combustion; catalysis; particulates; food processing; fermentation processes; pharmaceutical engineering; biotechnological processes.

4) Aerospace

Including all aspects of aeronautical engineering and aerospace manufacturing; turbomachinery and aerothermal engineering; avionics; radar systems; antennae; satellite systems; autonomous systems; aspects of systems engineering; airlines; materials for aerospace.

5) Transport and mechanical

Including all aspects of mechanical engineering; automotive; rail and marine engineering; transportation infrastructure; engines; turbomachinery; mechatronics; acoustics and vibrations; ultra-sonics; heat and thermodynamics; fluid dynamics.

6) Manufacturing and design

Including manufacturing management and manufacturing process innovation; manufacturing business improvement and re-engineering; CAD/CAM; robotics for manufacturing; engineering design.

7) Electrical and electronic

Including electrical, electronic and control engineering; design for electronics; aspects of nanotechnology and semiconductor engineering; lasers; optoelectronics; photonics; microwave engineering; instrumentation; display technology; solid state electronics.

8) Energy and power

Including energy technologies; electric power and energy systems engineering; nuclear and renewable energy generation; energy infrastructure; management of energy and energy resources for generation, storage, and transmission; distribution and conversion of electric energy and power; electricity supply and energy conservation; hydrogen power; fuel cells.

9) Medical and bioengineering

Including all aspects of medical and biomedical engineering; orthotics; prosthetics; ultrasound for medicine; medical scanning and imaging; drug delivery; biomedical materials; tissue engineering; medical devices; medical robotics and computer assisted surgery.

10) Computing and communications

Including computational and software engineering; informatics; web and data science; telecommunications; mobile telephony; broadband; wireless spectrum; signal processing; television, film, and broadcasting; computer and video games; special effects.

14. Annex 2 - Dstl research topic

Architectures for Information Fusion in Sensor Networks For Military Intelligence, Surveillance and Reconnaissance (ISR)

Key words

Information fusion, data fusion, sensor networks, signal processing, artificial intelligence, distributed computation, scheduling, autonomous systems.

Introduction

How, where, and when should information be processed in sensor networks to provide military commanders with effective information?

The Defence Science and Technology Laboratory (Dstl), which is part of the UK Ministry of Defence (MOD), invites proposals for a Royal Academy of Engineering (RAEng) Research Chair/Senior Research Fellowship (RC/SRF) to undertake research that will advance the fundamental theory of information fusion in decentralized sensor networks.

Context

Intelligence, Surveillance, and Reconnaissance (ISR) are the processes concerned with determining the capabilities, disposition, and intention of enemy forces, and the environmental properties of the potential battlespace. ISR additionally aims to detect, classify, identify and track objects and events, at various spatial and temporal scales.

The MOD requires to develop and maintain pervasive, resilient and adaptive ISR systems based on networks of diverse sensors and information sources, across multiple domains (land, sea, air, space)².

The future battlespace will be a congested and contested environment – target dense and subject to enemy counter-ISR actions. Therefore, ISR sensor networks will require to be scalable, robust to component failure, and resilient through adaptive self-repair.

Sensor networks may include autonomous sub-systems, which will provide efficient deployment of resources to maintain adequate information on the state of the battlespace; and which are responsive to system failure, environmental conditions and enemy action, including manoeuvre and deception. Information flow across a network may depend on the exploitation and development of artificial intelligence techniques.

These capabilities will depend on how the architecture of how information is processed and fused in sensor networks.

² [MOD Science and Technology Strategy 2020](#).

Problem Statement

Information fusion in centralized fusion architectures suffers from vulnerability of the central node and communication links to failure, and potential problems with scalability. Research is required to develop theory and algorithms for information fusion for ISR, concerned with alternative (decentralized) fusion architectures. For example, proposals concerning several of the following issues would be welcome:

- quantification of uncertainty;
- convergence and consensus across fusion nodes;
- robustness and resilience, including survivability and adaptivity to node and link failure;
- scheduling of distributed computation, subject to constraints, with edge and cloud components;
- fusion of data from heterogeneous sensor modalities;
- scalability in terms of targets and sensors;
- assessment of network ISR capability for static comparison and design;
- dynamic adaptability and autonomy.

Proposals may develop generic theory applicable to multiple domains, but may choose to concentrate on specific contexts. However, methods applicable to fusion of data from diverse and heterogeneous sensors and sources are encouraged. For example, but not limited to: radar, electro-optic, sonar, open-source.

What the research is expected to achieve

The awardee is expected to:

- establish or enhance a world leading signal processing research group;
- deliver 'use-inspired' research that meets the needs of the MOD;
- disseminate the outcomes of the research for appropriate academic use;
- create a self-sustaining research group by the end of the award (by securing substantial external grant income);
- establish recognition with stakeholders within the UK defence community as an expert on information processing in sensor networks for ISR.

Special requirements

Dstl will act as the industrial partner to the successful applicant, but the suitability of the proposal to meet Dstl's requirements will be assessed as part of RAEng's usual sift and interview procedures. Therefore, applicants will not be required to obtain a letter of support from Dstl for their proposals. Applicants are not expected to contact Dstl in advance of their application.

Potential applicants are invited to attend an online seminar where additional details of the call will be explained and an opportunity will be provided to have

questions answered. This seminar will be held on 8 February 2024. Those wishing an invitation to attend should contact research@raeng.org.uk.

The host university of the successful applicant will form a contract with Dstl under the R-Cloud scheme. Details of R-Cloud can be found at this link: <https://www.gov.uk/guidance/r-cloud>.

It is expected that the substance of the research would be unclassified, and published in academic journals and proceedings. Opportunities may arise for the awardee to work closely with Dstl, MOD and other government agencies on short term visits during the term of the award. By applying to this RC/SRF scheme the applicant is agreeing to be vetted to SC clearance³. Applicants are asked to declare any reasons why they might not be eligible to work in this area (see Statement of Support and Declaration in the application form). If the awardee does not meet the security vetting requirement, the RC/SRF award will be withdrawn.

Algorithms developed as part of the research should be instantiated in the [Stone Soup framework](#). Stone Soup is software project to provide the target tracking and state estimation community with a framework for the development and testing of tracking and state estimation algorithms.

Level of support

The award will attract £475,000 over a period of five years.

³ Details of requirements for SC security clearance can be found at <https://www.gov.uk/government/publications/united-kingdom-security-vetting-clearance-levels/national-security-vetting-clearance-levels>.

15. Annex 3 – Guidelines on the use of generative AI in the grant application process

The guidelines presented below outline the approach adopted by the Royal Academy of Engineering concerning the utilization of generative artificial intelligence (AI) during the grant or prize application (or nomination⁴) process. In certain cases, specific schemes may choose to implement more stringent regulations regarding the use of AI tools, especially when it is deemed crucial to directly capture the applicant's voice. If the employment of generative AI tools were to be disallowed for specific schemes, it is essential to ensure clarity by explicitly stating this restriction in the corresponding scheme's advertisement⁵.

Note that given fast-moving progress on AI tools, this guidance may need to be updated at short notice as new capabilities become accessible. We strongly encourage staff members who become aware of new generative AI-powered solutions that significantly impact our processes to promptly contact us.

Guidelines for Applicants⁶:

1. **Taking Responsibility for Content:** Applicants are fully responsible for all the content presented in their grant applications. The grant process does not penalise the use of generative AI tools, but it is imperative to ensure that the application reflects the applicant's own voice⁷ and ideas.
2. **Rigorous Approach:** Applicants should exercise caution when using generative AI tools to avoid the inclusion of 'hallucinated' references or factual errors. These often become more common when up to date content on a very specific topic is required, which is typical for most of our application areas. Such inaccuracies will be perceived as indications of a lack of rigor and will negatively impact the assessment of the application.
3. **Partial Use of AI Tools:** It is not acceptable to solely rely on generative AI tools to write the entire grant application from start to finish. While these tools may be used to assist in various aspects, the application must primarily represent the applicant's own work.
4. **Plagiarism Considerations:** Applicants should be aware that the output generated by some AI tools may utilize ideas from other human authors without proper referencing. As this is considered a form of plagiarism, it is essential to ensure that all sources are appropriately attributed.
5. **Proper Acknowledgement of AI Usage:** Applicants must provide clear acknowledgement if they have used generative AI tools in the process of writing their grant applications. This includes disclosing the name of the tool

⁴ These guidelines do not apply to nominations for Fellowship, or for roles of Fellows within the Academy, which are covered by separate policies and processes.

⁵ Potentially it might even be this restriction applied only to certain questions or elements within the application. In this case, scheme managers should be particularly careful to be explicit what is permitted where.

⁶ Also similar for prize nominators.

⁷ For applicants whose first language is not English, machine translation may be used, but care should still be taken to ensure the accuracy of this translation, especially for technical vocabulary.

used and describing how it was utilized. The following style should be employed for referencing:

- I acknowledge the use of [insert AI system(s), version number and link] to generate materials for background research, styling, proofreading, etc.
 - I acknowledge the use of [insert AI system(s), version number and link] to generate materials that were included within my final assessment in modified form.
6. Applicant declaration within GMS: These will standardly include explicit statements that the ideas presented are the applicant's own and not plagiarised or containing intellectual property they do not have rights to use, and that all contributions have been appropriately referenced or credited including the use of any machine intelligence tools used in developing the application. An inaccurate declaration will be grounds for immediate rejection of the application and potentially exclusion of the applicant and their organisation from future opportunities.

16. Annex 4 – Guidelines on national security

The Academy is the UK's National Academy for engineering and technology and seeks to increase the potential positive benefit that innovations can have for society, whilst reducing the risks of harm. Hence, in all our activities, we seek to minimise the risk that technology developed as part of work that we support could be misused by a foreign state to build a capacity to target UK interests in a hostile fashion or to control or repress their population. There is a risk that for some grant activities, failure to protect IP and a lack of due diligence into collaborators could result in sensitive technology being transferred to and misused by a hostile or repressive foreign state. As such all applicants should ensure they are familiar with the Academy's [Policy on National Security-Related Risks](#).