Abdel Rahman Awawdeh, Ph.D., EIT

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EDUCATION

PhD in Civil Engineering (Defended Dissertation, October 2024) January 2021 – Present
University of Mississippi, Oxford, MS GPA: 4.00
Related coursework: Design with Geosynthetics, Advanced Foundation Engineering, Remote Sensing, Machine Learning, ANN, Programming with Python.

Master of Engineering, Civil Engineering September 2019 – July 2020
University of the Pacific, Stockton, CA GPA: 3.77
Related coursework: Advanced structural steel design, Building Information Modelling, and Engineering Risk Analysis.

Bachelor of Science, Civil Engineering September 2014 – August 2018
Jordan University of Science and Technology, Jordan. GPA: 3.81 (Ranked in Top 5%)
Related coursework: Soil Mechanics, Foundation Engineering I&II, Bridge Engineering, Construction Management, and Steel Design.

RELEVANT EXPERIENCE

Civil Engineering, Shatec Engineering Consultants, LLC (CA, USA) October 2020 – January 2021

- Conducted seepage analysis using SEEP/W software, delivering detailed reports with findings and actionable recommendations.
- Performed soil settlement analysis, providing comprehensive reports outlining root causes and proposed solutions.
- Developed a technical report on the application of computer software for predicting peak temperature in cast-in-place concrete piling.
- Analyzed a traffic accident at a Los Angeles intersection, producing an engineering-focused report on the intersection's design and its potential impact on safety.

Site Civil Engineering Training, LEEWAN Company (Jordan) June 2018 – August 2018

- Evaluated site engineering plans and ensured field implementation by comparing engineering plans with completed work.
- Supervised field work by daily directing staff for what to do with work.
- Wrote weekly detailed progress reports on what had been done.

Publications:

1. **Awawdeh AR**, Yasarer HI, Ghaffari Z, Yarbrough LD. Downscaling GRACE Data for Enhanced Groundwater Forecasting in the Mississippi Delta Region. MDPI Hydrology. Pending submission.

   Led the conceptualization, methodology, validation, and manuscript writing for the research.

2. Ghaffari Z, **Awawdeh AR**, Easson G, Yarbrough LD. Literature Review: Downscaling GRACE and GRACE-FO Products. MDPI Sensors. Pending submission.

   Conducted a comprehensive review of existing literature on the downscaling of GRACE and GRACE-FO data, summarizing key methodologies and findings.

3. Heintzman LJ, Ghaffari Z, **Awawdeh AR**, Barrett DE, Yarbrough LD, Easson G, Moore MT, Locke MA, Yasarer HI. Assessing Differences in Groundwater Hydrology Dynamics Between In-Situ Measurements and GRACE-Derived Estimates via Machine Learning: A Test-Case of Consequences for Agroecological Relationships within the Yazoo-Mississippi Delta (USA). MDPI Hydrology. **2024**.

https://doi.org/10.3390/hydrology11110186

Developed and validated machine learning models; contributed to creating visualizations and co-authored the manuscript.

4. Ghaffari Z, Easson G, Yarbrough LD, **Awawdeh AR**, Jahan MN, Ellepola A. Using Downscaled GRACE Mascon Data to Assess Total Water Storage in Mississippi Alluvial Plain Aquifer. Sensors. **2023**; 23(14):6428. https://doi.org/10.3390/s23146428.

   Contributed to the design of the research methodology and performed the data analysis using advanced statistical models.

5. Alshannaq AA, **Awawdeh AR**. Implementation of Machine Learning in Predicting Pin-Bearing Strength of Aged and Non-Aged Pultruded GFRP Composites. Journal of Composites for Construction. **2024**. https://doi.org/10.1061/JCCOF2.CCENG-4483

   Led the application of machine learning techniques and co-authored the manuscript, focusing on the analysis and interpretation of complex data sets.

CLASS PROJECTS

BS Graduation Projects I & II

Objective: Structural design of a multi-story reinforced concrete villa with a swimming pool.

- Designed and developed drawing and structural plans using AutoCAD that included foundations, columns, beams, walls, slabs, and detailing.
- Implemented SAP2000 and MATLAB in seismic load modelling by studying the location specifications and seismic maps for that location needed to generate the seismic loads.
- Utilized the results based on the ACI-318 and UBC codes specifications to include the seismic loads in the design.

Conferences:

- **Presentations at Conferences:**

- "Advancing Groundwater Prediction in the Mississippi Delta: Integrating Downscaled GRACE Data and Artificial Neural Networks" Poster presented at the American Geophysical Union Fall Meeting, San Francisco, CA, December 11-15, 2023.
- "Scaling down GRACE data for smaller regions: utilizing artificial neural networks and climate data for enhanced hydrological predictions in the state of Mississippi" presented at Mississippi Water Resources Conference, Starkville, MS, March 28-30, 2023.
- "Downscaling GRACE Equivalent Water Thickness Data for Mississippi Using Neural Nets" poster presented at Mississippi Water Resources Conference, Starkville, MS, April 13, 2022.

- **Conferences Attended:**

- American Geophysical Union Fall Meeting, New Orleans, LA, December 13-17, 2021.
- Water Security Workshop, University of Alabama, Tuscaloosa, AL, October 24-27, 2022.

Certifications and Exams:

- Passed the Fundamentals of Engineering (FE) Exam, September, 2023.

SKILLS

Programming: Python (Xarray, Pandas), TensorFlow, MATLAB.

Tools: GIS, AutoCAD, REVIT, SAP2000, ETABS, PROKON.

Techniques: Machine Learning, ANN, Statistical Inference, Data Analysis, Remote Sensing.

Languages: English, Arabic

ADDITIONAL WORK EXPERIENCE

Teaching/Research Assistant, University of Mississippi, Oxford, MS — January 2021 – Present
Teaching Assistant, University of the Pacific, Stockton, CA — August 2019 – June 2020
Instructor for Engineering Courses, Genius Academy, Jordan — June 2018 – December 2018