SCIENCE WEEK 2026
W.E.F.E. Nexus Symposium
The future of water treatment and desalination

UM6P – Amphitheater IGHLI
April 1st, 2026
09:30 – 16h30

The **Water–Energy–Food–Ecosystems (WEFE) nexus** provides an **integrated framework** for understanding **how resource systems interact** and for better shaping interventions and policies for sustainable development. Since **actions in one sector affect the others**, single-sector management can trigger undesirable cascading impacts in other sectors, while coordinated approaches would ensure greater efficiency, resilience, and environmental benefits. These interlinkages are increasingly important amid the challenges presented by climate change, population growth, and ecosystem degradation. **The WEFE approach is now central to global agendas** such as the **Sustainable Development Goals (SDGs)** and international climate strategies, supporting evidence-based decision-making, technological innovation, and cross-sector collaboration. By highlighting system-wide interactions, it helps **identify —and optimize— trade-offs**, prevent and minimize unintended consequences, and strengthen policy coherence.

An important dimension of the WEFE nexus is the role of **water treatment and desalination technologies**, which are rapidly transforming the landscape of water security. As freshwater scarcity deepens in many regions, desalination and advanced water treatment and reuse systems are becoming viable and sometimes essential solutions. These technologies can help alleviate pressure on natural freshwater ecosystems, but they are often energy-intensive, affecting carbon emissions, energy systems, and food production. In recent decades, they have undergone significant improvements: increased process efficiency, integration of renewable energy sources, and cost reductions through technological innovation, and the potential to relieve (?). By integrating water treatment and desalination within a WEFE nexus perspective, decision-makers can better assess trade-offs, anticipate unintended impacts, and identify opportunities for synergy.

Integrated planning aligns water supply strategies with clean energy development, sustainable agriculture, and ecosystem protection. It also promotes the integration of innovative systems such as nature-based pretreatment, solar-powered desalination, resource recovery, and digital tools to optimize performance.

This event aims to bring together scientists, students, policymakers, practitioners, technology developers and industry leaders to explore how

WEFE-nexus-thinking can guide the future of water treatment and desalination. Discussions will highlight **emerging technological advancements, policy frameworks, and operational models** that **improve water security** while reducing environmental footprints and strengthening cross-sectoral resilience.

Objectives:

- Raise awareness of **the importance of Nexus approaches** and **the role of water treatment** and related technologies.
- Assess the status of the Nexus and its main pillars (Water, Food, Energy, Ecosystem) **in Africa and the Mediterranean region.**
- Showcase the contribution of technological innovation, chemical research, advanced materials and process engineering to improving the Nexus pillars through water use efficiency and availability, reducing energy use, and minimizing environmental impacts.
- **Share knowledge** and **encourage multidisciplinary research** in the fields of water treatment, chemical processes, circular resource use, and ecosystem-friendly technologies—to advance WEFE nexus implementation and mindset.

PROGRAM

Morning: 09h30-13h00

09h30-10h15 Keynote Lecture: NN (45 min)
Backup: Paula HARRISON, UK Centre for Ecology & Hydrology

Session 1: WEFE nexus pillars: Water, Agriculture and Energy

10h15-10h45
Prof. Ismahane ELOUAFI, CGIAR (Food and Agriculture) (20+10 min) ONLINE

10h45-11h00
Coffee break

11h00-11h30
Prof Hicham FENNIRI (WEFE @IWRI: Water) (20+10 min)

11h30-12h00
Dr Filipa NEWTON (Water Policy and Nexus) (20+10 min)

12h00-12h30
Prof. Philippe DROBINSKI, Ecole Polytechnique, Paris (Energy and Environment) (20+10 min)

Backup:

Noreddine GHAFFOUR, KAUST
How Yong NG, National University of Singapore

Afternoon: 14h30-16h30

Session 2: WEFE nexus in water treatment and desalination/technology (ROUND-TABLE)

Prof. Mohamed EDDAOUDI, KAUST, KSA
ACER-CoE (Youssef BELMABKHOUT et al.)
ARC-Air (Wahid MELLOUKI et al.)
Valérie MASSON-DELMOTTE (climate issues)
Jean-Marc JANCOVICI (energy and environment)

16h00-16h30 | Wrap-up of the day

SCIENCE WEEK 2026

AI in Education: Think First, Then Amplify

Mohamed Saad Ibn Seddik, Dr.Eng.

Schedule Overview

Time	Event	Duration
Morning	Workshop: From Idea to MVP	1 hours
Morning	Coffee Break & Networking	45 minutes
Morning	Workshop: From Idea to MVP	1 hours
Afternoon	Session: Think First, Then Amplify	45 minutes

Workshop Abstract

From Idea to MVP: Building with AI in 2 Hours

FORMAT: HANDS-ON WORKSHOP | DURATION: 2 HOURS

This hands-on workshop opens the day by grounding participants in practice. Working in small teams, participants will take a real problem and build a functioning minimum viable product (MVP) in just two hours - using AI as an accelerator, not a crutch. The workshop follows a deliberate four-phase structure. It begins with a no-AI ideation phase where teams must define their problem, identify their users, and sketch a solution using only first-principles thinking and pen-and-paper. This ensures that every project starts with genuine understanding rather than AI-generated guesswork. Teams then move into design and architecture, where they map out their system and make key technical decisions before writing a single line of code. Only in the third phase, the build sprint, do participants engage AI tools to accelerate development. They use AI-assisted coding, content generation, and rapid prototyping to bring their designs to life, experiencing firsthand how AI amplifies well-structured thinking. The workshop concludes with lightning demos where each team presents their MVP, followed by a reflection on what AI helped with and what it could not replace. Participants leave with a working prototype, hands-on experience using AI responsibly, and a repeatable framework for future projects.

Prerequisites: A laptop with internet access and OpenCode installed (https://opencode.ai/). No prior programming experience is required - teams will be balanced across skill levels.

Audience: University students from any discipline, and anyone, who want to experience building AI in a structured, principled way.

Session Abstract

AI in Education: Think First, Then Amplify

FORMAT: KEYNOTE PRESENTATION | DURATION: 45 MINUTES

Artificial intelligence is transforming how we learn, teach, and create - but are students prepared to use it wisely? This session takes participants on a structured journey through the three waves of AI as defined by DARPA (handcrafted knowledge, statistical learning, and contextual adaptation) to build a grounded understanding of what AI actually is and what it is not. Drawing on Benjamin Bloom's landmark 2-sigma research and ideas from Salman Khan's "Brave New Words", the presentation explores how AI can serve as a powerful equalizer in education - offering every student the kind of personalized, mastery-based learning that was once reserved for those with private tutors. At the same time, it confronts a critical risk: the temptation to use AI as "lipstick on a pig," polishing work that lacks genuine understanding. Participants will learn a practical framework for combining first-principles thinking with AI tools — ensuring they master the fundamentals before reaching for automation. The session also equips students with strategies for engaging their professors in productive conversations about AI use in coursework, navigating policies, and demonstrating academic integrity. Building on the handson workshop held earlier in the morning, the session contextualizes the experience participants just had - connecting the practice of building an MVP to a deeper understanding of where AI fits in their education and careers.

Key Topics: DARPA's three waves of AI; Bloom's 2-sigma problem and AI tutoring; the "lipstick on a pig" trap; first-principles thinking as a foundation for AI use; talking to professors about AI; Morocco's digital education landscape.

Audience: University students and educators interested in the responsible and effective integration of AI in higher education.

Workshop Outline

From Idea to MVP: Building with AI in 2 Hours – Detailed Breakdown

Ground Rules

- Think first, generate second; no AI in the ideation phase.
- Understand every line of AI-generated code before shipping it .
- Attribute all AI contributions transparently.
- Focus on a real problem that matters to your community.
- Every team member contributes: no passengers.

Time Breakdown

Time	Phase	Description
0:00 – 0:05	Welcome & Setup	Form teams of 3-4 across disciplines. Distribute prompt cards with six starter project ideas (e.g., campus accessibility mapper, local language learning bot, student budget tracker).
0:05 – 0:20	Phase 1: Ideation (No AI)	Teams pick or define a problem. Using only pen, paper, and whiteboard, they identify the target user, articulate the core need, and sketch a rough solution. Facilitators circulate to challenge assumptions.
0:20 – 0:40	Phase 2: Design & Architecture	Teams map out their MVP scope: what is in vs. out for two hours. They draft a system diagram (frontend, backend, data), choose their tech stack, and write a one-paragraph product brief. AI tools may now be used for research and planning - not code.
0:40 – 1:25	Phase 3: Build Sprint (with AI)	The core development phase. Teams use AI-assisted coding (OpenCode) to build their MVP. A facilitator checkpoint at the halfway mark (1:00) ensures teams are on track. Teams must be able to explain every line of code.
1:25 – 1:35	Prep for Demo	Teams finalize their MVP, prepare a 2-minute lightning demo, and identify three things: what AI helped with, what it could not do, and what they learned.
1:35 – 1:55	Phase 4: Lightning Demos	Each team presents in 2 minutes: the problem, the solution, and a live demo. Audience votes for “Most Impactful,” “Most Creative,” and “Best Use of AI.”
1:55 – 2:00	Wrap-Up & Reflection	Facilitator-led debrief: What did AI accelerate? Where did human thinking matter most? Key takeaway: AI amplifies what you bring: bring substance!

Suggested Project Ideas

- Campus Accessibility Mapper
- Local Language Learning Bot
- Student Budget Tracker
- Study Group Finder
- Mental Health Check-In
- Event Discovery Board

Speaker Biography

Mohamed Saad Ibn Seddik, Dr.Eng., is a roboticist, entrepreneur, and educator whose work spans autonomous systems, machine learning, and maritime technology. He holds an M.Eng., M.Sc., and Ph.D. from France, and completed a postdoctoral fellowship at the Massachusetts Institute of Technology (MIT), where he continues to serve as an instructor.

At MIT, Mohamed Saad teaches autonomous underwater vehicle (AUV) systems through the Beaver Works Summer Institute and MIT course 2.680 (Unmanned Marine Vehicle Autonomy, Sensing, and Communications), working alongside Dr. Michael Benjamin on the MOOS-IvP autonomous vehicle software platform.

Mohamed Saad is the founder of blkSAIL, a company that built the world's first fully autonomous ferry in collaboration with Rolls-Royce, and continues building maritime autonomy solutions including ship guidance systems, AI-powered navigation aids, and intelligent navigation platforms. He is also CTO of Moroccan drone manufacturer Farasha Systems, where he directs teams to design and build Morocco's first fully in-house drones. He also served as a Senior Machine Learning Engineer at Tarteel, where he built state-of-the-art automatic speech recognition models for Quran and Arabic, including the world's first Arabic diacritization system, and deployed AI models in production serving over 10 million users and hundreds of thousands of simultaneous requests.

His work bridges the gap between cutting-edge research and practical education, making him a passionate advocate for teaching students to think in first principles before reaching for AI tools.

Additional Session

Le 1er Avril (18 :00 – 19h00)

Projection d'un film documentaire et échange avec le réalisateur

Autour du fossile : métiers, savoir–faire et créativité à Alnif avec Pr Ahmed Aarab (Université Abdelmalek Essaâdi Tanger)