Amazon-Illinois Center on AI for Interactive Conversational Experiences (AICE)
Call for Proposals 2025-2026

Abstracts Due: March 12, 2025
Full Proposals Due: June 15, 2025

1. INTRODUCTION

Launched in 2023, the Amazon-Illinois Center on AI for Interactive Conversational Experiences (AICE) is a collaboration between Amazon and University of Illinois Urbana-Champaign. The AICE Center is calling for proposals for the third funding round, 2025-2026 academic year. In this phase, the center will support 3+ research projects. Each funded project will support a PhD research assistant and 2-4 weeks of summer salary for principal investigators (PIs). Each selected project will then engage with research scientists from Amazon to collaborate and jointly advise PhD students. to revolutionize the paradigm and develop intelligent conversational systems that can automatically acquire, create, validate, reason, and update their knowledge through multimodal interactions with data and human users. In addition, we will support 1–2 larger-scale, high-risk, high-reward seed projects focused on ambitious initiatives in topic areas #1, #4, #6, and #8, with a strong emphasis on multi-PI collaboration.

2. CONTEXT

Amazon is improving customers' lives with practical, useful generative AI innovations. We do this by building and deploying AI across three technology layers: at the bottom layer we offer our own high performance and cost-effective custom chips, as well as a variety of other computing options including from third parties. At the middle layer, we offer customers choice by providing the broadest selection of Foundation Models—both Amazon-built as well as those from other leading providers. At the top layer we offer generative AI applications and services to improve every customer experience.

There are three things that distinguish Amazon's approach to the development and deployment of AI:

1) Maintaining a strategic focus on improving the customer and employee experience through practical, real-world applications of AI.
2) marshaling our world-class data, compute, and talent resources to drive AI innovation; and
3) committing to the development of responsible, reliable, and trustworthy AI.

Topics of interest would include, but are not limited to, those below.

1. **Foundation Model Improvements**
   o Novel model architectures
   o Novel training algorithms and methodologies
   o Multi-modal (e.g., text, image, video, audio) understanding and generation
   o Multi-lingual understanding and generation

- Algorithms and workflows for acquiring and curating high-quality and diverse datasets for training

2. **Foundation Model Evaluation**
   - Creation of new benchmarks for assessing foundation model capabilities
   - Methodologies for robust evaluation of generative AI systems, including agents

3. **Efficient Generative AI**
   - Efficient training and inference for cloud and on-device applications
   - Compute and memory efficient handling of multi-modal long/infinite context
   - Improving efficiency of diffusion models, including discrete diffusion

4. **Reasoning**
   - Commonsense and domain-specific (e.g., math, coding) reasoning
   - Temporal and spatial reasoning
   - Reasoning for planning

5. **Knowledge Grounding**
   - Approaches to ground (multi-modal) generation on up-to-date world, domain-specific, enterprise, or personal knowledge
   - Memory-augmented generative AI systems

6. **Agentic AI**
   - Creation of autonomous systems capable of performing tasks, making decisions, and interacting with their environments
   - Multi-Agent systems and agent orchestration framework improvements
   - Customization and continual improvement of agents post deployment
   - Internationalizing agentic systems

7. **Responsible Generative AI**
   - Red teaming (e.g., advanced red teaming approaches, automated red teaming for multi-modal models)
   - Improvement of foundation model RAI performance (e.g., robustness to jailbreaking and membership inference attacks; watermarking approaches; deepfake detection)
   - Responsible agentic AI (e.g., robustness of multi-agent systems, adherence to guardrails)

8. **Applications of Generative AI**
   - Systems that leverage Generative AI for advancing science and technology in areas such as physics, mathematics, chemistry, biology, hardware design, materials science, engineering, economics, healthcare, climate.

3. PROPOSAL GUIDELINES

- Eligibility: Full-time tenure-track, research-track and teaching faculty members at Illinois are eligible to submit proposals as PIs.
  Note: Faculty members that are Amazon Scholars are eligible to submit proposals but must adhere to university conflict of interest policies and procedures. These individuals

- are encouraged to consult the legal teams at their home departments well in advance of proposal submission.
- Submissions should not reference either Amazon or Alexa, nor speculate about how the research might be applied to current or future Amazon products, services, business models or needs. Proposals should focus on science.
- Stage 1 abstract submissions are due **March 26, 2025**. Interested UIUC faculty submit a **1-page maximum overview** (excluding references) of a potential full proposal. The purpose of these abstracts is for Amazon to review and provide feedback on the proposal: would Amazon be interested in collaborating with this researcher, could the proposal include new use cases for the science, and does the project align with industry goals. Feedback will help guide the faculty member towards submitting a more relevant and impactful proposal. Abstracts are not a prerequisite for submitting proposals. A PDF of the 1-page abstract should be submitted by Google Form here: Link. For questions regarding the Call for Proposal process, please contact aice-management@lists.cs.illinois.edu **on or before March 12, at midnight CDT.**
- An AICE abstract feedback session will be held between **March 12-April 18, 2025**. The Amazon Science review team will give feedback on whether a full proposal is encouraged for each abstract submission. It is hoped that this exchange will serve as a matchmaking exercise, enabling the development of well-focused proposals that are aligned with the interests of the PI and Amazon.
- Stage 2 full proposal submissions are due **June 15, 2025**. PIs who did not submit abstracts are still eligible to submit full proposals. The proposal should not exceed three pages, with unlimited references. PIs are encouraged to seek collaborations with research scientists at Amazon to prepare for proposals. Proposals will be evaluated by a collaborative advisory board composed of AICE Leadership Team (excluding board members who submitted proposals) and Amazon scientists for their technical merits and innovations, topic relevance, potential to advance research in focus areas, and broader impact.
  - Full Proposal Format: The proposal format is single-spaced, 11-point font or larger, with no less than 0.5-inch page margins. The proposal should include the following content:
    - Full names and email addresses of all PIs involved
    - Project description (3 pages max), including the focus area of proposal (per Call for Proposal process) title, PI(s), an executive summary, technical description of the project, expected deliverables/outcomes, milestones and what plans exist for open sourcing data or results
    - List all university background IP (unlimited)
    - References (unlimited)
    - Requested budget (1 page max), use format shown in Section 7
    - Biographies of the PIs (up to 3 pages per PI in NSF Format)
  - Selection criteria: Successful projects will be evaluated on the promise and progress in the quality of publications, student mentoring, and potential technology transfer activities.
  - Funding Decisions: Amazon may award projects under this CFP as either Gift-Funded Research or Sponsored Research. If a project is pursued as Sponsored Research, the AICE Advisory Group will discuss this adjustment in

conjunction with the proposer and ensure that applicable indirect costs are covered for awarded projects. Sponsored Research Project recipients will not be asked to reduce their budgets to accommodate indirect costs.

Amazon has discretion to assess submitted proposals according to its own criteria that it deems relevant to the evaluation process (e.g., potential impact, suitability of techniques used to address the problem, and feasibility of completing the project within the one-year timeframe). All award decisions relating to this CFP will be final.

- Project period of performance: September 1, 2025–August 31, 2026.

4. IMPORTANT DATES

- March 12, 2025: Abstract Submission Deadline
- March 12 - April 15, 2025: Abstract feedback sessions with Amazon scientists and UIUC Faculty
- April 13 & April 18, 2025: Center Symposium in Urbana
- June 15, 2025: Full Proposal Submission Due
- Early July 2025: Full Proposal Acceptance Notification
- TBD September 2025 (On Campus AICE Center Event)

5. SUBMISSION AND CONTACT INFORMATION

PDFs of the submissions documents should be uploaded to the University of Illinois Urbana-Champaign Office of the Vice Chancellor for Research & Innovation (OVCRI) Special Programs portal, located HERE. For questions about the proposal submission process, please contact [aice-management@lists.cs.illinois.edu]. For questions about the AICE Center, please contact the center director Prof. Heng Ji [hengji@illinois.edu] or the leadership team: [aice-leadership@lists.cs.illinois.edu].

6. APPLICATION CONTENT

No proposal to this CFP may contain any confidential information and no part may be marked as 'confidential.' Amazon does not accept any legal obligation (whether of confidentiality, compensation, return or otherwise) with respect to any proposals. Amazon may use, edit, modify, copy, reproduce, and distribute all or a portion of the proposal within Amazon's organization for the purpose of managing the USC Center, including for evaluating the contents of submitted proposals and for matching interested Amazon scientists and teams to funded proposals and university research members. Amazon reserves the right to implement competitive, similar, or identical ideas in the future, without restriction or obligation. You understand and acknowledge that Amazon has wide access to technology, designs, and other materials, and may work on and/or develop projects and ideas that may be competitive with, similar to, or identical to your proposal in theme, idea, format or other respects, inclusive. You acknowledge and agree that you will not be entitled to any compensation as a result of Amazon's use of any such similar or identical material that has or may come to Amazon from other

sources.

When preparing your proposal, please focus on research objectives that can be achieved without access to nonpublic Amazon data or data with noncommercial license restrictions. Proposals should be scoped to use publicly available information or data that can be independently collected or generated, as Amazon does not plan to share any proprietary or confidential data for this call.

7. **PRIVACY**

You acknowledge and agree that we may collect, store, share, and otherwise use personally identifiable information provided during this CFP, including but not limited to, name, mailing address, phone number, and email address. All personally identifiable information collected is subject to, and will be used in accordance with, the Amazon Privacy Notice, including for administering the CFP and verifying applicant's identities, addresses, and telephone numbers in the event a proposal is selected for funding. By participating in the CFP, you consent to the transfer of personal data to the United States for purposes of administering the CFP and additional purposes that are consistent with goals relating to the USC Center. The data controller for information collected by us is Amazon.com Services, Inc., 410 Terry Ave North, Seattle, Washington 98109, USA.

8. BUDGET FORMAT

Work with your department business office to complete a budget table in the format shown below. The categories and text in the "basis of estimate" column are provided as examples; please update to reflect actual expenses and project needs.

Per the Collaboration Agreement, no F&A costs are to be assessed on Gift-Funded Research Projects. If, through the review process, the project is deemed to be a Sponsored Research Project, budgets will be renegotiated.

Item	Amount	Basis of Estimate
PI Summer Salary	$XX	2 weeks summer salary, including fringe benefits
GRA Salary Support	$XX	X-months GRA at Y% effort, including fringe
Other Direct Costs	$XX	List items. E.g., hard drives, high-speed cluster access, publication fees, software costs, travel
Total	$XX	