IDIA APRIL NEWSLETTER

ANNOUNCEMENTS

IDIA Seed Funding Opportunity

Still looking for team members or need to bounce your idea. Attend the brainstorming session on Thursday, April 22, 2021, from 10:00 am to 12:00 pm. Registration required

Submission Due: May 14, 2021

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

National Institutes of Health/DHHS – Development of Wearable Smart Devices for

Continuous Monitoring of Circulating Nutrients, Metabolites and Hormones (R21/R33 Clinical Trial Required)

The purpose of this Funding Opportunity Announcement is to develop tools and devices that can continuously monitor a broader range of nutrients, metabolites and/or metabolic signals for advancing precision nutrition, microbiome, and circadian metabolism research.

Recent advances in precision nutrition and circadian metabolism have come from studies utilizing continuous glucose monitors. However, diet leads to metabolic excursion of thousands of nutrients and metabolites, some linked to gut microbiota metabolism. Precision nutrition studies would benefit significantly from tools that can be used to monitor the metabolic excursions of other nutrients and metabolites in response to diet or other factors. Such data could help identify quantifiable links between the consumption of specific nutrients or food constituents and patho-physiological processes and the factors that impact health and disease susceptibility along with the factors leading to inter-individual variability in those links.

Notes on Priorities

- Applicants are strongly encouraged to consult the Program Contact listed below to discuss the alignment of their proposed work with the objectives of this FOA.
- Prior to funding an application, Program Staff will negotiate with the applicant to establish the realistic milestones as appropriate for the project. These will be incorporated into the terms and conditions of the award and will be the basis for judging the success of the R21 work.
- Milestones should be specific, quantifiable, and logistically and scientifically justified; they should not be simply a restatement of the specific aims.
- Prior to the end of the R21 phase, awardees will submit a package that requests transition to the R33 phase. This package will include a progress report that describes progress towards each of the initial milestones, along with a detailed description of the challenges encountered during the tool development and measures taken to mitigate the challenge. A clear description on how research during the R33 phase will be impacted by attainment of the R21 milestones is also needed. These materials will be reviewed internally by the Program staff and then, if selected, will be transitioned to an R33 award without the need to submit a new grant application. Decisions on transitioning to the R33 phase will be based on the original R21/R33 peer review recommendations, successful completion of the originally described milestones, program priorities, and availability of funds. Transition to the R33 phase is not guaranteed for all grants awarded under this FOA. If R21 awardees are not ready to submit an R33 transition package prior to the end of the R21 award, a no-cost extension for up to one year may be requested, during which time awardees may submit an R33 transition package. This one-year no cost extension period will not count against the 5-year limit for the entire R21/R33 award.

Deadline: June 08, 2021

National Institutes of Health/DHHS – Research Experience in Genomic Research for Data Scientists (R25)

The NIH Research Education Program (R25) supports research educational activities that complement other formal training programs in the mission areas of the NIH Institutes and Centers. The overarching goals of the NIH R25 program are to: (1) complement and/or enhance the training of a workforce to meet the nation's biomedical, behavioral and clinical research needs; (2) encourage individuals from diverse backgrounds, including those from groups underrepresented in the biomedical and behavioral sciences, to pursue further studies or careers in research; (3) help recruit individuals with specific specialty or disciplinary backgrounds to research careers in biomedical, behavioral and clinical sciences; and (4) foster a better understanding of biomedical, behavioral and clinical research and its implications.

The over-arching goal of this NHGRI R25 program is to support educational activities that encourage individuals from diverse backgrounds, including those from groups underrepresented in the biomedical and behavioral sciences, to pursue further studies or careers in research. To accomplish the stated over-arching goal, this FOA will support creative educational activities with a primary focus on:

This FOA is explicitly intended to support the entry of master's degree students in data science into the genomics workforce. Undergraduate or doctoral students will not be supported under this FOA. The following groups explicitly cannot be supported under this announcement:

- Data scientists who have completed an undergraduate degree but are not enrolled in a data science master's degree.
- Data scientists currently with extensive genomics research experience.
- Master's degree students currently enrolled in genomics programs who are interested in gaining exposure to data science.

Deadline: May 25, 2021

Department of State – One Planet: Environment, Health, and Science

The U.S. Embassy Moscow's Public Affairs Section (PAS) is announcing "One Planet: Environment, Health, and Science" grant, which supports the promotion of environmental, health, and scientific issues in Russia of strategic importance to U.S. and global priorities. Funding for this program is now available through the PAS grants office. This call for proposals outlines the funding priorities, strategic themes, and the procedure for submitting funding requests. Applicants may apply for funding for any amount up to $200,000.

PAS Moscow invites proposals for projects that promote innovation, advancement, and collaboration between Russia and the United States in the areas of community and regional health, science, technology, the environment, and energy. The program promotes a broader understanding of American and Russian shared health, scientific, environmental, and technological goals to maximize the benefits to both societies and protect our planet. Also, of interest are university-to-university partnerships for Russian and American students to approach and solve environmental, health, and science problems of mutual interest, project based learning, and long-term student-to-student interaction. Competitive proposals should include a connection with American expert(s), organization(s), or institution(s) that will promote increased cooperation between the people of the United States and Russia even after the program has ended. Proposals that promote an understanding of American higher education in the fields of the environment, science, health, and technology could be considered under this category.

Deadline: June 01, 2021

National Science Foundation – Understanding the Rules of Life: Emergent Networks (URoL:EN)

The Understanding the Rules of Life: Predicting Phenotype "Big Idea" is based on developing a predictive understanding of how key properties of living systems emerge from interactions of factors such as genomes, phenotypes, and evolving environments. This activity has launched a series of new research programs designed to elucidate "minimal rules" (building a synthetic cell), "rules of complexity" (epigenetics), and "rules of interaction" (microbiome). This Understanding the Rules of Life: Emergent Networks (URoL:EN) solicitation adds to those previous foundational activities to now understand "rules of emergence" for networks of living systems and their environments. Emergent networks describe the interactions among organismal, environmental, social, and human-engineered systems that are complex and often unexpected given the behaviors of these systems when observed in isolation. The behavior of emergent networks of living systems depend on, but are not wholly predicted by, chemical and physical principles and unit-level biological properties (molecule/cell/organism/population), as well as communication and information flows among nodes in the network. Networks of living systems are reciprocally coupled with natural, built, and social environments in ways that are complex and difficult to predict. The often-unanticipated outcomes of these interactions can be both wide-ranging and enormously impactful. Prediction is further hampered by accelerating perturbations within evolving environments and the associated increase in the frequency of previously rare or extreme events. Determining the emergent properties of these networks, which arise from complex and nonlinear interactions among the different systems that in isolation do not exhibit such properties, is a critical and unsolved problem. One of many examples of this could include the emerging network of interactions across scales that arose from the arrival of the nonnative pathogen, Cryphonectria parasitica, or Chestnut blight, introduced with nursery stock. This pathogen effectively eliminated a dominant overstory tree species, American chestnut (Castanea dentata), across North America and had concomitant impacts on and feedbacks between biotic, abiotic, and social networks. For example, the economic impacts of this pathogen ranged from local agricultural and social impacts to global scale impacts on the timber industry. Successful projects of the URoL:EN program are expected to use convergent approaches that explore emergent network properties of living systems across various levels of organizational scale and, ultimately, contribute to understanding the rules of life through new theories and reliable predictions about the impact of specific environmental changes on behaviors of complex living systems, or engineerable interventions and technologies based on a rule of life to address associated outcomes for societal benefit. The convergent scope of URoL:EN projects also provides unique STEM education and outreach possibilities to train the next generation of scientists in a diversity of approaches and to engage society more generally. Hence, the URoL:EN program encourages research projects that integrate training and outreach activities in their research plan, provide convergent training opportunities for researchers and students, develop novel teaching modules, and broaden participation of under-represented groups in science. The URoL:EN Program will support projects with a total budget of up to $3,000,000 and an award duration of up to 5 years.

Deadline: May 10, 2021

Directorate for Engineering/NSF – Addressing Systems Challenges through Engineering Teams (ASCENT)

The Electrical, Communications and Cyber Systems (ECCS) Division supports enabling and transformative research that fuels progress in engineering applications with high societal impacts. ECCS programs encompass novel electronic, photonic, and magnetic devices; communication systems, novel integrated circuits, antennas, sensors; machine learning, control, and networks, to name a few. The fundamental research supported by ECCS impacts a wide range of applications such as communications, energy and power, healthcare, environment, transportation, manufacturing, and other areas. ECCS strongly emphasizes the integration of education into its research programs to support the preparation of a diverse and professionally skilled workforce. ECCS also strengthens its programs through links to other areas of engineering, science, industry, government, and international collaborations. The Addressing Systems Challenges through Engineering Teams (ASCENT) program is a strategic investment of ECCS that emphasizes new collaboration modalities among the various ECCS supported sub-disciplines. ASCENT encourages robust collaborations between the devices, circuits, algorithmic, and network research communities to develop innovative projects. ASCENT seeks proposals that are bold and ground-breaking transcending the perspectives and approaches typical of disciplinary research efforts. ASCENT projects are expected to lead to disruptive technologies or nucleate entirely new research fields motivated by the most pressing societal challenges the global community faces. The intent of the ASCENT program is to stimulate collaborations among different ECCS sub-communities and to enable synergistic effort addressing large-scale cross-disciplinary problems whose solutions are beyond the scope of individual or divided efforts. ASCENT projects are expected to capitalize on innovations in hardware with those in algorithms, architectures, and data-driven methods, for example, to enable the penetration of the advanced analog and digital devices, light sources, and sensors into breakthrough system-level solutions. Collaborations across research communities in devices, circuits, algorithms, communications, dynamics and controls, and machine learning are highly encouraged. Research ideas for an ASCENT project will be of much larger scope than a core unsolicited project. At the same time, an ASCENT project should not be just a conglomeration of multiple disparate efforts and must be well-integrated in terms of both collaboration and research outcomes.

Deadline: May 03, 2021

Directorate for Computer and Information Sciences and Engineering/NSF – Advanced Cyberinfrastructure Coordination Ecosystem: Services & Support (ACCESS)

The national research cyberinfrastructure (CI) ecosystem is essential to computational- and data-intensive research across all of 21st-century science and engineering (S&E), driven by rapid advances in a wide range of technologies; increasing volumes of highly heterogeneous data; and escalating demand by the research community. Research CI is a key catalyst for discovery and innovation and plays a critical role in ensuring US leadership in S&E, economic competitiveness, and national security, consistent with NSF's mission. NSF, through the Office of Advanced Cyberinfrastructure (OAC), has published a vision that calls for the broad availability and innovative use of an agile, integrated, robust, trustworthy and sustainable CI ecosystem that can drive new thinking and transformative discoveries in all areas of S&E research and education. In support of this vision, NSF is releasing two solicitations in parallel: this solicitation, Advanced Cyberinfrastructure Coordination Ecosystem: Services & Support (ACCESS), and Advanced Cyberinfrastructure Coordination Ecosystem: Services & Support - Coordination Office (ACCESS-ACO). This solicitation (ACCESS) aims to establish a suite of CI coordination services - meant to support a broad and diverse set of requirements, users, and usage modes from all areas of S&E research and education - and calls for proposals for five independently managed yet tightly cooperative service tracks. The second solicitation (ACCESS-ACO) focuses on the creation of a coordination office to support the collective and coordinated operation of the ACCESS service tracks. This solicitation expects to fund five awards for five independently managed, yet tightly coordinated services defined in the following five tracks: (1) Allocation Services; (2) End User Support Services; (3) Operations & Integration Services; (4) Monitoring & Measurement Services; and (5) Technology Translation Services. Together, these services are expected to provide a seamless experience for an increasing breadth of research users across a highly performing innovative array of national computational computing resources.

Deadline: June 16, 2021

Directorate for Education and Human Resources/NSF – Advancing Innovation and Impact in Undergraduate STEM Education at Two-year Institutions of Higher Education

NSF's Education and Human Resources Directorate seeks to significantly enhance its support for research, development, implementation, and assessment to improve STEM education at the Nation's two-year colleges. NSF encourages bold, potentially transformative projects that address immediate challenges facing STEM education at two-year colleges and/or anticipate new structures and functions of the STEM learning and teaching enterprise. This program description is a targeted approach for advancing innovative and evidence-based practices in undergraduate STEM education at two-year colleges. It also seeks to support systemic approaches to advance inclusive and equitable STEM education practices.

Projects will be expected to build on prior fundamental and/or applied research in STEM education and provide theoretical and empirical justification for proposed projects as needed. Projects will also be expected to be research-informed and to result in field-tested outcomes and products that enhance STEM teaching and learning at two-year colleges.

NSF is interested in projects with potential outcomes that include, but are not limited to: 1) making systemic improvements in STEM education; 2) promoting diversity, equity, and inclusion; 3) mitigating the disproportionate impact of the COVID-19 pandemic on two-year colleges.

Of particular interest are projects that aim to advance undergraduate STEM education by: improving student outcomes in foundational STEM courses; broadening and/or creating new STEM curricula; providing STEM students with authentic research experiences, internships, and other experiential learning opportunities; increasing access to high quality STEM education through new technologies; re- or up-skilling incumbent workers for new STEM jobs; building STEM career and seamless transfer pathways; developing novel mechanisms to identify talent and recruit into STEM programs. In all cases, NSF is interested in projects that include substantive public and private partnerships that contribute towards advancing STEM education.

In addition to proposals in traditional STEM fields at two-year colleges, NSF particularly encourages submissions to the disciplines of national priority such as quantum information science, artificial intelligence, robotics, process engineering, and cybersecurity.

Deadline: May 10, 2021

CCI FUNDING OPPORTUNITY

Call for Proposals: Experimental Research in the CCI Testbeds

CCI has been investing in creating unique research infrastructure for use by researchers in all CCI member institutions, particularly an AI Testbed and a 5G Testbed. This call seeks proposals in two categories: (1) experimental research using the testbeds; (2) projects that expand the testbed capabilities in the CCI regional Nodes.

Deadline: April 29, 2021

Learn more here

UPCOMING EVENTS

Computational Genomics Conference

Computational and data science technologies are changing the landscape of genetic and genomic research. With resources like cloud computing and big data storage, scientists are able to investigate complex questions and work towards ensuring genetic and genomic advances benefit of all. The conference will feature a series of speakers sharing their expertise through use cases and discussing the funding mechanisms to support research and training programs. Our keynote speaker and successive sessions will provide an overview of computational and data sciences with an outlook on where the fields are headed. Join us on Zoom for a day filled with informative sessions and networking opportunities.

28 APRIL 2021
1:00 - 6.15 PM

Contact us at idia2@gmu.edu for more details.

Event Schedule

01:00 p.m. – 01:15 p.m. EST | Welcome and Introductory Remarks from the Organizers

01:15 p.m. – 01:45 p.m. EST | Plenary Speaker
- Andrea T. Norris, CIO NIH

01:45 p.m. – 02:00 p.m. EST | BREAK

02:00 p.m. – 03:15 p.m. EST | Research Use Cases
- VirtualFlow by Christoph Gorgulla, Harvard University
- Biomedical Research on AWS by Ankit Malhotra

03:15 p.m. – 03:30 p.m. EST | BREAK

03:30 p.m. – 04:45 p.m. EST | Funding Discussion Panel and Q&A
- Ken Wiley Jr., NHGRI
- Stephanie Rogers, DoD
- Joe Buccina, IQT

04:45 p.m. – 05:00 p.m. EST | BREAK

05:00 p.m. – 05:30 p.m. EST | Closing Reflection and Future Directions
- Alexander Titus, Google Cloud

05:30 p.m. – 06:15 p.m. EST | Networking Breakout Rooms

George Mason University Institute for Digital InnovAtion | iSCB | NIH National Human Genome Research Institute | MITRE | George Mason University Institute for Biohealth Innovation

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STUDENT SPOTLIGHT

Mason junior Brenda Henriquez named Adobe Women-in-Technology Scholar

George Mason University junior and Honors College student Brenda Henriquez has been named an Adobe Research Women-in-Technology Scholar, a program that recognizes outstanding undergraduate female students studying computer science.Henriquez is one of 15 women selected from colleges and universities throughout the United States to receive the prestigious honor. As part of the award, Henriquez received $10,000 towards her education.

Read more here

RESEARCH AND SCHOLARSHIP

You won a grant, now what?

Our first Lunch and Learn will be with colleagues from Mason's Office of Sponsored Programs (OSP), Maggie Ewell and Amanda Fucci-Bartoszek:

Congratulations on winning a grant award! In this competitive environment, winning a grant means you did a great job putting together a well-written, compelling narrative that speaks to your ability to achieve the specific measurable outcomes that aligns with the funders' goals. Once awarded, faculty are often eager to get started, but there are quite a few administrative tasks that need to be completed BEFORE you actually get started. Join us to learn the ins and outs, average timeline, and what to expect during post award set up – from lab safety, IRB and IACUC approvals to Conflict of Interest and Export Control plans and sponsors special conditions – this session will give you information so you can help us help you get started as soon as possible.

When - Friday, April 9 from 11:30 am to 1:00 pm. Register here

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STUDENT OPPORTUNITIES

APRIL 16-18, 2021

You are invited to the third annual PatriotHacks!

PatriotHacks is an "invention marathon" where students learn, build, and share their creations and ideas over the course of a weekend.

- Communication for the event will primarily take place on a Discord server.
- Prizes will be rewarded to the participants in a number of categories.
- Open to all students and rececnt graduates from all universites.
- All experience (18+) levels are welcome!
- Meet and network with professionals from the industry!

Register at patriothacks.org

College of Science | George Mason University Volgenau School of Engineering | George Mason University Institute for Biohealth Innovation | George Mason University Institute for Digital InnovAtion | George Mason University Institute for a Sustainable Earth | VSGI Virginia Serious Game Institute

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QUANTUM WEEK

4/19/21 - 4/23/21

The Quantum Week is a multi-day event hosted by the QSEC in order to recognize the work that creates awe-inspiring quantum technologies today and in the future. The virtual conference consists of technical seminars, tech showcases, research posters, information sessions/booths by industry and academic units. We will have a virtual lobby set up for networking and casual hangouts!

Have you ever heard of qubits and quantum materials?

Wondering how to program a quantum computer?

Interested in learning quantum technologies?

Join us on the week of 4/19/21 to

- Gather virtually with friends
- Learn about quantum science
- Explore future career and education

Want to be a volunteer ?

Contact us to help organize the event

QSEC Quantum Science & Engineering Center

GEORGE MASON UNIVERSITY

[William and Mary's 6th Annual Hackathon]

GMU, you're invited to Cypher VI, William & Mary's 6th annual hackathon! We'll be learning, having fun, and making cool projects together, and this year, we're entirely online. Come down to Cypher to learn from our workshops, get to know local tech companies, or compete for prizes. All majors and skill levels are welcome, and new this year, we're welcoming all kinds of projects, code or no code. Best of all, everything is free.

Date: April 09, 2021

NSIN PRESENTS

BEAT THE BLAZE

Only you can hack wildfires

NSIN hacking - Beat the Blaze

Increase the information sharing capacity and capabilities between the National Guard and civilian emergency response agencies during wildfire operations.

What: BEAT THE BLAZE: Only you can Hack wildfires, presented by NSIN

Where: Virtual

Who: Open to anyone who is creative and interested in solving communications and information sharing challenges during wildfire operations. Coding experience not required.

Why: Continue prototyping your solution with $15-$30K investment for winning concepts.

When: March 29 - April 16, 2021.

Smart City Works and Fairfax County Announce Pitch and Pilot: Pedestrian/Bike Safety Innovation Challenge

Smart City Works Inc.'s Innovation Hub (a 501c3 organization) and Fairfax County, in partnership with Virginia's Center for Innovative Technology (CIT), announced the launch of Pitch and Pilot: Fairfax County Innovation Challenge, an innovation competition where teams and companies propose high-impact solutions to address bicycle and pedestrian safety. The goal of the Challenge is to find, and ultimately pilot, innovative solutions to improve pedestrian and bicycle safety in Fairfax County's increasingly multimodal transportation landscape. Registration is now open, and the competition will conclude with a public pitch contest on April 21st .

The Challenge is open to all participants who are passionate about improving bicycle and pedestrian safety in Northern Virginia (NOVA) and the greater DC metropolitan region. All teams—from college students and start-ups to entrepreneurs and technologists, are welcome to apply. We are particularly interested in and encouraging women- and minority-led technology teams/ ventures to apply.

The winning team will be selected based on innovation, practicality, scalability, safety, and equity and inclusivity of their solution. A panel of smart city experts will serve as judges. The winning team will also have an opportunity to pilot their solution in Fairfax County, Virginia's largest county.

Event Date: April 21, 2021

Free Skill Building Opportunity

Unity Learn offers a Junior Programmer opportunity for anyone interested in learning to code and/or obtaining an entry-level Unity Role to get Unity Certified. This is an excellent opportunity to demonstrate job readiness to future employers.

JOB/INTERNSHIP OPPORTUNITIES

- **Digital Marketing Intern, BluShark Digital LLC** - Apply now
- **Associate, Digital Content at The Aspen Institute** - Apply now
- **Digital Hardware Engineer, Herrick Technology Laboratories** - Apply now
- **Digital Technology Specialist, Cranial Technologies Inc.** - Apply now

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FUNDING ANNOUNCEMENTS, AWARDS AND ACCOMPLISHMENTS

DOT IDIQ Roadside Safety Research and Federal Outdoor Impact Laboratory (FOIL) Technical Support Services
PI & Co-PIs: Kan, Cing-Dao; Marzougui, Dhafer, College of Science
Funding source: US Department of Transportation

Continuous privacy monitoring and implementation
PI: Vidyashankar, Anand N, Volgenau School of Engineering
Funding source: McKesson Corporation

IDIA IN THE NEWS

Taking it to the streets: Commonwealth Cyber Initiative funds research for autonomous cars, VSE News, March 25th, 2021

Tang Expanding Chemical Data Assimilation System To Support NOAA UFS, COS News, Mar 15, 2021

Mason offers new Data Analytics Credential to prepare students for careers in big data, VSE News, March 11th, 2021

Mason GGS students' partner with local organizations to assess risk, address digital equity, COS News, March 8, 2021

COVIDsmart study launched to understand pandemic's impact on individuals and communities across Virginia, Mason News, March 2, 2021

Chemistry student seeks sustainable battery solutions for new technologies, COS News, COS News, March 2, 2021

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