AHMED A. ALJANABI, PhD

Research Assistant Professor | Water Resources Engineering

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SUMMARY

Dr. Ahmed A. Aljanabi is an expert in water resources and environmental engineering, holding a Ph.D. in Civil, Environmental, and Sustainable Engineering with a specialization in Water Resources Engineering from Arizona State University (ASU), earned in May 2019. Currently, he is a Research Assistant Professor in the School of Sustainable Engineering and the Built Environment (SSEBE) at ASU collaborating closely with Dr. Peter Fox and Dr. Margaret García.

With over two decades of experience in academia, research, and professional practice, Dr. Aljanabi has developed a profound expertise in water resources management, groundwater modeling, reclaimed water reuse, and climate change adaptation. His work integrates cutting-edge optimization techniques, advanced hydrologic modeling, and sustainability principles to address critical water challenges in arid and semi-arid regions.

Dr. Aljanabi's research and professional accomplishments include leading multidisciplinary projects, publishing influential research on water allocation and reuse, and mentoring the next generation of engineers and scientists. His expertise extends to wastewater treatment systems, watershed management, and resilience planning, underpinned by a comprehensive understanding of water policies and regulations.

As a dedicated educator and researcher, Dr. Aljanabi is committed to fostering sustainable water solutions and advancing knowledge through collaboration with academic, governmental, and industry stakeholders. His contributions continue to impact the fields of water resources and environmental engineering, addressing global water security challenges with innovative and practical solutions.

EDUCATION

2019	Doctor of Philosophy (Ph.D.) in Civil, Environmental, and Sustainable Engineering/Hydrosystems, Arizona State University (GPA:3.98/4.00)
2007	Master of Science (M.Sc.) in Civil Engineering/Water Resources Engineering, University of Technology, Baghdad, Iraq.
2002	Higher Diploma in Civil and Environmental Engineering, University of Technology, Baghdad, Iraq.
2000	Bachelor of Science (B.Sc.) in Civil Engineering, University of Technology, Baghdad, Iraq.

AREAS OF EXPERTISE

- Water Resources Planning and Management
- Surface and Groundwater Hydraulic and Hydrologic Modeling and Simulation
- Urban Water System
- Wastewater Systems' Planning and Management
- Flood Risks Management
- Water Resources Resilience and Sustainability
- Water-Energy-Food Nexus
- Reclaimed Water Reuse
- Climate Change Issues
- Optimization
- Technical Writing
- Presentation and public speaking skills
- Proposals' Preparation
- Conducting multi-task jobs and work cooperatively
- Highly developed oral and written skills

PROFESSIONAL EXPERIENCE

Organization: Arizona State University, Tempe, Arizona (April 2024- Present)
Title: Assistant Research Professor

- Conducting and orchestrating the development of advanced water resources management models, particularly focusing on the region of Phoenix Active Management Area (AMA), Arizona.
- Formulating robust research methodologies for the analysis of water resources interactions.

- Implementing cutting-edge numerical simulation models to simulate and analyze complex water systems.
- Spearheading data preparation processes ensuring accuracy, reliability, and relevance.
- Crafting detailed and articulate research reports to communicate findings effectively.
- Providing mentorship to graduate students fostering a collaborative and intellectually stimulating research environment.
- Teaching CEE341 Fluid Mechanics for Civil Engineering students for the Spring and Summer 2024 sessions.

Organization: Arizona State University, Tempe, Arizona (August 2023- April 2024)
Title: Visiting Scholar
- Similar duties to the Assistant Research Professor role, focusing on the development of advanced water resources management models and engaging in academic teaching and mentorship.

Organization: Groupe Huit Consulting, Nantes, France (September 2022- August 2023)
Title: Senior National Hydraulic Expert (part-time job, Iraq based position)
- Collecting data required for the feasibility study & ESIA / ESMP of the Sanitation and Rainwater Drainage Project in Al Hamza District, Al Qadisiyah Governorate, Iraq and other projects that are financed by Agence Française de Développement (AFD/French Development Agency).
- Review of different documents present in the context of the project.
- Coordinating process with stakeholders who are involved with the aspects of the project.
- Have had strong inputs in the inception phase, feasibility of the wastewater system, feasibility of the rainwater system, institutional analysis, O&M capacity building, project implementation modalities and monitoring, procurement strategy, and the conclusion of the project.
- Participate in the environmental and social safeguards, environmental and social impact assessment and management plan (ESIA & ESMP).

Organization: Scientific and Engineering Consulting Bureau/ University of Technology, Iraq (Oct., 2019- Aug., 2023)
Title: Senior Water Resources and Environmental Engineering Expert, part-time job.
- Implementing various projects in the field of water resources and environmental engineering.
- Supervising the implementation of projects' tasks, the evaluation of the environmental and social impacts of projects, presenting seminars and workshops, preparing the progress reports, and writing and editing related studies.
- Conducting the hydrological assessment and analysis of water resources projects and related studies.
- Designing and implementing community water plans, community engagement, and education around sustainable water resource management and potential development.
- Perform workshops and seminars.
- Capacity building of people from different backgrounds focusing water resources management techniques and utilizing nontraditional water resources as an alternative and sustainable resources.
- Writing, editing, and validating the prepared studies.
- Writing, developing, and submitting proposals.

Organization: Water for Life Solutions LLC, Oakton, VA 22124, USA (Apr. – Sep. 2021)
Title: Water Systems Specialist - National Coordinator (part-time job, Iraq based position)
- Coordinating and arranging the implementation of the Iraqi Water Resources Planning Decision Support Tool (IWRPDST) Project, which is part of USAID IGPA/Takamul Project in Iraq.
- Liaise with the Iraqi Ministry of Water Resources (MoWR) to collect documents, data, and information for the development of the proposed model using RIBASIM to design the appropriate decision support tools.
- Gathering meteorological, surface water, and groundwater data for the development of the model.
- Gathering information for the establishment of the overall schematic of water resources infrastructure and related data for the RIBASIM model.
- Coordinate the logistics for the RIBASIM software training.
- Streamlined the formal and hands-on informal training for the MoWR staff on the RIBASIM software.

Organization: Arizona State University/ School of Sustainable Engineering and the Built Environment, Arizona, USA (August, 2014 – May, 2019)

Title: Graduate Research Assistant

- Developing, conducting, and testing different water allocation optimization models.
- Teaching assistantship.
- Presenting lectures, and seminars in the field of integrated water resources management and reclaimed water reuse.

Organization: Scientific and Engineering Consulting Bureau/the University of Technology, Baghdad, Iraq (2005 – 2013)

Title: Design Civil Engineer/ Water Resources and Environmental Engineer

- Supervising and managing the construction of strategic projects in a collaboration with other team members.
- Supervising the implementation of several strategic sewerage projects in Baghdad.
- Studying, planning, and designing various projects in civil, water resources, and environmental engineering.
- Preparing water-related environmental, and social impact studies for UNICEF WASH Projects in Iraq.
- Coordinating and arranging the implementation of projects.
- Supervising the implementation of the following strategic projects, checking, and revising designs, and preparing the weekly and monthly progress reports. The projects are:
  - Two wastewater treatment plants with a capacity of 10,0000 m^3/day per plant.
  - Baghdad's Additional Western Main Sewer Trunk Line (about 13.0km length, 2.8 - 3.6m diameter).
  - Baghdad's Southwest Sewer Trunk Line (about 12.0km length, 1.8 - 2.8m diameter).
  - Two wastewater lifting stations (3.5m^3/sec per each).
  - One wastewater pumping station (pumping capacity 12.5 m^3/sec).
- Collaborating in the design of the tertiary wastewater treatment projects and reclaimed water drip irrigation system forthe Mayoralty of Baghdad.

TEACHING EXPERIENCE

- Assistant Research Professor teaching CEE341 Fluid Mechanics for Civil Engineering students for the Summer 2024 session.
- Faculty Associate teaching CEE341 Fluid Mechanics for Civil Engineering students for the Spring 2024 session.
- Teaching assistant experience at the School of Sustainable Engineering and the Built Environment, Arizona State University of the following courses:

1. Water Resources Engineering (CEE 441), for one semester (Spring 2017).
2. Fluid Mechanics for Civil Engineers (CEE 341), for one semester (Spring 2017).

PUBLICATIONS

Aljanabi, A. A., et al. (2019) Optimization Models for Iraq's Water Allocation System. ProQuest Dissertations Publishing. [online]. Available from: http://search.proquest.com/docview/2226253450/

Aljanabi, A. A., Mays, L. W., & Fox, P. (2018). Optimization Model for Agricultural Reclaimed Water Allocation Using Mixed-Integer Nonlinear Programming. *Water*, *10*(10), 1291. https://doi.org/10.3390/w10101291

Aljanabi, A. A., Mays, L. W., & Fox, P. (2018). A Reclaimed Wastewater Allocation Optimization Model for Agricultural Irrigation. *Environment and Natural Resources Research*, 8(2), 55. https://doi.org/10.5539/enrr.v8n2p55

Aljanabi, A. A., Mays, L. W., & Fox, P. (2018). Application of an Optimization Model for Assessing the Performance of Water Appropriation in Iraq. *Environment and Natural Resources Research*, *8*(1), 105. https://doi.org/10.5539/enrr.v8n1p105

FUNDED RESEARCH PROJECTS

Aljanabi, A. A., Al-Mukhtar, M. M., Mays, L. W., & Fox, P. "Developing water allocation optimization models for Iraq using different sources of water to be allocated for different uses, Baghdad as a case study." $141,000, January 2019-December 2020, The United States Agency for International Development USAID PEER Cycle 7.

AWARDS

1. Ph.D. Scholarship to study abroad funded by the Iraqi Ministry of Higher Education and Scientific Research (Oct. 2013-May 2019).
2. Named to the Dean's List at the Ira A. Fulton Schools of Engineering, ASU for the Spring 2017 semester of being among the elite group of students who have completed 12 or more credit hours in a semester with a 3.5 or higher GPA.

CONFERENCE PRESENTATIONS

1. "Capturing Lost Water: A Significant Water Resource for Arid and Semi-Arid Regions," the Arab-German Young Academy of Sciences and Humanities (AGYA) Conference on Improving Water Quality in Iraq, Catholic University, Erbil/ Iraq, Dec. 18, 2024. (Conference: Improving Water Quality in Iraq | Arab-German Young Academy)
2. "Regional Water Allocation Optimization Model Using Three Different Water Resources for Five Different Uses, Baghdad As A Case Study," National Academes' 7th Arab-American Frontiers of Science, Engineering, and Medicine Symposium, Cairo, Egypt, November 17-19, 2019. (Seventh Arab American Frontiers of Science Engineering and Medicine Symposium)
3. "Optimization Model for Agricultural Reclaimed Water Allocation Using Mixed-Integer Nonlinear Programming," 2019 AZ Water Conference, Phoenix, Arizona, April 16-18, 2019. (2019 Annual Conference Info - AZ Water Association).
4. "A Reclaimed Wastewater Allocation Optimization Model for Agricultural Irrigation," USCID 11th International Conference on Irrigation and Drainage, Phoenix, Arizona, October 15-19, 2018.
5. "Reclaimed Wastewater Appropriation for Agricultural Uses in Iraq, Baghdad as a Case Study," 11th IWA International Conference on Water Reclamation and Reuse, Long Beach, CA, July 23-27, 2017. (11th IWA International Conference on Water Reclamation and Reuse - International Water Association)

TECHNICAL RESEARCH PRESENTATIONS AND WORKSHOPS

1. Participated as a Subject Matter Expert in the U.S.-Iraqi Research-Focused Dialogues organized by the U.S. National Academy of Sciences, Engineering, and Medicine, Amman, Jordan, January 15-18, 2023.
2. Presented "Iraqi Water Resources" during the virtual research-focused dialogues directed by U.S. National Academy of Sciences, Engineering, and Medicine, September 2022.
3. Presented "The Optimal Allocation of Reclaimed Water for Agricultural Irrigation" at King Saud University, Riyadh, KSA, November 24, 2019.
4. Presented "Optimization Models for Iraq's Water Allocation System" at the Water Resources Systems (CEE 543) course at Arizona State University, February 5, 2019.
5. Presented "Water Allocation Optimization Models, Iraq as A Case Study" at the Hydrosystems Engineering Seminar (CEE 591) course at Arizona State University, April 25, 2018.
6. Presented "Water Resources in Iraq" in the Water Resources Sustainability (CEE 598) course at Arizona State University, October 2017.
7. Presented "Water Allocation Optimization Models for Agricultural Irrigation" in the Water Resources Systems (CEE 543) course at Arizona State University, April 2018.

COMPUTER SKILLS

- QGIS, SWAT+, HEC-HMS, HEC-RAS, MODFLOW, EPANET, GAMS, MATLAB, ArcGIS, AutoCAD, MS Office.