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## AI SINGAPORE RESEARCH PROGRAMME GRANT CALL

### About the Programme

1. The AI Singapore Research Programme supports research projects on a competitive basis across Singapore-based Institutes of Higher Learning (IHLs)<sup>1</sup> Research Institutions (RIs)<sup>2</sup>, and/or publicly-funded Medical Institutions.
2. The objective of the Programme is to seed high-quality research efforts aimed at developing AI and adjacent technologies that will eventually contribute to the other pillars of AI Singapore.
3. The desired technical outcomes include:
  - i. AI systems that learn effectively from small datasets, with fewer training iterations;
  - ii. AI systems which are able to demonstrate sense-making abilities; and
  - iii. AI systems that exhibit creativity and design abilities.
4. In the inaugural Call for Proposals, AI Singapore invites applications in advanced research in machine learning, computer vision and natural language processing, and how AI interacts and collaborates with humans. Topics of interest also include, but are not limited to, techniques to enhance robustness and explainability of AI, learning from small data, learning from multimodal data, abstraction and generalisation, and AI with sense-making, hypothesis generation, design and creative capabilities. Proposals should emphasise on methodology and algorithms, rather than domain-specific solutions.

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<sup>1</sup> *Institutes of Higher Learning (IHLs)*: National University of Singapore (NUS), Nanyang Technological University (NTU), Singapore Management University (SMU), Singapore University of Technology and Design (SUTD), Singapore Institute of Technology (SIT), Singapore University of Social Sciences (SUSS).

<sup>2</sup> *Research Institutions (RIs)*: A\*STAR Research Institutes/Centres/Consortia.

## Funding Support

1. The Programme will support each project for a duration of up to 3 years. Funding is available in two tiers:

Category	Funding Quantum inclusive of 20% IRC
Level 1	Up to S\$ 500,000
Level 2	Up to S\$1 million

2. The Programme encourages inter-institutional collaborations. Research teams proposing Level 2 projects must include members from multiple institutions. This requirement is optional for Level 1 applications.
3. The proposal should be based on a realistic budget with appropriate justifications that correspond to the scope of work to be accomplished. The total cost of each project includes all approved direct costs<sup>3</sup> and indirect research costs/overheads<sup>4</sup>. All expenditure budgeted should be inclusive of any applicable Goods and Services Taxes (GST) at the prevailing rates.
4. Please refer to **Annex E** for the list of direct cost items (**non-exhaustive**) that are **non-fundable** by AI Singapore Research Programme.
5. For all direct cost items proposed for the project, please note that:
  - i. Host Institutions must strictly comply with their own procurement practices;
  - ii. Host Institutions must ensure that all cost items are reasonable and are incurred under formally established, consistently applied policies and prevailing practices of the host institution; and
  - iii. All items/services/manpower purchased/engaged **must be** necessary for the R&D work.
6. PIs/Co-PIs/host institutions shall use reasonable efforts to employ or otherwise engage Singapore citizens and/or Singapore Permanent Residents to be

<sup>3</sup> Direct costs are defined as the incremental cost required to execute the project. This **excludes** in-kind contributions, existing equipment and the cost of existing manpower as well as building cost. Supportable direct costs can be classified into expenditure on manpower (EOM), expenditure on equipment (EQP), other operating expenses (OOE), and overseas travel (OT).

<sup>4</sup> Indirect costs are expenses incurred by the research activity in the form of space, support personnel, administrative and facilities expenses, depending on the host institution's prevailing policy. Host institutions will be responsible for administering and managing the support provided by AI Singapore for the indirect costs of research.

deployed in the work under the project.

7. Decision on the funding support to be awarded for each project is final and no appeals will be entertained.

### Eligibility Criteria

1. At the point of application, PI and Co-PIs must fulfil the following requirements:
  - a. Hold a full-time appointment<sup>5</sup> in a Singapore-based Institute of Higher Learning (IHL), Research Institution (RI) and/or publicly-funded Medical Institution;
  - b. PI must be an independent researcher with a track record of leadership ability in coordinating research programmes and providing mentorships to research team, as well as having productive research outcomes; and
  - c. No outstanding report(s) from other national grants.
2. Researchers from AI Start-ups in Singapore, private sector and other entities are eligible to apply as Collaborators.
3. Only research conducted in Singapore may be funded under the Programme.

### Evaluation Criteria

1. AI Singapore supports research that has academic significance and demonstrates good potential for achieving the desired outcomes of creating and/or developing AI and adjacent technologies towards more human-like learning machines.
2. The research outcomes should advance high-quality research of international excellence that challenges current understanding or provides pathways to new frontiers.
3. Further, the Programme supports research that has or will have direct implications on the economy and/or society. This is often demonstrated in terms of intellectual property produced, technologies deployed, manpower trained/spun off to industry and overall value-add to target groups.
4. Proposals will be assessed by a Scientific Evaluation Committee and AI Singapore, and finally approved by the National Research Foundation (NRF).
5. All decisions are **final** and no appeals will be entertained.

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<sup>5</sup> Defined as at least 9 months of service a year or 75% appointment.

**Grant Call Timeline**

1. The tentative schedules for the first two Calls are as follows:

Event	Call 1 / Dates	Call 2 / Dates
Announcement of Grant Call	13 Feb 2018	2 Jan 2019
Closing date for <u>softcopy</u> submission	9 Apr 2018	1 Mar 2019
Closing date for <u>hardcopy</u> submission	16 Apr 2018	8 Mar 2019
Peer Review & Evaluation Process	Apr-Jun 2018	Mar - May 2019
Release of Outcome and Award	July 2018	May 2019
Project Commencement	1 Aug 2018	1 Jun 2019

**Application / Contact**

Interested applicants should submit the AI Singapore Research Programme application form with all the sections duly filled by the stipulated deadline in softcopy and hardcopy to the following:

**Softcopy:** [research@aisingapore.org](mailto:research@aisingapore.org)

**Hardcopy:** RE: AI SINGAPORE RESEARCH PROGRAMME  
(Attn: Ms Lim Le Ying)  
Office of the Deputy President (Research & Technology)  
University Hall, Lee Kong Chian Wing  
UHL #05-02, 21 Lower Kent Ridge Road  
Singapore 119077

Late submissions or submissions from individual applicants without endorsement from the relevant institutional authority / director of research (or equivalent) (by the deadline stipulated above) will not be entertained.

For more information, please contact Ms Lim Le Ying at [research@aisingapore.org](mailto:research@aisingapore.org).

### Instructions to Applicants & Host Institution

1. PI and Co-PIs are required to provide the ORCID in the application form (not mandatory for Collaborators) and are expected to commit a proportionate amount of their time in ensuring the success of the project (at least 20% of the total time for PI and at least 10% for Co-PIs).
2. Please note the following instructions on specific information to be provided in the relevant sections of the application form:-

#### Section 2 – Details of Research Proposal

A full proposal with a limit of 15 pages in size 11-point Arial font with full justified margins, single-line spacing. The case for support should include the following sections and information specified in the following table:-

Sections Required	Information to be Provided
Cover Sheet for Full Proposal	This section should state clearly the time commitment of each team member (PI/Co-PIs and Collaborators). All PIs and Co-PIs must provide their ORCID identifiers (refer to <a href="http://www.orcid.org">www.orcid.org</a> ) directly under their names at the cover sheet of the Full Proposal. Please refer to <b>Annex A</b> for reference.
Objectives of the Research Project	This section should articulate clearly the use-inspired objectives and expected outcomes of the project and how it would contribute towards achieving the objectives of the AI Singapore Research Programme.
Description of Project and Proposed Approach	<ul style="list-style-type: none"> <li>• Details should be provided on the project objectives, the scientific challenges to be addressed and the proposed methodology/approach to solving these challenges.</li> <li>• PI/Co-PIs should highlight in this section the importance of the problems being addressed, how their work would create new knowledge or advance existing understanding, the novelty of their proposed approach and the potential for this to produce breakthrough work.</li> <li>• The PI, Co-PIs and other team members should also be identified in this section, highlighting any competitive advantages of individual members in terms of unique capabilities and/or experience relevant to the project's focus.</li> <li>• This section should also be used to highlight the international competitiveness of the work being carried out in terms of merit with mentions of existing work being carried out by other teams around the world.</li> </ul>
Economic Potential and Other Contributions of Project	<ul style="list-style-type: none"> <li>• This section should be used to describe the contributions of the programme in terms of potential economic and other benefits to Singapore.</li> <li>• Details of any industry collaborations and/or co-funding should be</li> </ul>

Sections Required	Information to be Provided
	<p>included in this section, with details on the extent and role of industry participation in the programme and plans for commercialisation if any. Letters of commitment stating the level of contribution from the industry Collaborators would be favourably considered.</p> <ul style="list-style-type: none"> <li>• PIs should highlight how the programme would generate economic payoffs for Singapore, e.g., through the potential to create new industry or advance existing industry, create spin-offs/IP/licensing, produce innovations that would disrupt existing industries if successful, etc.</li> <li>• PIs should also highlight other contributions of the project, e.g., towards building up research infrastructure, manpower and capabilities in Singapore, etc.</li> </ul>
Project Budget	<ul style="list-style-type: none"> <li>• A summary of the project budget should be provided in this section, broken down into broad categories of EOM, Equipment, OOE and OT. Justification for the proposed budget in each category should be clearly articulated here.</li> <li>• PIs are asked to provide accurate and reasonable budgets in their submissions. Please note that over-budgeting is strongly discouraged and PIs may be asked to revise the requested budget before award if this is found to be the case.</li> </ul>
Deliverables of Programme	<ul style="list-style-type: none"> <li>• A summary of the deliverables and outcomes for the project should be provided in this section. KPIs proposed should be linked to the objectives of the project and should be as quantitative as possible (e.g. learning from 5 times fewer labelled samples, etc.) – as a means to track/measure the success of the project at mid-term and at completion.</li> <li>• PIs should also use this section to highlight important potential/possible future outcomes from the successful execution of the project.</li> <li>• The detailed listing of activities and KPIs should be provided in Section 5 of the application form.</li> </ul>

### Section 3 – Declaration of Other Funding Support

Details of all grants currently held or being applied for by the PI and Co-PIs listed on the cover page, in related areas of work, must be declared in this section. Failure to do so will be considered a breach of the undertaking required by all PI and Co-PIs in Section 8 of the application form and may render the application invalid. Please refer to Annex B for reference.

### Section 4 – Proposed Budget

PIs should fill in the detailed budget breakdown in this section of the form, broken down into the categories and sub-categories, mainly: (a) EOM; (b) Equipment; (c)

OOE, with sub-categories for local conferences/ working visits/ meetings, materials and consumables (including animal costs if any) and miscellaneous costs or others; and (d) Overseas Travel (OT), including overseas conferences/ working visits/ meetings. Any additional information (e.g., equipment quotations, OOE details, etc.) should be provided as separate attachments. Further line item breakdown is required in sub-section (B). Only details for the amount of funding sought under AI Singapore should be provided in this section; other sources of funding for the project should be indicated separately and clearly in the “Other Funding Support” section for AI Singapore’s information. Please refer to **Annex E** for the list of direct cost items (non-exhaustive) that are **non-fundable** under AI Singapore.

#### Section 5 – Activities and Performance Indicators

PIs should provide full details of the Project Implementation Schedule and any relevant KPIs for their project.

#### Section 6 – Names of Suggested International Reviewers

Each submission must include at least 3 recommendations of international peer reviewers (local reviewers should not be listed), who are experts in the subject matter and capable of offering unbiased expert opinions on the merits of the proposed project.

In submitting recommendations for international peer reviewers, PIs must ensure that the recommended reviewers:-

- a. Have broad knowledge of the field that will enable them to evaluate the broader multidisciplinary, educational and societal impact (including economic and other benefits) of the proposed project;
- b. Have good knowledge of global developments in the field to be able to evaluate the international competitiveness of the proposed project, team members and proposed budget; and
- c. Have no relationship, direct or otherwise, with the PI, Co-PIs and/or Collaborators that would create a real or apparent conflict of interest should they be requested to evaluate the proposal.

Proposals submitted should contain all relevant information required for a proper and complete evaluation of their merits without the need to go back to applicants for additional information. Relevant privileged or confidential information should be disclosed if necessary to help convey a better understanding of the proposed project. However, such information should be clearly marked in the proposal.

A complete set of signatures may be provided using multiple copies of Section 8 (the undertaking section) of the application form. The hardcopy provided will be

assumed to be identical to the softcopy submission and, in the event of any discrepancy, the softcopy submission will be taken as the final and complete version of the proposal. Please refer to Annex C for reference.

Submissions which are incomplete (e.g., missing ORCID identifiers) or not received by the close of the relevant call will not be considered.

3. The curriculum vitae of PI, Co-PIs and Collaborators must include references and selected publications which are relevant to the application. They should also state the number of staff (e.g. post-doctorates, research assistants, etc.) and PhD students currently in their lab, as well as indicate their source and duration/period of funding. Please refer to Section 7 of the application form for the information required.
4. Research support office from the IHLs, Research Institutions and Medical Institutions are required to ensure that information submitted by their researchers complies with the requirements outlined in the application guideline. The following will be rejected without review:
  - a. Missing or wrong version of application form.
  - b. Inappropriate format (e.g. small font size and tight para spacing) or incomplete applications (e.g. sections left blank, missing CVs, etc.)
  - c. Late submission.
  - d. Revisions, made after closing date.
  - e. Proposal not within scope of AI Singapore Research Programme.
  - f. Duplicates of proposal submitted to any other public funding agencies for simultaneous consideration.
  - g. Ineligibility of PI and/or Co-PIs.
5. PI and Co-PIs should note that parallel submissions are not allowed – i.e. applicants **must** never send similar versions or part(s) of the current proposal application to other agencies or grants for funding (or vice versa).
6. The budget for the research proposal should be prepared according to the guidelines stipulated by the AI Singapore Research Programme and the applicant's host institution/research institute.



### Terms & Conditions of Award

1. Funding from AI Singapore will be awarded to and managed by the host institution of the PI and/or Co-PI. No part of AI Singapore funding will be awarded to Collaborator(s).
2. The detailed terms and conditions applicable to the grant are specified in the document, entitled “Terms and Conditions of the AI Singapore Research Programme”, attached as Annex D.
3. AI Singapore will disburse funds on a reimbursement basis. Host institutions shall submit requisitions for direct and/or indirect costs for which the funding is permitted to be used **to AI Singapore on a half-yearly basis** using the forms provided. Requisitions shall include detailed schedules of expenditure incurred for the previous period, as certified by its chief financial officer or an authorised nominee.
4. No funds shall be disbursed for approved projects unless:
  - a. The relevant research collaboration agreements (where applicable) have been signed.
  - b. The respective research compliance approvals (where applicable) have been obtained from the appropriate board/office.

**ANNEX A: COVER SHEET FOR PROPOSAL APPLICATION FORM (SAMPLE)**
**AI SINGAPORE RESEARCH PROGRAMME  
PROPOSAL APPLICATION FORM**

All information is treated in confidence. The information is furnished to AI Singapore with the understanding that it shall be used or disclosed for evaluation, reference and reporting purposes.

**SECTION 1: Cover Page (All fields are mandatory)**

Proposal Title: <b>XX (Bold, Font 11)</b>		
Budget Requested (Excluding Indirect Costs <sup>1</sup> ): <b>S\$ XX</b>	Period of Support: <b>XX</b> years	Host Institution (please indicate only one host): <b>XX</b>

<b>Project Team Members</b> (Please add/delete rows where necessary)					
Role	Name	Designation <sup>2</sup>	Department/ Institution	% effort within project <sup>3</sup>	% of time committed on the project <sup>4</sup>
<i>PI</i>					
<i>Co-PI (1)</i>					
<i>Co-PI (2)</i>					
<i>Co-PI (3)</i>					
<i>Co-PI (4)</i>					
<i>Collaborator (1)</i>					
<i>Collaborator (2)</i>					
<i>Collaborator (3)</i>					
			<b>Total:</b>		

Please include ORCID ID for PI and all Co-PIs.

## ANNEX B: OTHER FUNDING SUPPORT

### SECTION 3: Declaration of Other Funding Support

#### 1. All grants currently held or being applied

Please provide details (all fields are mandatory) for all currently held or applied grants by the PI and all Co-PIs listed on the cover page (not required for collaborators). These include those **supported by and/or applied** to universities, other public funding agencies and foundations. Please indicate "N.A." for any PI/Co-PI with currently no awarded grants or grants being applied for. Note that all PI and Co-PIs must be accounted for under this section.

S/N	Title of Supported Project	Funding Agency	Status (Awarded/Applied)	Total Amount Awarded/ Applied for (S\$)	Years of Support	Grant End Date (dd/mm/yyyy)

If any of the currently held grants above fund research topics related to the AI Singapore proposal, please include a one page supplementary write-up as an annex. The one page supplementary write-up is to describe the research funded by these grants, and how the objective and research differ from that in the AI Singapore proposal.

#### 2. All other resources

Please provide details on the funding or other resources to be provided by any participating industry/institute partner(s) for the applied grant.

Type of Resource	Funding Organisation	Duration of Support(Years)	Expiry Date (dd/mm/yyyy)

## ANNEX C: DECLARATION BY GRANT APPLICANTS

### Section 8: Declaration by Grant Applicants

In signing this grant application, the PI and Co-PI(s) UNDERTAKE, on any grant award to:

- Not send similar versions or part(s) of this proposal to other agencies for funding
- Be actively engaged in the execution of the research
- Comply with the provisions of any relevant laws of the republic of Singapore, statutes, regulations, by-laws, rules, guidelines and requirements applicable to it, as well as all applicable policies and procedures adopted by AI Singapore and/or NRF as the same may be amended or varied from time to time; and
- Agree to hold primary responsibility for the responsible conduct of research, and shall abide and comply with the ethical, legal and professional standards relevant to research, in accordance to the research integrity policy of the Host Institution.

We declare that the facts stated in this application and the accompanying information are true. This is an original and latest version of the proposal. We also declare that no other versions of this proposal (or parts thereof) with similar objectives, scope, deliverables or outcomes have been or will be submitted to any other funding bodies.

<b>Name of Applicant</b>	<b>Signature</b>	<b>Date Signed</b>
Principal Investigator <Name of Applicant>		
Co-Principal Investigator (1) <Name of Applicant>		
Co-Principal Investigator (2) <Name of Applicant>		
Co-Principal Investigator (3) <Name of Applicant>		
Co-Principal Investigator (4) <Name of Applicant>		

*Please add rows if necessary.*

**ANNEX D: TERMS AND CONDITIONS OF THE AI SINGAPORE RESEARCH PROGRAMME****ANNEX E: NON-FUNDABLE DIRECT COST (NON-EXHAUSTIVE)****ANNEX F: INSTRUCTIONS TO INSTITUTION'S APPOINTED AUDITOR ON FINANCIAL AUDIT (AI SINGAPORE RESEARCH PROGRAMME)****ANNEX G: INSTRUCTIONS TO INSTITUTION'S APPOINTED AUDITOR ON KPIS AUDIT (AI SINGAPORE RESEARCH PROGRAMME)**