



Concept Note - IRCAI, AI Africa and GITEX Africa

**Category:**

Confidential, external document

**Date:**

March 2024

**Prepared by:**

International Research Centre on Artificial Intelligence in cooperation with  
AI Africa

**Objective:**

Implementation of the closing event of the global student training on  
entrepreneurship in AI and Sustainability: << AI FOR WATER  
SUSTAINABILITY >> CHALLENGE MOROCCO 2024



- **AI for Water Sustainability: Revolutionizing Resource Management and Conservation**

## THE SETTING

Entering the age of Big Data, Artificial Intelligence is feeding the data-driven digital transformation across industries and evidence-based decision-making by the leadership across institutions and governments. The amount and heterogeneity of data generated allied to the rapid progress of scientific research and technological development have created vast amounts of data, but significant challenges to gathering, filtering, and making sense of this information.

Building upon common interests, exciting initiatives and existing projects developed by IRCAI and AI in Africa ( [aiinafrica.org](http://aiinafrica.org) ) , focused on AI and Sustainability, this activity aims to build capacity within African youth to advance the Sustainable Development Goals through AI on challenges within their own communities and in the region.

The proposed activity comes in the context of discussions started in GITEX Dubai in 2023 and that are now directed to a concrete event in GITEX Africa. It is mostly directed to Youth in AI and young entrepreneurs working for the good of their communities, with exposure through a Top100-like mechanism and engaging some of our experts. The global challenge of this action, "Water, AI and Sustainability" is one of the MENA priorities and follows the work done by IRCAI with European Commission - NAIADES (see report and pilot <http://naiades.ircai.org/>), as well as the recently opened new IRCAI Committee on AI and Water Resource Management focusing on the impact of AI in SDG 6 (see [ircai.org/project/ai-and-water-resources-management/](http://ircai.org/project/ai-and-water-resources-management/)).

This activity will follow the line of work by IRCAI in relation UNESCO's interests in taking action to capacitate the Youth towards AI, with focus on the recent activities based from Morocco but with a global scope, including the opening of the new UNESCO AI Centre, the AI Movement.

## THE EVENT

AI in Africa in collaboration with IRCAI will conduct a gathering of minds which is a 1-day summit around technologies and shifts of the future. This summit is an initiative designed to encourage a conversation between the communities, corporate thought leaders, the education visionaries, and the ecosystems builders to have constructive conversations around the shifts and needs of the changing future landscape. The discussions include start-up communities, technologists, and government representatives to unite and define the future as they see it.



<b>Ai Ethics</b>	<b>Data Governance And Privacy</b>
<b>Future of Work</b>	<b>Multimodal Ai</b>
<b>AI Regulation</b>	<b>Limitations Of The Use Of Artificial Intelligence.</b>

This conference aims to collaboratively discuss sustainable solutions that help large scale recovery and define a better and more hopeful inclusive Africa.

As discussed with GITEX Africa, it will follow the timeline structure ( open to amendments)

9::00-12:00 Morning Breakfast with Experts

Three proposed workshops :

- (i) Hands-on to directly apply methodologies and tools on data offered by organisers in relation with the workflow led by students across the 1-month mentorship programme;
- (ii) Hands-on workshop targeting Ai professionals on Enhancing AI apps: Finetuning LLMs vs RAG
- (iii) high-level workshop targeting decision-makers interested in evidence-based governance and sustainability, bringing together speakers that are experts on these topics.

12:00-13:00 Lunch Break

13:00-13:30 Introduction and Keynote Speaker 1

13:30-15:00 Project Pitching (10 competing projects - 3 judges )

15:00 - 1545 RoundTable

This activity will follow the line of work by IRC AI in relation UNESCO's interests in taking action to capacitate the Youth towards AI, with focus on the recent activities based from



Morocco but with a global scope, including the opening of the new UNESCO AI Centre, the AI Movement.

15:45-16:15 Panel : Topic tbd

16:45 – 17:30 Award ceremony

17:30 – Networking

Gitex Africa Ai-in-Africa participation in 2023 ( workshops, panels, moderations)



## THE PROGRAMME

A coaching program for university students teams working on AI and sustainability with the overall topic on Water will take place during April and May (4 weeks with 4 sessions). AI-in-Africa will mobilize the Youth to this programme, from 6 to 8 Universities across multiple cities with Partner Injaz al Maghreb (<https://injazmorocco.org/>).

The organisers are preparing the programme and experts to invite for the online sessions and to have as keynotes during the main event at GITEX Africa and identifying the awards that counts with IRCAI's collaborations with, e.g., Orange Data Mining, in a more actionable manner, or AWS in the same context of IRCAI's sustainability challenge recently launched (<https://ircai.org/compute-for-climate-fellowship/>). The awards will include the opportunity to work



together with IRCAI in technical tasks at its AI-driven SDG Observatory or other activities where winners can leverage their skills.

The programme will count on the exposure of their winning work through GITEX and IRCAI channels and act a pilot for a wider global programme.

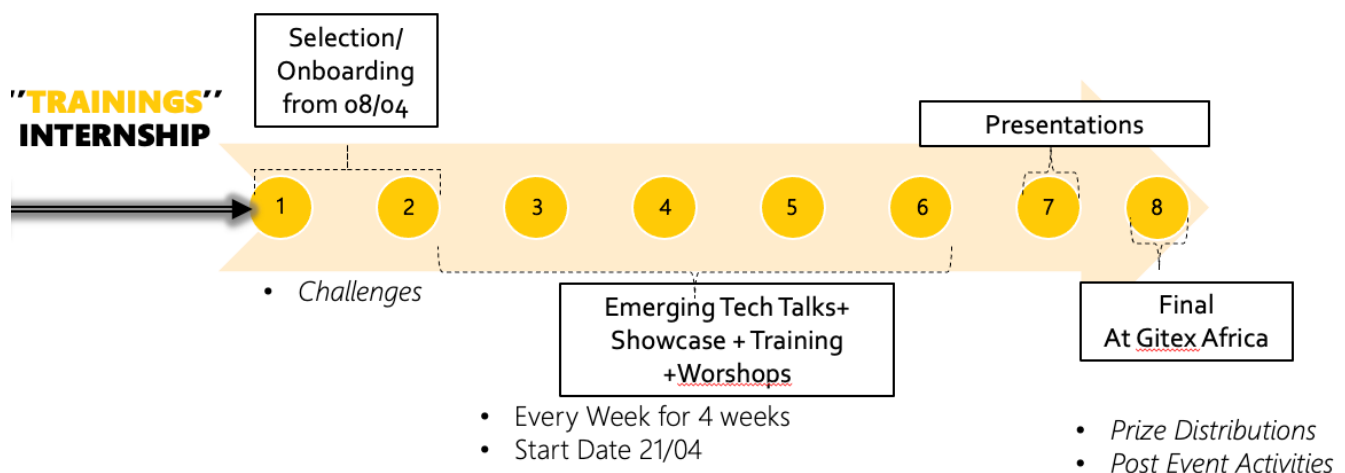
Based on this we aim to reach the following goals:

- Provide experiential learning opportunities in multiple practice areas
- Provide opportunities to collaborate in teams and co-create solutions to challenges
- Identify Implementation options and introductions to various entities for relevant projects
- Fast-track Building ideas to products
- Showcase Ideas and MVPs
- Connect with start-ups in the space for matchmaking
- Prizes and Certificates with corporate sponsorships + impact opportunities

Focusing on Water Sustainability and AI we have a shortlist of coauthors and collaborators with worldwide recognised expert work being confirmed as speakers for the mentorship programme:

- Matjaž Mikoš, UNESCO chair for landslide risk reduction, droughts and floods -- News Mining for Extreme Water/Weather Events
- Gerald Corzo Perez, senior researcher at the UN Water Education IHE Delft -- Water, AI and Twitter
- Ignacio Casals, R&D Manager in Aguas de Alicante Spain -- Wastewater management and NLP
- Eduardo Aoun Tannuri, Mechatronics Engineer at the C4AI in University of Sao Paulo, Brasil -- Water Dynamics Simulation and Deep Learning
- Joao Pita Costa, Innovation Manager at IRCAI -- Using Text Mining to Extract Best Practices on Science, Patents and News

The timeline of the programme is drafted as follows:





The training curriculum will include weekly seminars ( open to wider audience and can be promoted for larger reach), Training Workshop ( only participants ) ,Showcases ( only participants) , Mentoring Sessions ( only participants).

The GITEX Africa event could include the participation of Amal El Fallah (AI Movement), Armin Ibrišimović (UNESCO in Morocco) and, at a later stage, the Abu Dhabi University of AI.

Some of these discussions are being held and their participation should be limited to mentorship, participation as speaker, building research collaboration bridges, etc.

## THE TOPICS

For the practical tasks that are core of the competition, the topics are as follows:

- Using deep learning (eg LSTM) to detect the behavior of parameters on water across 10 years (water level and temperature, etc. e.g.  
<http://naiades.ircai.org/dashboards/Main/Index?country=Carouge&language=English&visualization=visualizations-Resources--prediction>)
- Granger causality on indicators to identify relation between variables (building on  
<http://naiades.ircai.org/dashboards/Main/Index?country=Carouge&language=English&visualization=visualizations-indicators--global-indicators#>)
- Knowledge extraction from text to identify good practices (see  
<https://qmidas.quintelligence.com/searchpoint/result.html?q=water%20sustainability&c=kmeans>)
- Data narratives with D3js from data sourced with eS APIs (see eg <https://sdg-observatory.ircai.org/index.php/sdg-6/>)
- Content generation around SDG 6 with news data ingestion and LLMs
- Implementation of SDG classifiers and refinement for SDG 6 topics
- Mining Twitter data with ML methods using water data as in  
<http://naiades.ijs.si/dashboards/Main/Index?country=Global&language=English&visualization=visualizations-media--twitter-dashboard#>
- Sentiment analysis and automated data retrieval on policies and legislation
- Bias, Ethics and Responsible AI in the context of Water

The data to be handled in the preparation of the work is provided as open datasets shared through the Zenodo initiative and include:

- NEWS/TWITTER: worldwide news and Twitter posts collected in almost real-time providing information from a vast catalogue of multilingual world news, captured in more than 60 languages and based on a variety of wikidata concepts but analysed with english-based outputs;
- SCIENCE: Published scientific articles - journal and conference papers, mostly peer-reviewed - and patents with english abstracts, translated from the languages the full research is published on covering over more than 126 million articles with yearly updates;
- EDUCATION: Lectures and videos selected and filtered on content from Video Lectures ([videolectures.net](http://videolectures.net)) resources related to SDG6, with an english-based output.



IRCAI's AI-driven SDG Observatory integrates the above mentioned data where the user can access any of the three views: (1) media; (2) science; and (4) training.

In each of the views, the user can access interactive data visualisation summarising the sourced data configured to observe the UNESCO AI recommendations. As it is fully based on open data, it allows the user to click on the resources collected and summarized, being taken directly to the media house, journal, policy source or to the location in Videolectures.



## THE PRIZE/EXPOSURE

- Collaboration with IRCAI on specific tasks (as discussed, but to be detailed)
- Exposure through the IRCAI Top 100 <https://ircai.org/global-top-100/>
- Exposure in the NAIXUS (<https://naixus.net/>) network of excellence on AI and Sustainability (to be further discussed) -- implying potential PhD and Postdoc opportunities

In order to maximise the impact of the programme, the content from the above mentioned opportunities will be organised across UNESCO's most related to the five areas:

1. Capacity building;
2. Developing supportive policy ;
3. Effective, inclusive and equitable access to quality Education;
4. Nurturing and creating sustainability models for Water Sustainability;
5. Fostering and facilitating international cooperation.

Information generated by the Programme can be used to aid in the resolution of problems related to Water Sustainability, by identifying trends and major areas of discussion, and to explore successful scenarios through similar challenges and cases. The SDG Observatory is being built to properly address the challenges of decision makers, using machine learning techniques, extracting insights and best practices from text-based documents. The Observatory provides benefits, more specifically, to the following target stakeholders:

- National Governments – access to a variety of perspectives (including trend and comparative) on a data driven dashboard with information on Water Sustainability trends for decision-making; access to local (e.g. country-level) progress on SDG 6.
- Educational Institutions – access to information on current trends on Water Sustainability research and development;
- Research Institutions – access to data over interactive visualisation and research;
- Civil Society - access to information and training materials that explore the knowledge available towards the implementation of the UNESCO recommendations;



- NGO community - access to information directly linked to the community priorities if intersecting the five UNESCO OER pillars mentioned above;
- General Population – access to local (e.g. country-level) progress on SDG 6.

IRCAI's SDG Observatory is being built by IRC AI through the Institute Jozef Stefan Institute, in collaboration with both UNESCO Chairs.

## THE TEAM

### IRCAI

- **Mitja Jermol** is UNESCO Chair on Open Technologies for Open Educational Resources and Open Learning and the head of the Centre for knowledge Transfer at the Jožef Stefan Institute, the national research institute in Slovenia. Mitja is a member of the Knowledge4All foundation board of directors, Opencast -Matterhorn Open Source Project, Open Education Consortium, Complex System Society and European current research information systems (CRIS) community. Mitja is co-founder of the two institute spin-outs, Quintelligence and Cypcorp RER.
- **Joao Pita Costa** is a PhD in Mathematics from the University of Ljubljana. He worked as a researcher in topological data analysis at the Institute Jozef Stefan, extending this collaboration as senior researcher in the spin-off Quintelligence, where he took a key role in the MIDAS project using AI and Big Data to support policy making in public health, and in IRC AI, where he is designing AI-driven SDG. He is also a lecturer on AI-related topics at the Barcelona Business School, ENEB, collaborates with the scale-up XLAB as innovation manager, and was head of marketing at the bioinformatics start-up Genialis.
- **Maurizio Santamicone** is a digital, automation and AI leader with 20+ years of experience on international projects driving innovation and digital transformation for diverse industries. He helps tech startups develop cutting-edge AI multimodal products, multi-agent solutions based on Large Language Models (LLMs). He has given workshops on AI's ethics and building better AI apps, while being committed to ensuring that organizations use AI responsibly and transparently. He is the author of publications on AI, Fintech and Blockchain. He is currently CTO of Kodelab.io, an AI and Web3 tech studio based in London, UK.
- **Lee Chana** is a tech enthusiast and a passionate advocate for women and youth in STEM and start-up ecosystem enabler. With a diverse background in technology and various solution and delivery-oriented roles in both corporate and startup settings, Lee is a partner at Fliptin Technologies since 2016, where she spearheads product development for startups and entrepreneurs working on innovative solutions with AI,



blockchain and IOT. Lee's commitment to empowering youth led her to co-found AI In Africa, a platform dedicated to fostering 21st-century skills through AI and design thinking. In her role as director and co-founder, she oversees program development, implementation and stakeholder engagement. Lee holds current board positions at the French SA Chamber of Commerce and Industry and French Tech South Africa. She served as a board advisor at Fields Data from 2020 to 2023, an international NGO dedicated to enhancing the efficiency and impact of humanitarian projects in Global South countries through data collection services. Lee holds an MBA with a dissertation on the Lack of Women in ICT Leadership. In 2023, she initiated a school math and science club, promoting participation in national competitions and nurturing the next generation of STEM leaders. Lee's multifaceted contributions highlight her commitment to driving positive change and fostering innovation in the tech industry.

- Mustapha Zaouini** is seasoned tech entrepreneur, with over 20+ years of expertise in digital transformation and growth strategies in Fintech, Telecoms, Blockchain, AI & Edtech across Africa. Ex Naspers, Atos, Amdocs, Vodafone, Nortel Networks, Motorola, Fujitsu to name a few. He is currently the Chairman of 'Ai in Africa', Co-founder of Startup Studio Fliptin, EIR @ Miary Digital Madagascar National Startup Program in collaboration with the World Bank, CPO @ Alyf LifeStyle Payment in Morocco, Co-founder of Certtin Blockchain certifications and National Organizer Entrepreneurship World Cup Morocco. His biggest passion is his commitment to using technology for social good, particularly in the areas of AI for good and Open innovation empowering youth to build an inclusive future in Africa through the 'Ai in Africa' program. He holds an MBA from London Business School and an MSc in Computer Science from London Metropolitan University.