Engineering Research Transforming Our World

Research Funding Opportunities

**Organization:** NSF

**Solicitation Name:** Opportunities for Promoting Understanding through Synthesis (OPUS) NSF 20-564

**Proposal Deadline:** August 3, 2020

**Summary:** Synthesis is an essential, yet time-consuming, component of scientific inquiry. Academic careers often do not allow researchers to dedicate a substantial amount of time to reflect on and synthesize their research. However, without such syntheses, the full importance of individual works is often lost, preventing other researchers, now and into the future, from accessing the added value provided by synthesis. Additionally, data transparency and interoperability are essential to the advancement of the scientific enterprise. All proposals should aim to expand understanding and develop new insights that could not be achieved without the synthesis.

OPUS provides an opportunity for an investigator or a group of investigators at any career stage to review and synthesize a significant body of their prior research or to harmonize distinct data sets that they have produced to enable new understanding. This program targets investigators who have, over time, produced significant work and data from a series of research projects, and who are planning to integrate that work in a single synthesis. Proposals requesting support mainly for the production of new data are not appropriate. Likewise, efforts simply to summarize previous results will not be supported. We expect OPUS awards to generate novel understanding, new questions, or emergent insights that are more than the sum of their individual parts.

OPUS projects generally result in one or more products resulting from synthetic activities. Products from past awards have been diverse and include, but are not limited to, any combination of scientific papers, monographs, software, websites, books, films, synthesized datasets, or databases.


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**Organization:** NSF

**Solicitation Name:** NSF Program on Fairness in Artificial Intelligence in Collaboration with Amazon 20-566

**Application Deadline:** July 13, 2020

**Summary:** NSF has long supported transformative research in artificial intelligence (AI) and machine learning (ML). The resulting innovations offer new levels of economic opportunity and growth, safety and security, and health and wellness, intended to be shared across all segments of society. Broad acceptance and adoption of large-scale deployments of AI systems rely critically on their trustworthiness which, in turn, depends on the ability to assess and demonstrate the fairness (including broad accessibility and utility), transparency, explainability, and accountability of such systems. For example, the behavior of algorithms for face recognition, speech, and language, especially when
integrated into decision support systems applied across different segments of society, would benefit from new foundational research in fairness of AI systems.

NSF and Amazon are partnering to jointly support computational research focused on fairness in AI, with the goal of contributing to trustworthy AI systems that are readily accepted and deployed to tackle grand challenges facing society. Specific topics of interest include, but are not limited to transparency, explainability, accountability, potential adverse biases and effects, mitigation strategies, algorithmic advances, fairness objectives, validation of fairness, and advances in broad accessibility and utility. Funded projects will enable broadened acceptance of AI systems, helping the U.S. further capitalize on the potential of AI technologies. Although Amazon provides partial funding for this program, it will not play a role in the selection of proposals for award.

Advancing AI is a highly interdisciplinary endeavor drawing on fields such as computer science, information science, engineering, statistics, mathematics, cognitive science, and psychology. As such, NSF and Amazon expect these varied perspectives to be critical for the study of fairness in AI. NSF's ability to bring together multiple scientific disciplines uniquely positions the agency in this collaboration, while building AI that is fair and unbiased is an important aspect of Amazon's AI initiatives. This program supports the conduct of fundamental computer science research into theories, techniques, and methodologies that go well beyond today's capabilities and are motivated by challenges and requirements in real systems. Link: https://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf20566

Organization: NASA Solicitation Name: ROSES 2020: Living with a Star Science NNH20ZDA001N-LWS Proposal Deadline: May 27, 2021 Summary: The Living With a Star (LWS) Program emphasizes the science necessary to understand those aspects of the Sun and Earth's space environment that affect life and society. The ultimate goal of the LWS Program is to provide a scientific understanding of the system that leads to predictive capability of the space environment conditions at Earth, other planetary systems, and in the interplanetary medium. Every year the LWS Program solicits Focused Science Topics (FSTs) that address some part of this goal. This year's FSTs are described in Sections 1.2 and 2-5 below. This goal poses two great challenges for the LWS program. First, the program seeks to address large-scale problems that cross discipline and technique boundaries (e.g., data analysis, theory, modeling, etc.); and second, the program will identify how this new understanding has a direct impact on life and society. Over time, the Targeted Investigations have provided advances in scientific understanding that address these challenges. Link: https://nspires.nasaprs.com/external/solicitations/summary.do?solId=%7bBCEE336B-D550-CCBA-1C8C-7A866DB06F45%7d&path=&method=init