IDIA March Newsletter

ANNOUNCEMENT

2021 IDIA Seed Funding Opportunity

We are excited to announce our first cycle of seed funding which is aligned with our mission to connect members of the Mason community internally and with businesses, organizations, and agencies so that, together, we can collaborate on disruptive digital innovation (DDI). These innovations should help organizations reduce costs, improve services, or bring a paradigm shift. This call invites researchers in the fields such as IoT, wearable technology, cybersecurity, data modeling, AI/ML, game design, and others to team up with scientific and/or non-scientific disciplines and reimagine how underlying core and emerging technologies can accelerate an organization. We will select four (4) compelling interdisciplinary proposals for funding at up to $40,000 for 18 months of performance. Check the website for more details.

FUNDING OPPORTUNITIES

The Role of Cybersecurity in the Spread of Disinformation and Misinformation

The objectives of the program are: to provide seed funding for multi-disciplinary teams to address a research question that requires the combination of technical expertise in cybersecurity and artificial intelligence with expertise in the social sciences, humanities, and/or law; to generate research findings that advance the state of the art on the topic; and to increase the competitiveness of the teams for extramural funding. Virginia's Commonwealth Cyber Initiative (CCI) aims to create a Commonwealth-wide ecosystem of innovation excellence at the intersection of cybersecurity, autonomous systems, and data. CCI's mission includes research, innovation, and workforce development. Many important problems in CCI's focus area require expertise in the relevant technologies combined with expertise in social/economic/policy/legal/ethical domains. Examples include election security, privacy and ethical concerns with the introduction of artificial intelligence, cyber offensive activities, misinformation, disinformation, data-driven public policy, etc. With CCI, we have a unique opportunity to build multi-disciplinary teams of researchers from across Virginia to collaborate on some of these problems.Researchers and faculty members at public institutions of higher education in CCI who are deemed eligible by their home institution to serve as a Principal Investigator (PI) on an external grant are eligible to apply.

Deadline: March 15, 2021

National Science Foundation – Dear Colleague Letter: Pilot Projects to Integrate Existing Data and Data-Focused Cyberinfrastructure to Enable Community-level Discovery Pathways

Through this Dear Colleague Letter (DCL), NSF encourages proposals to the Cyberinfrastructure for Emerging Science and Engineering Research (CESER) program within the Office of Advanced Cyberinfrastructure for pilot projects that bring together researchers and CI experts to develop the means of combining existing community data resources and shared data-focused CI into new integrative and highly performing data-intensive discovery workflows that empower new scientific pathways. Aims of such pilot projects can include, but are not limited to:

- improving the end-to-end process of accessing, integrating and transforming research and education data to knowledge and discovery for one or more communities;
- creating new workflows and new usage modes to address multi-disciplinary and cross-domain scientific objectives;
- addressing emerging community-scale scientific data challenges such as real-time, streaming and on-demand data access; data discovery through knowledge networks and intelligent data delivery; enabling access to data with privacy concerns; and data fusion, integration and interoperability;
- enhancing the performance and robustness of community-scale data integration and discovery workflows such as through automated curation, end-to-end performance monitoring, provenance tracking, and means of assuring data trustworthiness; and
- federating learner data to empower innovative assessment tools for large-scale modeling of learning gains.

Deadline: March 23, 2021

Transportation Research Board – NCHRP Request for Proposal - Implementing and Leveraging Machine Learning at State Departments of Transportation

The Transportation Research Board's National Cooperative Highway Research Program NCHRP) has issued a request for proposals (RFP) to advance the understanding and use of machine learning (ML) tools and techniques at state DOTs and other transportation agencies. NCHRP wishes to award the contract for Project 23-16 for a fixed price of $350,000; this amount will not be subject to any adjustment by reason of the contractor's cost experience in the performance of the contract. In addition to providing a detailed budget, the proposer should provide a proposed schedule of project milestones, deliverables and progress payments that is tied to the detailed budget and schedule.

The objective of this research is to advance the understanding and use of machine learning (ML) tools and techniques at state DOTs and other transportation agencies. The proposed research will aid state DOTs in transitioning to a more advanced state of practice by:

- Demonstrating the feasibility and practical value of ML in the context of transportation systems, to better understand its application opportunities, implementation processes, and data requirements.
- Identifying skills, capabilities, resource, and organizational capacities necessary to leverage ML.
- Identifying and learning from existing applications at transportation agencies.
- Providing insight into costs, benefits, and performance and limitations considerations.
- Identifying and sharing ML frameworks, tools, guidance, and ML code for common use cases.

Deadline: March 25, 2021

Directorate for Computer and Information Sciences and Engineering/NSF – Center for Advancement and Synthesis of Open Environmental Data and Sciences

NSF seeks to establish a Center fueled by open and freely available biological and other environmental data to catalyze novel scientific questions in environmental biology through the use of data-intensive approaches, team science and research networks, and training in the accession, management, analysis, visualization, and synthesis of large data sets. The Center will provide vision for speeding discovery through the increased use of large, publicly accessible datasets to address biological research questions through collaborations with scientists in other related disciplines. The goal of this activity is to establish a center to support discovery through integration, visualization, analysis, and synthesis of open biological and environmental data and sciences to rapidly advance understanding of the Earth's biota in the face of environmental change. The Center will become an exemplar of open, inclusive, and team science and will provide a vision for speeding discovery through its application to research questions that span spatiotemporal scales in biology and related disciplines. The Center will support the generation of novel research questions and approaches and serve as an incubator for team-based, data-driven research as well as tool and application development. Integration of robust approaches to data handling, informatics, software and data cyberinfrastructure development, and access to vast computation resources will accelerate discovery as well as the convergence of environmental science disciplines and sub-disciplines on standards and best practices that provide the foundation for open science. It will spur collaborative interactions that integrate and synthesize data and activities among the facilities and research initiatives that produce open biological and other environmental data, as well as among cyberinfrastructure efforts that support the discovery, analysis, and use of applicable open data to find solutions to compelling research questions. Building on prior and existing NSF synthesis centers (see further, below), this Center will provide visionary leadership for open science in an increasingly data-rich, collaborative and virtually connected research environment.

Deadline: April 01, 2021

Food and Drug Administration/DHHS – Advancing Post-Market Surveillance of High-Risk Facilities and Products through Signal Detection, Data analysis, and the Review of the State of Quality (U01) Clinical Trial Optional

FDA regulation of pharmaceutical drug products and facilities helps to ensure a continuous supply of high-quality drugs in the United States. The FDA deals with a high volume of structured and unstructured data related to regulated facilities and products and has limited resources to perform manual reviews. There is a need to apply modern statistical approaches, such as data mining, machine learning and predictive analytics to analyze bigger, more complex data and deliver faster, more accurate results. While the application of data mining and predictive analytics is critical to addressing the nation's health care needs, FDA recognizes that the application of these techniques could present challenges to both industry and FDA.

The purpose of this program is to advance comprehensive quality surveillance and provide the state of quality for all regulated sites and products. Using predictive analytics, data mining, and other quantitative tools, this research program will expand the knowledge base related to site and product quality, especially for high-risk foreign facilities and their products.

Data mining is the process of finding anomalies, patterns and correlations within large data sets to predict outcomes. Using a broad range of techniques, one can use this information to cut costs, improve business partner relationships and reduce risks related to public health. Regulatory science research projects that could be considered include those that focus on the application of data mining techniques that enhance the Agency's ability to identify signals related to product quality and potential supply chain disruptions, as well as prioritize resources related to stakeholder engagement. Specific topics could relate to the following:

- Appropriate techniques for scraping and analyzing publicly available unstructured data
- Predictive modeling techniques for scoring products and facilities for potential engagement.
- Descriptive modeling techniques for anomaly detection, grouping similar high-risk facilities and products, detecting relationships between quality-related events.

Deadline: April 05, 2021

Directorate for Computer and Information Sciences and Engineering/NSF – Designing Accountable Software Systems (DASS)

The Designing Accountable Software Systems (DASS) program solicits foundational research aimed towards a deeper understanding and formalization of the bi-directional relationship between software systems and the complex social and legal contexts within which software systems must be designed and operate. The DASS program aims to bring researchers in computer and information science and engineering together with researchers in law and social, behavioral, and economic sciences to jointly develop rigorous and reproducible methodologies for understanding the drivers of social goals for software and for designing, implementing, and validating accountable software systems. DASS will support well-conceived collaborations between these two groups of researchers. The first group consists of researchers in software design, which, for the purposes of this solicitation, is broadly defined as formal methods, programming languages, software engineering, requirements engineering and human-centered computing. The second group consists of researchers in law and the social, behavioral, and economic sciences, who study social systems and networks, culture, social norms and beliefs, rules, canons, precedents, legal code, and routine procedures that govern the conduct of people, organizations, and countries. Proposals for this program must create general advances in both (1) understanding the social, behavioral, economic and/or legal context of software design; and (2) improving the methodology for designing accountable software beyond specific use cases.

Deadline: April 19, 2021

Facebook Research– Sample-efficient Sequential Bayesian Decision Making

Bayesian optimization is a methodology for sample-efficient learning and optimization. By leveraging a probabilistic model, it allows practitioners and researchers to explore large design spaces using only a small number of experimental trials. At Facebook, we utilize Bayesian optimization to improve product experiences, infrastructure, and aid in cutting-edge research.

To enable and support this work, we developed and open-sourced BoTorch, a modular framework for Bayesian optimization research, and Ax, a turn-key framework for those who want to apply Bayesian optimization to their own problems. Our goal with BoTorch is to accelerate the pace of research in the area of Bayesian optimization and unlock new potential applications.

With this RFP, we hope to deepen our ties to the academic research community by seeking out innovative ideas and applications of Bayesian optimization that further advance the field. We are committed to open source and will help awardees make the products of this RFP available to the public as part of BoTorch.

Facebook is pleased to invite faculty to respond to this call for research proposals. In order to support academic work that addresses our challenges and opportunities while producing generalizable knowledge, Facebook is pleased to offer two research awards of $50,000 and $25,000, respectively. Awards will be made as unrestricted gifts to the principal investigator's host university. Awardees will be invited to present and engage in discussion with researchers at Facebook. For full details and to apply, please visit the Sample-Efficient Sequential Bayesian Decision Making RFP page.

Deadline: April 21, 2021

National Aeronautics & Space Administration– ROSES 2021: Heliophysics Data

Environment Enhancements

The Heliophysics Data Environment Enhancements (HDEE) program encompasses the data environment needs throughout Heliophysics, including Solar, Heliospheric, Magnetosphere, and Ionosphere/Thermosphere/Mesosphere (ITM). As part of a mission-oriented agency, the Heliophysics Python Project (HPP) preferentially seeks to fund those efforts that directly impact NASA missions or interpretation of their data. Therefore, investigations that are judged to be more appropriate for submission to other Federal agencies (because, for example, the datasets involved do not belong to NASA), even if of considerable merit, will not be given high priority for funding through this program element, although they may b considered if they are generally relevant to NASA Heliophysics (HP) research. The specific context of this call is provided by the NASA Heliophysics Science Data Management Policy

This call solicits proposals (Value Added Enhancements) to advance the goal of a robust, vital, and cohesive Python environment for Heliophysics. Types of projects to be proposed under this call may include but are not limited to:

- Data readers/writers for standard formats (FITS, CDF, NetCDF)
- Analysis code, e.g., SPEDAS or SolarSoft components; common research methods.
- Visualization: improvements on common packages, focused on our needs including graphics from line graphs to 2D and 3D representations of data and simulations.
- Large data and large simulation use; parallel implementations; data mining
- Specific science tasks that require either wrappers of, e.g., SciPy and NumPy routines or novel code.

Deadline: May 06, 2021

National Library of Medicine/NIH/DHHS– NLM Research Grants in Biomedical Informatics and Data Science (R01 Clinical Trial Optional)

National Library of Medicine (NLM) offers support for innovative research and development in biomedical informatics and data science. The scope of NLM's interest in these research domains is broad, with emphasis on new methods and approaches to foster data-driven discovery in the biomedical and clinical health sciences as well as domain-independent, reusable approaches to discovery, curation, analysis, organization and management of health-related digital objects. Biomedical informatics and data science draw upon many fields, including mathematics, statistics, information science, computer science and engineering, and social/behavioral sciences. Application domains include health care delivery, basic biomedical research, clinical and translational research, precision medicine, public health, biosurveillance, health information management in disasters, and similar areas. NLM defines biomedical informatics as the science of optimal representation, organization, management, integration and presentation of information relevant to human health and biology. NIH defines data science as the interdisciplinary field of inquiry in which quantitative and analytical approaches, processes, and systems are developed and used to extract knowledge and insights from increasingly large and/or complex sets of data. This FOA will use the NIH Research Project (R01) award mechanism.

Informatics and data science projects of interest to NLM involve the application of computer, data and information science concepts to research problems in a biomedical domain. NLM supports research projects focused on biomedical (rather than informatics) research questions only when they employ novel or advanced informatics and data science techniques applied to information and data produced by others.

Deadline: May 07, 2021

National Eye Institute/NIH/DHHS– NEI Research Grant for Vision-Related Secondary Data Analysis (R21 Clinical Trial Not Allowed)

This FOA encourages applications from institutions/organizations that propose to conduct vision-related secondary data analyses utilizing existing database resources. Applications may be related to, but must be distinct from, the specific aims of the original data collection. The NEI supports an extensive portfolio of clinical trials and large-scale epidemiologic research projects wherein numerous data collection activities are required to meet each project's specific aims. The resultant wealth of data generated by these studies often provides unique, cost-effective opportunities to investigate additional research questions or develop new analytical approaches secondary to a project's originally intended purpose. Data are not limited to those collected under NEI support, but such data are of the highest programmatic interest. The purpose of this FOA is for secondary data analysis using existing data sets from vision-related clinical trials, epidemiologic, and other clinical research studies. This FOA may be used to develop new statistical methodologies or test hypotheses using existing data, but this FOA must not be used to support the collection of new data.

Deadline: May 07, 2021

National Science Foundation– Stimulating Collaborative Advances Leveraging Expertise in the Mathematical and Scientific Foundations of Deep Learning (SCALE MoDL)

Deep learning has met with impressive empirical success that has fueled fundamental scientific discoveries and transformed numerous application domains of artificial intelligence. Our incomplete theoretical understanding of the field, however, impedes accessibility to deep learning technology by a wider range of participants. Confronting our incomplete understanding of the mechanisms underlying the success of deep learning should serve to overcome its limitations and expand its applicability. The National Science Foundation Directorates for Mathematical and Physical Sciences (MPS), Computer and Information Science and Engineering (CISE), Engineering (ENG), and Social, Behavioral and Economic Sciences (SBE) will jointly sponsor new research collaborations consisting of mathematicians, statisticians, electrical engineers, and computer scientists. Research activities should be focused on explicit topics involving some of the most challenging theoretical questions in the general area of Mathematical and Scientific Foundations of Deep Learning. Each collaboration should conduct training through research involvement of recent doctoral degree recipients, graduate students, and/or undergraduate students from across this multi-disciplinary spectrum. This program complements NSF's National Artificial Intelligence Research Institutes and Harnessing the Data Revolution programs by supporting collaborative research focused on the mathematical and scientific foundations of Deep Learning through a different modality and at a different scale.

Deadline: May 12, 2021

UPCOMING EVENTS

Fairfax Innovation Challenge

In partnership with Fairfax County Department of Economic Initiatives, Smart City Works will hold a regionally focused Pitch and Pilot to find the best safety solutions to support Fairfax County's goals, including increasing bike and pedestrian safety, promoting active living, and sustainability.

Two Approaches to Using Health Information Technology to Address Health Disparities

Presenter: Rachel Gold, PhD Senior Investigator, Kaiser Permanente Center for Health Research & Lead Research Scientist, OCHIN

March 18, 2021 | 12 p.m. - 1 p.m.

TiE DC University PitchFest

TiE DC is pleased to announce the TiE DC University PitchFest for college/university students across Washington DC, Maryland & Virginia (DC, MD and VA). This is a FREE competition to students. Three teams will win cash prizes for participating and winning: 1st Prize $5,000, 2nd Prize $3,000, and 3rd Prize $2,000.

Deadline: March 15, 2021

WiCyS Cyber Talent Emergency Fund

The Last Mile Education Fund and Women in CyberSecurity (WiCyS) offers to provide agile financial support for women students pursuing cybersecurity careers but experiencing urgent, short-term financial barriers to success.

See the complete announcement for eligibility and application details.

Health Trackers & Tracers: Big Data and the Challenge of User Privacy in the Age of Covid-19

When: Thursday, March 18, 2021 Noon - 1:30 p.m.

Zoom Webinar: Register

STARS COMPUTINGCORPS.ORG

STARS Computing Corps
IGNITE Program

NSF

Looking for ways to address needs for
diversity, equity, and inclusion
in your computing department?

Register now to attend a STARS IGNITE faculty training workshop!
March 13th (9:00am - 12:00pm) at SIGCSE 2021

Attendees are eligible to receive cohort scholarship awards
that support up to 5 students to attend a diversity-focused conference

FOR MORE INFO:
www.starscomputingcorps.org | info@starscomputingcorps.org

STARS IGNITE is supported by NSF grant #2023391

STUDENT OPPORTUNITIES

Internships

Digital Marketing Intern at Virginia529

Digital Communications Internship at The Climate Reality Project

Cybersecurity Futures Program at MITRE

Jobs

Associate Digital Producer at CDR Fundraising Group

Digital Technology Specialist at Cranial Technologies Inc

New NSF Fellowship Opportunity for CISE Bachelor's Degree Holders to Return for PhD

The National Science Foundation (NSF) Computer and Information Science and Engineering (CISE) Directorate has announced the new CSGrad4US Graduate Fellowship program that aims to increase the number of diverse, domestic graduate students pursuing research and innovation careers in the CISE fields. The new fellowship, which will provide 3-year fellowship opportunities for new Ph.D. students in the computing disciplines, was released in response to the increased demand for people with a Ph.D. in computer science (CS), the continued decrease of domestic students pursuing research and completing a Ph.D., and the overall small number of bachelor's degree recipients in CS pursuing graduate school. In particular, the percentage of domestic Ph.D. students in CS graduating has decreased from 69% in 1985 to 37% in 2018 .

Deadline: April 13, 2021

Center for Cyber Safety and Education: Undergarduate Scholarships

Aspiring information security professionals have the opportunity to ease some of their educational financial burden with the (ISC)² Information Security Undergraduate Scholarship, offering undergraduate students studying information security up to US$5,000 per recipient.

Deadline: March 08, 2021

Lockheed Martin's STEM Scholarship program awards hundreds of renewable $10,000 scholarships to students seeking 4-year STEM degrees in engineering, computer science and physics!

We're looking for passionate students who demonstrate financial need and come from an underrepresented group or underserved community.

Eligible students must be U.S. citizens, seniors in high school or undergraduate college students (freshmen or sophomores).

Application deadline
April 1, 2021

To learn more and apply, visit
lockheedmartin.com/scholarship

The ACM Capital Region Celebration of Women in Computing (CAPWIC)
CAPWIC will have:

- Distinguished Speakers
- Panels from Leaders in Industry and Academic
- Workshops
- Student Presentations and Flash Talks
- Student Poster Contest
- Career Fair
- Registration
- Call for Participation
- CAPWIC Scholarships Application for Attendance
- Sponsorship Opportunities

Held on: March 26 - 27 2021

Please mark your calendars, and please forward this announcement and encourage student participation.

FACULTY FELLOWSHIPS

New Frontiers Initiative Graduate Fellowships

The New Frontiers Initiative Graduate Fellowships provide PhD students with a year of full-time research support, including a $38,000 stipend, up to $12,000 in tuition allowance, and an allocation up to 100,000 node-hours on the powerful Blue Waters petascale computing system.

Candidates must be enrolled in a full-time PhD program at an accredited U.S. educational institution. Applicants are required to be in the second or later year of their graduate program with a well-developed,research proposal. Applicants must be U.S. citizens or permanent residents by the time of the application deadline.

Preference will be given to applicants engaged in geospatial and geointelligence research projects at scale that combine disciplines such as computer science, applied mathematics, and computational science applications.

FUNDING ANNOUNCEMENTS, AWARDS AND ACCOMPLISHMENTS

NIJ National Center on Forensics

PI & CoPIs: DiZinno, Joseph A; Falsetti, Anthony B; College of Science

Funding source: US Department of Justice

Accounting for the health benefits of air pollution regulations in China, 2008-2020

PI & CoPIs: Henneman, Lucas RF; Volgenau School of Engineering

Funding source: Boston University

GeoWeaver: Building An Open-Source Platform for Enabling Ad Hoc Management, Open Sharing, and Robust Reuse of NASA Earth Data-driven Hybrid AI Workflows

PI & CoPIs: Sun, Ziheng; Tong, Daniel Quansong; College of Science

Funding source: NASA-Goddard Space Flight Center

FACT: Machine-learning-based in-season crop mapping and associated cloudbased bigdata cyberinfrastructure to support USDA NASS decision making

PI & CoPIs: Di, Liping ; Yu, Eugene Genong; Guo, Liying; College of Science

Funding source: US Department of Agriculture (USDA)

OAC Core: SMALL: DeepJIMU: Model-Parallelism Infrastructure for Large-scale Deep Learning

PI & CoPIs: Cheng, Yue; Volgenau School of Engineering

Funding source: National Science Foundation (NSF)

Hosting and Support for Democracy in the 19th Century Black Press of Ohio by Jewon Woo FEL-273870-21

PI & CoPIs: Kelly, Theodore Mills; College of Humanities & Social Sciences

Funding source: National Endowment for the Humanities

Differential Privacy and Secure Computation

PI & CoPIs: Gordon, Samuel Dov; Volgenau School of Engineering

Funding source: Tel Aviv University

Marine Corps Smart Warehouse Prototype(s) at Marine Corps Logistic Base Albany, GA.

PI & CoPIs: Zeng, Kai; Volgenau School of Engineering

Funding source: Virginia Tech Applied Research Corp

USDA/NASS Online Geospatial Applications CropScape and VegScape Systems Maintaining, Hosting and Enhancement of NASS Operation

PI & CoPIs: Di, Liping; College of Science

Funding source: US Department of Agriculture (USDA)

A Toolkit for Secret Security Patch Identification and Fixes

PI & CoPIs: Sun, Kun; Jajodia, Sushil; College of Science

Funding source: US Department of the Army

IN THE NEWS

Mason awarded grant to further diversify D.C. region's tech ecosystem, VSE News, March 1, 2021

New research on artificial microswimmers uncovers a possible solution for delivering targeted cancer treatments, VSE News, February 26, 2021

Mason scientists to develop GeoWeaver platform, COS News, Feb 24, 2021

Computer science expert using natural language processing to improve equality in language technologies, VSE News, February 17, 2021

Weigel & collaborators developing python tools to help scientists view heliophysics data, COS News, Feb 16, 2021

First-ever mason satellite begins its mission, VSE News, February 10, 2021

Game theory, simulations and the search for life on other planets, COS News, Feb 9, 2021

Mason develops computational tools to optimize ship design and train naval srchitects, COS News, Feb 4, 2021

FACULTY PROFILE

The IDIA faculty directory is a tool to find others with complementary expertise and a search tool for external and internal audiences to seek you! If you have not yet provided information for your profile, please do so here.

If you have submitted your information, we are reviewing and preparing it for the website. You will hear from us soon.

Connect with us

Manage your preferences | **Opt out** using **TrueRemove**™
Got this as a forward? **Sign up** to receive our future emails.
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