



## THE WEEKLY

Dear Colleagues,

The [Institute for Digital Innovation \(IDIA\)](#) launched its IDIA CONNECT series recently to connect Mason faculty, researchers, and students with industry and non-governmental organizations, as well as local, regional, and national government entities.

Join our second IDIA CONNECT event where we connect you with Don Gentile.



Institute for

Digital InnovAtion

October 21, 2022

9:00-11:30AM

IDIA

CONNECT

SERIES

Join us for our IDIA

CONNECT event, where we

connect you with

Don Gentile

Office of the Director of National

Intelligence (ODNI)

IC Senior Language Authority, IC Chief Learning Officer

Division Chief of the Human Capital Office's Community Learning and

Development Division

Learn more at [idia.gmu.edu](#)

Not subscribed to our weekly newsletter?

Email [idia2@gm.edu](mailto:idia2@gm.edu)

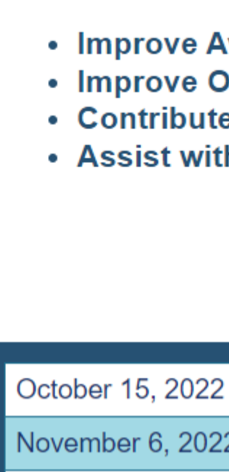
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## UPCOMING EVENTS

### Creating the Extended Reality of the Future with Artificial Intelligence and Computational Design



SPEAKER: CRAIG YU

• ASSOCIATE PROFESSOR, COMPUTER SCIENCE DEPARTMENT, GEORGE MASON UNIVERSITY

• FACULTY LEAD, DESIGN COMPUTING AND EXTENDED REALITY (DCXR) GROUP, GEORGE MASON UNIVERSITY

• PHD, COMPUTER SCIENCE

WHAT WE'LL DISCUSS:

In this seminar, we will explore how the research efforts by Mason's Design Computing and Extended Reality (DCXR) group may bring exciting XR applications and opportunities ahead, especially 5-10 years from now. We will also discuss recent advances of the research group on using artificial intelligence and computational design approaches to devise novel user experiences, content-creation tools, and user interfaces for envisioning the XR of the future


KEY TAKEAWAYS INCLUDE:

• AI can be widely applied to automate the design of human-centric environments, whether in real or virtual reality

• AI-powered XR applications will transform the future of work, entertainment, healthcare, education, business, and everyday life

REGISTER HERE!

Mason Enterprise @ Arlington | Vernon Smith Hall | Plaza Level



SCAN ME

### 2023 FAA Data Challenge



2023 FAA DATA CHALLENGE

DRIVING INNOVATION THROUGH DATA

Using Artificial Intelligence/Machine Learning and Data Analytics to Solve Aviation-Related Challenges

[faadatachallenge.nianet.org](#)

The 2023 FAA Data Challenge focuses on the use of Artificial Intelligence/Machine Learning (AI/ML) and advanced analytics to address aviation-related problems and opportunities. AI/ML is rapidly transforming many industries including aviation.

Successful submissions will push the boundary and introduce novel approaches to aviation problems as the Federal Aviation Administration (FAA) moves further towards an info-centric National Airspace System (NAS).

### University Student Competition

Up to 10 teams will be invited to compete for the

**\$25,000 TOP PRIZE**

As a regulator and operator, the FAA's diverse mission activities collect and generate a tremendous amount of data. This data and information must be leveraged to its fullest extent possible to enable the mission, which is to provide the safest and most efficient aerospace system in the world, to drive efficiency, improve accountability, fuel innovation, exploit the use of data, and embrace modern analytical techniques.

Teams should submit advanced analytics and AI/ML proposals that address one of the following categories:

- Improve Aviation Safety
- Improve Operational Efficiency of the NAS
- Contribute to the Drive for Sustainable Aviation
- Assist with the Rapidly Evolving New and Novel Uses of the NAS

### DATES AND DEADLINES

October 15, 2022	Challenge Opens
November 6, 2022	Submit Your Expression of Interest
November 16, 2022	Q&A Session #1 Webinar
January 18, 2023	Q&A Session #2 Webinar
January 22, 2023	Submit Your Abstract
February 28, 2023	Teams Notified of Selection Status
May 7, 2023	Finalist Teams Submit Technical Papers
June 21-22, 2023	2023 FAA Data Challenge Forum in Washington, DC metro area

### WEB3, WEB 3.0, and the Metaverse: Different Words for the Same Future



SPEAKER: TIM COTTEN

• FOUNDER, SCRIPTED INC

• FORMERLY LEAD LIVE OPERATIONS DESIGNER, ULTIMA ONLINE, THE FIRST FULL MASSIVELY MULTIPLAYER ONLINE ROLE-PLAYING GAME (MMORPG)

• EARLY BITCOIN & ETHEREUM ADOPTER WITH EXPERTISE IN GAME, ENTERPRISE SOFTWARE, BLOCKCHAIN, & THE METAVERSE

WHAT WE'LL DISCUSS:

In this seminar, Tim Cotten of Scripted Inc, explains the future of the World Wide Web through the lens of three hot technology topics: Web3, Web 3.0, and the Metaverse. You'll learn how each technology describes similar, but different concepts, along with a healthy dose of both historical context and the current cutting-edge game, blockchain, and corporate trends like the rebranding of Facebook to Meta. Attendees will be presented with value propositions for the inclusion of decentralized technology - like blockchains, cryptocurrencies, and digital assets (NFTs) - in "Open Metaverse" design, balanced against practical limitations and notable criticisms by industry veterans.

KEY TAKEAWAYS INCLUDE:

• Describing Web3, Web 3.0, and the Metaverse technologies

• Virtual Reality (VR), Augmented Reality (AR), and Mixed Reality (XR)

• History and context of the evolution of the World Wide Web

REGISTER HERE!

Mason Square @ Arlington | Vernon Smith Hall | Plaza Level



SCAN ME

### Faculty Affairs Research Development Services

Faculty members are invited to the next Faculty Affairs & Research Development Services Faculty Matters Workshop, "How to Write Research, Scholarship, and Creative Work Statements," which focuses on effectively conveying the impact of your research, scholarship, and creative work for promotion, renewal, and tenure. This workshop is recommended for tenured and tenure-line faculty. Participants will have the chance to win a free book, [On Writing](#) by William Zinsser.

The Zoom Workshop is on **November 1 from 1:00-2:30 pm**.

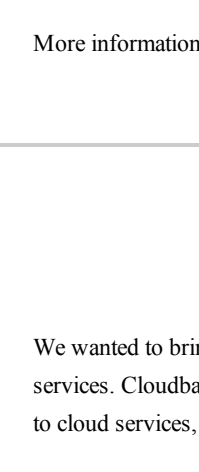
Register [here](#).

### WMGIC x NATO HQ Countering Disinformation Challenge

During the Challenge and over seven hours, teams will work with expert mentors in one of seven streams: Russia-Ukraine War, Public Health, Climate Change, Clean Energy, Climate Change, Cyber Security, Artificial Intelligence, Gender-Based Violence, and Terrorism. Mentors will help guide students as they discuss and deliberate their proposed plan of action, and have backgrounds in government, industry, academia, and other relevant disciplines.

Each plan of action will consider NATO's existing capacity and consider what actions NATO should implement within the next 12 months. Panels of expert judges will evaluate the proposals and select one winner from each stream for a total of seven winners, who will receive \$500 each.

This challenge will be held virtually over Zoom on **Friday, October 21, 2022, from 8:00 am to 2:45 pm EST**. More information is available [here](#).




WMGIC x NATO

Countering Disinformation

Challenge

October 21, 2022



## STUDENT OPPORTUNITIES

### Summer Team Impact Projects

The Office of the Provost is excited to offer grants for Summer Team Impact Projects (STIP) for Summer 2023. The Offices of Undergraduate Education, OSCAR, and CECIL will fund multidisciplinary summer projects for undergraduate students, graduate students, and faculty members. These projects will explore a central theme, a research question, or a community-identified problem. Proposals focusing on the UN's Global Goals or Anti-Racist Community Engagement are encouraged.

Proposal deadline: **November 18, 2022**.

More information is available [here](#).

### Applications Open for Grad Cohort 2023 Workshops

CRA-WP will host two Graduate Cohort Workshops in 2023! The Grad Cohort Workshop for Inclusion, Diversity, Equity, Accessibility, and Leadership Skills (GC-IDEALS) is designed specifically for graduate school populations underrepresented in computing research. The Grad Cohort Workshop for Women is designed for women students in their first, second, or third year of graduate school in computing fields. Grad Cohort participants will have an opportunity to build mentoring relationships and develop peer networks intended to form the basis for ongoing activities during their graduate career and beyond.

Applications are due by **November 30, 2022**.

More information is available [here](#).



2023 GRAD COHORT

Applications Oct. 17 - Nov. 30

### EnergyTech UP Business Plan Competition Offers \$370K to Students

Students interested in learning about cutting-edge clean energy tech, take note: The next round of the EnergyTech University Prize (EnergyTech UP) from the U.S. Department of Energy's Office of Technology Transitions is now accepting applications!

This innovative prize, part of the American-Made Challenges program, asks multidisciplinary student teams to identify a high-potential energy technology, assess its market potential, propose a strategy for commercialization—and compete for a share of \$370,000!

Register [here](#).

Registration deadline: **January 26, 2023 by 2:00 pm PST**.

More information is available [here](#).

## VARIOUS OPPORTUNITIES

### 2023 Distributed Research Experience for Undergraduates (DREU)

Distributed Research Experiences for Undergraduates (DREU) participants have the opportunity to be directly involved in a research project and interact with graduate students and professors on a daily basis. This experience is invaluable for those who are considering graduate school. DREU will provide a close-up view of what graduate school is really like and increase students' competitiveness as an applicant for graduate admissions and fellowships. Faculty mentors will have the opportunity to work on their research projects with new students from other institutions and to mentor future graduate students.

Application period: **October 15 – February 15**

Apply [here](#).

More information is available [here](#).

### CCI Fellows Program 2022

Virginia's Commonwealth Cyber Initiative (CCI) is creating a Commonwealth-wide ecosystem of innovation excellence at the intersection of cybersecurity, autonomous systems, and intelligence. CCI's mission includes research, innovation, and workforce development.

More than 300 researchers across Virginia are affiliated with CCI, providing the breadth and depth of expertise needed to compete for large research awards. Increasing Virginia's success in attracting center-scale awards is one of the objectives of CCI.

Proposals due: **December 31, 2022**

More information is available [here](#).

### Request for Proposal: Digital Chisel

The Directorate of Digital Innovation/Digital Futures in cooperation with the Directorate of Analysis/Office of Advanced Analytics (herein referred to as "The Sponsor"), is seeking white papers with the potential for a selection to prototype commercially-proven solutions for detecting, analyzing, and evaluating foreign malign influence or disinformation online. Referenced malign influence or disinformation may occur on either traditional social media platforms, on social media platforms that function as information exchange or news sites, or on foreign-based platforms. Proposed solutions must be able to track foreign malign influence or disinformation across platforms, while providing source, origin of identified fake profiles and accounts, and defensible reasons, facts, and metrics to support corresponding assertions. The Sponsor is also interested in understanding whether or not the respondents have access to non-USP social media data as part of this request.

The SOO for the BAA is available [here](#). The current CONOPS is available [here](#).

Questions? Contact Mike Bunting at [mbunting@gmu.edu](mailto:mbunting@gmu.edu)

Questions are due **Monday, October 17 by 5:00 pm EST**.

White papers are due **Monday, October 24 by 5:00 pm EST**.

### Request for Proposal: Digital Crowbar

The Directorate of Digital Innovation/Digital Futures, in cooperation with the Office of Mission Applications (OMA) (herein referred to as "The Sponsor"), is seeking white papers with the potential for a selection to commercially develop a Proof of Concept (PoC) capability to protect sensitive text and image queries by obscuring them. The Sponsor may examine either existing commercial capabilities or custom-built proofs of concept from image of interest) to query specific data sources and/or platform data repositories. In this case, associated capabilities would support the transformation of text and image queries to ensure sensitive search term interests are hidden and not obvious to unauthorized data owners, while privacy is maintained and valid query results containing information relevant to the original, sensitive query are returned.

A key aspect of this objective is that the Sponsor does not control the data source. In addition, encryption schemes to protect the queries are not supported by data owners. Although numerous techniques exist to protect queries, if the data owner is required to run software in partnership with the querying organization, then there will be countless data source owners not able or willing to implement these schemes. Hence, query obscuring is needed because there is an untrusted data owner who has full visibility into search terms.

The SOO for the BAA is available [here](#).

Questions? Contact Mike Bunting at [mbunting@gmu.edu](mailto:mbunting@gmu.edu)

Questions are due **Friday, October 21, 2022**

White papers are due **Monday, November 7, 2022**

### Apply for Supplemental Funding through the Research Experience and Mentoring Program

The National Science Foundation Directorate for Engineering (NSF/ENG) continually seeks to advance scientific progress in research and innovation while broadening participation of underrepresented groups in science, technology, engineering, and mathematics (STEM) fields. This Dear Colleague Letter (DCL) seeks to inform the community about an opportunity to pursue both goals through supplements from the Research Experience and Mentoring (REM) Program to active Emerging Frontiers in Research and Innovation (EFRI) research awards, active Engineering Research Center (ERC) awards, and active Industry-University Cooperative Research Center (IUCRC) awards.

EM funding will support costs associated with bringing high school students, STEM teachers, undergraduate STEM students, faculty, and veterans to be engaged as Research Participants (RPs) in a research environment. RPs are expected to participate in research activities aligned with the EFRI-, ERC-, and IUCRC-supported research goals and receive structured mentoring over the summer. REM supplement recipients are required to extend structured mentoring into the academic year.

Submissions due **December 16, 2022 by 5:00 pm**.

More information is available [here](#).

### MITRE October Capstones Project List

The MITRE Corporation is a non-profit engineering company that performs research and development for many departments within the US Government. As part of its University Innovation Exchange (UIX) initiative, MITRE is partnering with universities to offer technical advisors and capstone project ideas which reflect real problems facing the United States Government. The MITRE Capstones Project Portal is a web-based platform for university faculty and students to browse, select, and execute capstone projects with a MITRE technical advisor. For university students, this represents an opportunity to work on a capstone project that tackles a relevant technical challenge facing the US and serves as a potential pipeline for both internships and full-time hires.

More information and a full list of all capstone projects are available [here](#).

## PROJECT CLOUDBANK

We wanted to bring to your attention an NSF-funded project called [Cloudbank](#), to provide PIs access to cloud services. Cloudbank has negotiated contracts with AWS, Google, and Microsoft at discounted rates. In addition to cloud services, quantum computing resources have also been added.

More information is available [here](#).

## AWARDS

Congratulations to:

**Wijesekera, Duminda** from the [College of Engineering and Computing](#) and Co-PIs **Mark, Brian L.; Pathak, Parth; Shah, Vijay K.; and Zeng, Kai** for receiving the National Science Foundation (NSF) grant on *UCRC Planning Grant George Mason University: Center for Wireless Innovation Towards Secure, Persistent, Efficient and Resilient Next G Networks (WISPER)*.

**Das, Sanmay** from the [College of Engineering and Computing](#) for receiving the Washington University in St. Louis grant on *FAI: FairGame: An Audit-Driven Game Theoretic Framework for Development and Certification of Fair AI*.

**Uzuner, Ozdem** from the [College of Engineering and Computing](#) for receiving the National Institutes of Health (NIH) grant on *Joint learning methods for event and relation extraction from clinical narratives*.

**Wage, Kathleen E.** from the [College of Engineering and Computing](#) for receiving the Office of Naval Research grant on *Universal Spectral Estimation and Beamforming*.

**Dinakarrao, Sai Manoj Pudukotai** from the [College of Engineering and Computing](#) for receiving the National Science Foundation (NSF) grant on *Collaborative Research: CNS Core: Small: NF-RGR4: Non-Volatile Nano-Second Right-Grained Reconfigurable Architecture for Data-Intensive Machine Learning and Graph Computing*.

**Yang, Lei** from the [College of Engineering and Computing](#) for receiving the University Of Pittsburgh grant on *Achieve Fairness in AI-Assisted Mobile Healthcare Apps through Unsupervised Federated Learning*.

**Pathak, Parth** from the [College of Engineering and Computing](#) for receiving the University of California Davis grant on *Millimeter-wave Networking in Transient Topologies*.

**Dere, Kenneth R.** from the [College of Science](#) for receiving the National Aeronautics and Space Administration (NASA) grant on *Revised ionization rates and software development for CHANTI*.

**Shah, Vijay K.** from the [College of Engineering and Computing](#) for receiving the Virginia Tech grant on *5G Technology Platform for Military Base with a Resilient, Green, and Secure Electric Grid (5G-BASE)*.

**Menon, Nirup M.** from the [School of Business](#) for receiving the Virginia Innovation Partnership Authority grant on *Arlington Smart and Innovation Zone Demonstration*.

**Balhimtsi, Fotini** from [College of Engineering and Computing](#) for receiving the Virginia Innovation Partnership Authority grant on *Post-quantum proxy re-encryption used in privacy-preserving context*.

## FUNDING OPPORTUNITIES

[Langley Research Center - Unsolicited Proposals](#)

Deadline: Continuous Submission

[IEEE Lotfi A. Zadeh Award for Emerging Technologies](#)

Deadline: January 15, 2023

## IDIA AFFILIATION

Did you know that, as an IDIA faculty affiliate, you are eligible to:

Compete for [internally-funded IDIA projects](#)

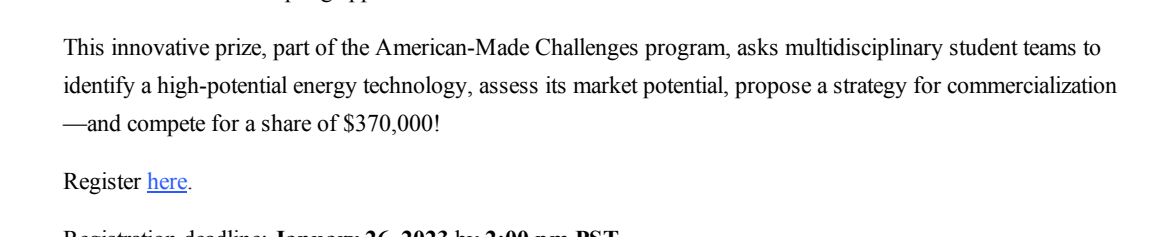
Receive support for [IDIA-relevant events](#)

Become part of the [dynamic multidisciplinary faculty network](#) focused on digital techniques and technologies to advance fields as diverse as finance, education, built infrastructure, science, economics, agriculture, health, transportation, entertainment, national security, and social justice.

There is no financial burden to you or your departments for affiliation with the institute. Participation in IDIA does not prevent its members from being associated with other university centers. If you are not already affiliated, we encourage you to submit your profile [here](#).

## SHARE WITH US

We are eager to hear from you! As we work with your colleges to compile updates on digital innovation-related research activities at Mason, we would love to hear about your research activities, awards, and recent publications. Please share any success, concerns, or ideas with us at [idia2@gmu.edu](mailto:idia2@gmu.edu)



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