



Abdul Latif Jameel
Water & Food Systems Lab

Securing humankind's vital resources



NEWS & ANNOUNCEMENTS

LATE SUMMER/SEPTEMBER 2021



2021 Solutions grantees

Meet the MIT PIs who received J-WAFS funding to commercialize technologies for evaporative vegetable preservation, portable water filtration, and dairy waste reduction.

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J-WAFS fellow discusses her new pump in "Ground Water Canada"

Hilary Johnson, an MIT PhD candidate in Mechanical Engineering, created a "variable volute" pump that can be used in multiple applications from clean water, wastewater, oil, and gas. She was also recently featured in a [podcast](#) from "Empowering Pumps & Equipment."

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Food systems summit dialogues engage worldwide audience

The J-WAFS-led Alliance for Food and Climate Systems Transformation co-hosted two Independent Food Systems Summit Dialogues to engage people across the globe, especially those working on the front lines of food systems, in thought-provoking discussions and breakout sessions.

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Elfatih Eltahir, a J-WAFS PI, publishes research on Egyptian water

New book explores interdisciplinary approach to evaluating

consumption in Nature Communications

The paper offers an analysis of total demand of water supply on the Nile River and how in the 2020s, Egypt is likely to import more virtual water than the water supplied by the Nile, bringing into question the historical characterization of Egypt as “the gift of the Nile.”

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climate change and food security

Md Saidul Islam, a past J-WAFS visiting scholar, has co-authored the book “Climate Change and Food Security in Asia Pacific: Response and Resilience.” The book evaluates the complex nexus between climate change and regional food security in Asia Pacific.

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Associate Director of Community Jameel writes op-ed on taking action against climate emergency

Amna Fatani credits J-WAFS’ researchers for helping to create a path forward for strengthening climate resilience and bridging the gap between academia, policymakers, and the private sector.

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J-WAFS PI co-founds company that helps manufacturers separate chemical compounds

MIT professor and J-WAFS PI Jeffrey Grossman helped found Via Separations, a company that aims to eliminate 500 megatons of carbon dioxide by 2050 through an energy-efficient separations process using durable graphene oxide membranes.

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Vapor-collection technology saves water at power plants

Kripa Varanasi, a J-WAFS-funded researcher, worked with his lab at MIT to test and develop a vapor-collection technology that reclaims pure water from power plant cooling towers.

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A new engineering process facilitates drought-resistant seeds

A new seed-coating process, developed by J-WAFS PI Benedetto Marelli, has the potential to protect seeds from the stress of water shortage during their crucial germination phase.

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Assistant professor and J-WAFS PI receives Camille Dreyfus Teacher-Scholar Award

Karthish Manthiram was honored as a young academic who combines outstanding teaching with impressive independent scholarship in the chemical sciences.

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New faces at J-WAFS

The J-WAFS staff welcomed two new members to the team over the spring and summer. B. Nicholas Pasinella is the financial and project coordinator, and Carolyn Blais is the communications and program manager. Both worked for other MIT DLCs previously.

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IN DEPTH LOOK

J-WAFS RESEARCH IMPACTS

Interdisciplinary research collaboration puts climate resilient crops in sight

With climate change comes unpredictable global weather patterns that can devastate crops and endanger food systems. Two J-WAFS-funded MIT professors are working across disciplines to figure out a way to curtail this problem. Dave Des Marais of the Department of Civil and Environmental Engineering, and Caroline Uhler of the Department of Electrical Engineering and Computer Science, and the Institute for Data, Systems, and Society, are using their skills in plant biology and machine learning, respectively, to identify the genetic roots of plant responses to environmental stress. A better understanding of plant genetics may allow us to breed plants that are more resilient to things like droughts or flooding.

Gene regulatory networks (GRNs) help all living things respond to environmental changes by signaling certain genes to turn their expression on or off. Usually, to understand how a particular gene is affecting others, biologists must silence one gene and see how the others in the network respond, which is quite a time-consuming task considering plants have thousands of genes. However, Uhler and her team have developed algorithms that can analyze the massive amount of information in GRNs to identify correlations among genes, and the effects that silencing one gene has on all other genes.

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EVENTS

FOOD & WATER



MIT Water Club Meetings (MIT ONLY)

Weekly Wednesday meetings, 7:00 - 8:00 p.m. ET, In-Person/Online

The MIT Water Club brings together creative, passionate, and motivated individuals to explore ways by which research, innovation, and policy can help solve the most pressing challenges in the water sector. [MORE INFO](#)



UN Food Systems Summit

Thursday, September 23, 9:00 a.m - 6:00 p.m. ET, Online

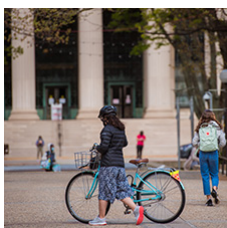
Join leaders, experts, and stakeholders worldwide for the virtual UN Food Systems Summit that will mobilize the public, heads of state, and government to bring about positive changes to the world's food systems. [MORE INFO](#)



Free webinar led by Climate Interactive

Thursday, September 23, 11:00 a.m. - 12:00 p.m. ET, Online

This webinar will highlight the newest features of the En-ROADS climate simulator, including five new climate impact metrics like heat waves and arctic sea ice melts. [MORE INFO](#)



Discussion on how universities teach sustainability

Wednesday, September 29, noon - 1:00 p.m. ET, Online/In-person

Join MIT's Environmental Solutions Initiative and representatives from other universities to hear how they are changing their institutions' curricula and practices to provide a quality sustainability education. [MORE INFO](#)



Sustainability Lunch (MIT ONLY)

Thursday, September 30, 11:45 a.m. - 12:45 p.m. ET, In-person/Online

For MIT students who want to learn more about careers or fellowships in sustainability, the MIT Sloan Sustainability Initiative is hosting a career and internship info session. [MORE INFO](#)



MIT Water Summit

Monday and Tuesday, November 15-16, 8:00 p.m. ET, Online

Save the date for MIT's Water Summit, which will convene leaders from industry, government, and the scientific community to explore the issues facing coastal cities and ecosystems by investigating the balance between built and natural environments. [MORE INFO](#)

FUNDING

AND OTHER OPPORTUNITIES

Join the leadership of the MIT Food and Agriculture Club

Deadline: ASAP

Open to MIT Students

Are you an MIT student looking to tackle complex issues surrounding food and agriculture? Apply to help the Food & Ag Club manage their prize competition and other day-to-day activities.

[APPLY NOW](#)

Applications now open for MISTI Global Seed Funds

Deadline: December 13, 2021

Open to MIT PIs

This grant promotes early-stage collaborations between MIT researchers and their counterparts around the globe. Priority is given to projects likely to make an important contribution in a field.

[APPLY NOW](#)

MITOS Student Fellowships

Deadline: ASAP

Open to MIT Students

The MIT Office of Sustainability (MITOS) is currently seeking student applicants for two part-time, hourly,

Free course on forests and water

Ongoing

Open to all

The Food and Agriculture Organization of the United Nations is offering a free, online or downloadable course that

paid Sustainability Fellowships for the 2021-2022 academic year. Join a dynamic, collaborative office that is developing MIT's next generation vision of campus sustainability.

APPLY NOW

Apply to Nucleate's activator program

Deadline: November 1, 2021

Open to all Post-docs/PhD/MBA/MD/JD

Are you an academic trainee passionate about sustainability, synthetic biology, or food and agriculture, and building startups? Nucleate's activator program connects scientific trainees and business students with a world-class advisor network of startup founders, executives, venture investors, and renowned scientists, and operates in partnership with the Harvard & MIT Biotech clubs. Email eco@nculeate.xyz with questions.

APPLY NOW

highlights forest and water relationships, and provides an understanding of the impacts of changing landscapes on water resources.

ACCESS NOW

Senior scientist position open

Deadline: ASAP

Open to all

Via Separations, a company that eliminates energy use in industrial processes and was spun out of MIT following a J-WAFS Solutions grant, is looking for a senior scientist. This role will be responsible for developing technical solutions to support the company's membrane product development and delivering innovation in the areas of chemical design, synthesis, membrane fabrication, and materials characterization.

APPLY NOW



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SUPPORTING J-WAFS?

When you make a gift, you are making an investment in both the future of J-WAFS and our Institute-wide work to improve the productivity, accessibility, and sustainability of the world's water and food systems.

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J-WAFS is an Institute-wide effort that brings MIT's unique strengths to bear on the many challenges our food and water systems face.

Our program catalyzes MIT research, innovation, and technology for ensuring safe and resilient supplies of water and food while reducing environmental impact, to meet the local and global needs of a rapidly expanding and evolving population on a changing planet.



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