# Google / MIT Call for Proposals 2024

Open to new and renewing projects

**MIT-Google Program for Computing Innovation** is entering its second year, targeting collaborative research in four strategic areas. The MIT Schwarzman College of Computing is requesting proposals for this program that will fund research projects in areas: Computing for Sciences and The Planet, Responsible Computing, Computer-Aided Creativity, and Efficient Computing. See FAQ for more details.

## Workshop Presentation

*PIs who are interested in applying for research funding are encouraged to present at the upcoming workshop held on January 25. Potential Google collaborators/sponsors will be in attendance.

| For a new project | For a renewal |
|---|---|
| • 5-min presentation in one of the strategic areas with project objectives, potential impact, and brief plan.<br>• Intro of intended main PI, any co-PIs, any Google Sponsor (or need for Sponsor) | • 5-min presentation on project description and future plans and objectives (with brief key achievements as background).<br>• Intro of main PI, co-PIs, Google Sponsor |

## Eligibility

| For a new project | For a renewal |
|---|---|
| • The Principal Investigator (PI) cannot be employed at Google in any capacity. | • The Principal Investigator (PI) must have obtained funding through our prior call for proposals (Spring 2023).<br>• The project should already be in progress, with expenditures incurred. |

## Budget

*All projects will be funded via unrestricted gift. Fund fees apply.

| For a new project | For a renewal |
|---|---|
| • Each project has the potential to receive funding of up to $130,000 with the possibility of renewal (we expect most awards to fund 1 student for 12 months).<br>• Project is expected to start June 1, 2024. | • Project funding will be renewed at the same amount as the initial grant.<br>• Utilization of new funding is anticipated to start June 1, 2024. |

## Evaluation Criteria

| For a new project | For a renewal |
|---|---|
| • Scientific merit of the research<br>• Innovation of the research<br>• Impact and societal relevance<br>• Feasibility of the research<br>• Relevance to Google, either through collaboration with Google researchers (strongly encouraged) or relevance to Google more broadly | The new research proposed under a renewal will be evaluated under similar criteria as new projects. Renewals will also be evaluated on key achievements of the existing award. |

## Submission Guidelines

*__RAS__: Proposals do not need to be approved by RAS before submission.

**__Format__: Proposals should be uploaded in one file (file types: Google Doc or PDF) no more than 10MB, 3-page max including budget information and references. Include Names & Emails of PIs and any Google Sponsors, DLC of the PIs, and Research Area that aligns with the project.

| For a new project | For a renewal |
|---|---|
| • Project description that aligns with evaluation criteria for a new project, and budget.<br>• Submit the proposal via Google Form. | • Project description that aligns with evaluation criteria for a renewal.<br>• Submit the proposal via Google Form. |

## Timeline

| Date | Milestone |
|---|---|
| January 25, 2024 at 2-5 PM EDT | Presentation at MIT Workshop for 2024 Call for Proposals |
| March 15, 2024 at 5pm EDT | Proposal submission deadline |
| April 19, 2024 | Project selections |
| May 1-31, 2024 | Funding disbursement |
| Jun 1, 2024 | Project start date |

**Contact Information**

For any questions regarding proposal logistics or questions regarding submission, contact martins1@mit.edu.

**Strategic areas**

## Computing for Science and The Planet

The health of the planet is already a strategic area for MIT and an active area of research within the College. Examples of relevant projects in this area include how to leverage artificial intelligence (AI) for environmental monitoring, forecasting, and climate change mitigation, and how the intersection of computing with other disciplines in science and engineering can spawn new technologies with positive environmental impact, such as the creation of denovo biodegradable materials. In addition, computation and AI catalyze and support research in other areas of science, and synergistic combinations of computation with scientific research is solicited across many fields, including biology, chemistry, and physics.

## Responsible Computing

With a dedicated pillar for ethical and responsible AI and computing, the College infuses good practices of computing into all MIT sciences, humanities, business, and engineering disciplines. A deeper and broader understanding of the impact of ML deployment in domains such as fairness, bias, transparency, equity, policy, responsibility, and accountability are of utmost importance for democratizing and developing safer AI technologies. Ethical and responsible computing goes beyond AI, and includes questions of privacy, security and dependability as well as questions of accessibility.

## Computer-Aided Creativity

We are moving into a world where computing is no longer just a tool for automating mundane tasks, but a partner in a variety of creative endeavors, from scientific discovery to art and engineering. But a number of opportunities remain before we can fully realize that potential. For example, in the context of scientific discovery, how can we move from the current crop of systems, which can make remarkably accurate predictions after learning on massive amounts of data to systems that can formulate new hypotheses, suggest experiments, and even pose new questions worthy of exploration? How do we foster productive partnerships between machines and human creators? How can machines perceive images and sounds the way people do, and can we leverage this to produce images and sounds that will elicit specific human reactions? At what point does a machine generated artifact become art? What new technical capabilities are required before we can trust machines as full creative partners?

## Efficient Computing

A core topic of computing is efficiency. Computational efficiency is key both in enabling new applications of computing as well as in allowing existing applications to execute with fewer

resources or in more constrained devices. Supporting more efficient computing requires advances at every level of the computing stack, from novel computer architectures, to more efficient systems software, to improved programming technology, to novel algorithms for specific applications. Advances that span multiple of these levels can have especially big performance impacts, as illustrated by the success of domain specific compilers capable of exploring algorithmic choices, or the success of specialized hardware for deep learning. Traditionally, there has been a tradeoff between performance on one hand and developer effort and expertise required on the other. Techniques that achieve performance without the need of extensive human intervention and without the risk of introducing bugs can be especially desirable.