



EMS Building
PO Box 784
Milwaukee, WI
53201-0784
414 229-5191 *phone*
414 229-6958 *fax*

March 17, 2024

Phil Roos
Director
Michigan Department of Environment, Great Lakes, and Energy
525 West Allegan Street
Lansing, MI 48933

Subject: The University of Wisconsin-Milwaukee Industrial Assessment Center (UWM-IAC) Supports the State of Michigan's CPRG Coalition Proposal for the Midwest Industrial Decarbonization Challenge (Award Number EPA-R-OAR-CPRGI-23-07)

Dear Director Roos,

The University of Wisconsin-Milwaukee Industrial Assessment Center (UWM-IAC) affirms our commitment to work with the State of Michigan in its partnership with the states of Illinois, Minnesota, Ohio, and Wisconsin to carry out a regional effort to reduce industrial emissions in response to EPA-R-OAR-CPRGI-23-07. We are pleased to endorse the Midwest Industrial Decarbonization Challenge's objective to reduce greenhouse gas (GHG) emissions from the twenty (20) region's top polluting, hard-to-decarbonize industries.

We understand the role the application contemplates we will play as a university research entity. In the event that the EPA awards the grant for the Midwest Industrial Decarbonization Challenge to the State of Michigan (EGLE) and should we enter into a contract with our partnering state agency in Wisconsin, we are ready, willing, and able to carry out the roles and responsibilities contemplated. Through the Midwest Industrial Decarbonization Challenge program period, we anticipate collaborating with the State to deliver incentive programs, including but not limited to industrial energy efficiency, fuel-switching, and innovative technologies in order to reduce industrial GHG emissions. Our commitment extends to supporting program development and implementing industrial emission reduction strategies.

The proposed GHG reduction measures will achieve significant cumulative GHG reductions, provide substantial community benefits in low-income and disadvantaged communities, and complement other funding sources to maximize both GHG reductions and community benefits. Because many industrial facilities are located in or upwind of low-income and disadvantaged communities (LIDAC), we know that improvements to the environmental performance of industrial facilities in the region will benefit LIDAC communities. We understand that the states in the coalition are committed to achieving such benefits.

We understand industrial decarbonization because we work with industrial facilities in Wisconsin to provide technical and analytical support, including assessments of measures that can be undertaken at those facilities to reduce the use of fossil fuels and otherwise reduce emissions, often saving money in the process. The role anticipated for us under the Midwest Industrial Decarbonization Challenge is a natural scaling-up of the work we are already doing.

The UWM-IAC has contributed to the Midwest regional industrial assessment program for over 20 years. The center's team comprises 14 Ph.D. candidates with Mechanical, Materials, Electrical, Energy, and Chemical engineering backgrounds. The team is directed by the PI, Prof. Ryo Amano, and four assistant directors to help manage the team. The team shares our high qualifications for providing energy assessments for manufacturers. Taking advantage of the team skills will strengthen the technical assistance provided to the industries.

UWM-IAC is the only center in Wisconsin. The center is located in Milwaukee, WI, and serves Wisconsin, Minnesota, Iowa, and northern Illinois. The food industry, foundries, and paper manufacturing are considered the major industries in the Midwest. The named industries are large GHG emitters, and the center is willing to help them reduce their emissions.

One of the center's focuses is cybersecurity. The IAC offers a professional meeting with the respective facility's IT representative and the UWM-IAC's cybersecurity specialist, assistant director, Dr. Rafat Elsharef, to provide a cybersecurity assessment recommendation to be included in the energy assessment report. The center works on workforce development in the energy field by providing training sessions and offering academic courses each academic year.

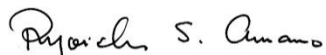
The center has built strong partnerships with several local and national entities, including industries. The center partnered with the Wisconsin Economic Development Corporation (WEDC) to promote new emerging energy technologies for industrial facilities. Another center partner is the Focus on Energy (FoE), the Wisconsin utilities' statewide energy efficiency and renewable resources program. They support our center's services by participating in energy assessments and providing incentives to clients.

We have considerable expertise in the energy area, including Ph.D. degree holders and Ph.D. candidates and members certified with CEM®, LEED, NABCEP®, CMCP™, EMIT®, etc. Other members had internships during the summer/academic period working with energy professionals conducting level 3 energy auditing. We are attaching the short CVs of our leadership and principal staff to this letter.

The center has served more than 210 industries in Wisconsin and neighboring states, including manufacturers and water and wastewater treatment plants (WWTPs). The center provided over 1,700 assessment recommendations (ARs) to save energy and optimize energy performance. The provided ARs potentially could save more than \$17 million, more than 2.4 TBtu, and more than 180 thousand tons of CO2 emissions annually if implemented. The UWM-IAC program has trained over 87 graduate and undergraduate students, many of whom now work in energy-related positions and utilities in Wisconsin and nationwide. Currently, the UWM-IAC helps industries with the DOE's Implementation Incentive Grants. Our center implements approximately 20 assessments for large emitters and provides technical assistance and support services throughout the five-year grant period.

We are enthusiastic about partnering with the State of Michigan (MI EGLE) to advance the goals of the US Environmental Protection Agency through this pivotal program.

Sincerely,



Ryo Amano, Director of UWM-Industrial Assessment Center
Richard & Joanne Grigg Fellow Professor

RESUMES/CVS

PI: Ryo S. Amano

Richard & Joanne Grigg Fellow Professor, Dept. of Mechanical Engineering, UW-Milwaukee, Milwaukee, WI 53201

Ph: 414-229-2345; Fax: 414-229-6814 Email: amano@uwm.edu,

ASME Fellow; Royal Aeronautical Society (RAeS) Fellow; International Society for Energy, Environment, and Sustainability (ISEES) Fellow; AIAA Assoc. Fellow

Lead Project Manager, Dr. Ryo Amano, Richard & Joanne Grigg Fellow Professor, is currently the Director of the UWM-Industrial Assessment Center (UWM-IAC) and has been conducting energy assessments for industries and water/wastewater facilities in Wisconsin, Illinois, and Iowa for more than seven years. The Center has performed approximately 210 energy assessments. In research, Dr. Amano has a strong energy, power, and water engineering background and has published four books, thirty-three book chapters, and over 250 journal publications on energy-related topics. He is the recipient of the ASME George Westinghouse Gold Medal (2014) to be recognized for distinguished achievement and eminent service in the power field of mechanical engineering and outstanding contribution to turbomachines (turbines) research, the AIAA Energy Systems Award (2013) for global energy applications, and the ASME Henry R. Worthington Medal (2020) for excellent pump technology development and for outstanding achievement in the field of pumping machinery, systems, and concepts.

Education

University of California at Davis, California, Mechanical Engineering Ph.D., 1980

Appointments

Richard & Joanne Fellow Professor, University of Wisconsin-Milwaukee, 02/2022-present

Professor, Mechanical Eng. Dept., University of Wisconsin-Milwaukee, 08/1991-present

Visiting Professor, Propulsion Div., Edwards Air Force Research Lab, 05/2013-08/2013

Visiting Professor, Aircraft Propulsion, Wright-Patterson Air Force Base, 05/2012-08/2012

Visiting Professor, Turbomachinery Branch, NASA Glenn Research Center, 05/2011-08/2011

Special Appointments

2024-present Director, Building Training and Assessment Center (BTAC), University of Wisconsin-Milwaukee

2016-present Director, Industrial Assessment Center, University of Wisconsin-Milwaukee

2000-2002 Department Chair, Department of Mechanical Engineering, UW-Milwaukee

Editorship

2016-present Chief Editor, Int. J. Rotating Machinery, Wiley

2023-present Associate Editor, J. Fluids Engineering, ASME Transaction

2010-2023 Associate Editor, J. Energy Resources Technology, ASME Transaction

Publications: Published more than 700 papers, including four books, 24 book chapters, 160 journal papers, and 500 conference proceedings. About 5,700 citations; 152 i10-index; 34 h-index (Most Closely Related to the Project are listed below)

BOOKS:

1. Amano, R.S. and Sunden, B., Aerodynamics of Wind Turbine Blades--Emerging Topics, WIT Press, ISBN 978-1-78466-004-8; eISBN 978-1-78466-005-5, Pages 196, 2015, <http://www.witpress.com/books/978-1-78466-004-8>

2. Amano, R.S. and Sunden, B., Impingement Jet Cooling in Gas Turbines," WIT Press Book Series: Developments in Heat Transfer, 2014, Pages: 252pp, ISBN: 978-1-84564-906-7, <http://www.witpress.com/books/978-1-84564-906-7>

3. Amano, R.S. and Sunden, B., Computational Fluid Dynamics and Heat Transfer-Emerging Topics, WIT Press ISBN: 978-1-84564-144-3, ISSN (print): 1369-7331 Pages: 512pp, eISBN: 978-1-84564-402-4, 2010, <http://www.witpress.com/books/978-1-84564-144-3>

4. Amano, R.S. and Sunden, B., Thermal Engineering in Power Systems, 2008, 416pp, WIT Press ISBN: 978-1-84564-062-0, <http://www.witpress.com/books/978-1-84564-062-0>

BOOK CHAPTERS:

1. Selim, O., Espindola, J., and Amano, R.S., "Review of Biomass Energy Resources with Livestock Manure," *Advances in Energy and Combustion*, pp. 125-156, https://doi.org/10.1007/978-981-16-2648-7_6, ISBN 978-981-16-2647-0 ISBN 978-981-16-2648-7 (eBook), 2021, Springer
2. Kumar, S. and Amano, R.S., "Approach to Solve Renewable Energy Problems," *Advances in Energy and Combustion*, pp. 441-476, https://doi.org/10.1007/978-981-16-2648-7_20, ISBN 978-981-16-2647-0 ISBN 978-981-16-2648-7 (eBook), 2021, Springer
3. Amano, R.S., "Aerodynamic Behavior of Rear-Tubercle Horizontal Axis Wind Turbine Blade," *Sustainable Development for Energy, Power, and Propulsion*, ISBN 978-981-15-5666-1, pp.545-562; DOI http://doi-org-443.webvpn.fjmu.edu.cn/10.1007/978-981-15-5667-8_22, ISBN 978-981-15-5666-1 ISBN 978-981-15-5667-8 (eBook), 2021, Springer
4. Amano, R.S. and Hussein, M.S.I., "Study of Biofuel Animal Manure," *Innovations in Sustainable Energy and Cleaner Environment*, pp 529-539, *Green Energy and Technology book series (GREEN)*, 2020 Springer Nature Switzerland AG, ISBN 978-981-13-9011-1 ISBN 978-981-13-9012-8 (eBook)

JOURNALS (selected papers):

- Burra, K., Selim, O., Amano, R.S., Gupta, A., "Synergy In Syngas Yield from Co-Pyrolysis of Cow and Chicken Manures," *J. Energy Resour. Technol.*, Technology (IF=3.183), 2023, 145(6): 061303 (7 pages) <https://doi.org/10.1115/1.4056563>
- Norin, F., Blum, B., Amano, R.S., "Exploring the Effects of Guide Vane of Gas Turbine Blade," *J. Energy Resour. Technol.*, (IF=3.183 2023, 145(5): 051702 (13 pages), <https://doi.org/10.1115/1.4056334>
- Saadeh, W., Amano, R.S., and Qandil, M., "Nanocomposites Vascular Self-Healing Wind Turbine Blades," *J. Energy Resour. Technol.*, (IF=3.183), 2023, 145(2): 022102 (8 pages), <https://doi.org/10.1115/1.4054827>
- Hasan, A., Salem, Abousabae, M., Al Hamad, S., Amano, R.S., "Investigation of Tubercles and Winglets Horizontal Axis Wind Turbine Blade Design, *J. Energy Resour. Technol.*, (IF=3.183), 2023, 145(1): 011302 (14 pages), <https://doi.org/10.1115/1.4054756>
- Hasan, A., Salem, Abousabae, M., Al Hamad, S., Amano, R.S., "Investigation of Vortex Generators and Winglets in Horizontal Axis Wind Turbine Blade Design, *J. Energy Resour. Technol.*, (IF=3.183), 2023, 145(1): 011301 (14 pages), <https://doi.org/10.1115/1.4054755>
- Nourin, F., Amano, R.S., "Jet Impingement Cooling for Gas Turbine Blades," *J. Energy Resour. Technol.*, (IF=3.183), 2023, 145(2): 022101 (10 pages), <https://doi.org/10.1115/1.4054465>
- Nourin, F.N., Blum, B., Amano, R.S., "Evaluation of Heat Transfer Enhancement on Rotational Gas Turbine Blade Internal Cooling Channel," *J. Energy Resour. Technol.*, (IF=3.183), 2022, 144(11): 112105 (12 pages), <https://doi.org/10.1115/1.4054288>
- Al Hamad, S., Hasan, A., Habash, O., Amano, R.S., "Effect of the J-shaped Wind Turbine Airfoil Opening Ratio and Thickness on the Performance of Symmetrical Airfoils," *J. Energy Resour. Technol.*, (IF=3.183), 2022, 144(5): 051303 (11 pages), <https://doi.org/10.1115/1.4053743>
- Xu, C., Amano, R.S., "Turbocharger Design Targets and Centrifugal Compressor Design," *J. Energy Resour. Technol.*, (IF=3.183), 2022, Vol. 144 / 052103-1, <https://doi.org/10.1115/1.4053300>
- Alkhalidi, A., Abuothman, A., Abbas, H., A-Duqqah, B., Nofal, T., Amano, R.S., "Cantilever wind turbines installation to harvest accelerated wind in dams (hybrid floating PV – Wind system," *Renewable Energy Focus*, 2021 (IF=4.082), 40(4), <https://DOI:10.1016/j.ref.2021.11.005>
- Hasan, A., Salem, A.R., Abdelhadi, A., Al Hamad, S., Qandil, M., Amano, R.S., "The Power Reclamation of Utilizing Micro-Hydro Turbines in the Aeration Basins of Wastewater Treatment Plants," *J. Energy Resour. Technol.*, (IF=3.183) 2021, 143(8): 081301 (7 pages), <https://doi.org/10.1115/1.4048869>
- Nourin, F., Amano, R.S., "Heat Transfer Enhancement with Distinct Dimpled Gas Turbine Blade," *J. Energy Resour. Technol.*, (IF=3.183), 2022, 144(7): 072101 (12 pages), <https://doi.org/10.1115/1.4052035>
- Nourin, F., Espindola, J., Selim, O., Amano, R.S., "Energy, Exergy, and Emission Analysis on Industrial Air Compressors," *J. Energy Resour. Technol.*, (IF=3.183), 2022, 144(4): 042104 (14 pages), <https://doi.org/10.1115/1.4051682>
- Burra, K.R., Hussein, M.S., Amano, R.S., and Gupta, A.K., "Syngas Evolutionary Behavior during Chicken Manure Pyrolysis and Air Gasification," *Applied Energy* (IF=8.5), Vol. 181, 2017, pp. 408-415, <https://doi.org/10.1016/j.apenergy.2016.08.095>
- Qandil, M., Abbas, A., Al Hamad, S., Saadeh, W., Amano, R.S., "Performance of Hybrid Renewable Energy Power System for a Residential Building," *J. Energy Resour. Technol.*, (IF=3.183), 2022, 144(4): 041301 (18 pages),

<https://doi.org/10.1115/1.4051541>

- Hasan, A., Selim, O., Abousabae, M. Amano, R.S., Otieno, W., "Economic, Exergy, and Environmental Analyses of the Energy Assessments for U.S. Industries," *J. Energy Resour. Technol.*, (IF=3.183), 2021, 143(11): 112107 (12 pages), <https://doi.org/10.1115/1.4050580>
- Qandil, Abbas, Salem, Abdelhadi, Hasan, Nourin, Abousabae, Selim, Espindola, R.S. Amano, "Net Zero Energy Model for Wastewater Treatment Plants," *J. Energy Resour. Technol.*, (IF=3.183), 2021, 143(12): 122101 (12 pages), <https://doi.org/10.1115/1.4050082>
- Selim, O., Abousabae, M., Hasan, Alaa, and Amano, R.S., "Energy Savings and CO2 Emission Reduction Contribution for Industrial Facilities In USA," *J. Energy Resour. Technol.*, (IF=3.183), 2021, 143(8): 082303 (12 pages), <https://doi.org/10.1115/1.4048983>
- Hussein, M.S., Burra, K.G., Amano, R.S., and Gupta, A.K., "Steam gasification of chicken manure," *Fuel* (IF=5.2), Vol. 189, 2017, 189, Pp 428-435, IF=3.6. <https://doi.org/10.1016/j.fuel.2016.11.005>
- Hussein, M.S., Burra, K.R., Amano, R.S., and Gupta, A.K., "Chicken Manure Pyrolysis and Gasification," *Fuel* (IF=5.2), Vol. 202, 2017, pp. 36-45. <https://doi.org/10.1016/j.fuel.2017.04.017>

Synergistic Activities

Editorship: (1) Chief Editor, International Journal of Rotating Machinery (2019-); (2) Associate Editor for ASME Trans. Journal of Energy Resources Technology (2014-); (3) Lead Editor for Special Issue on Industrial Compressor (2011-2012);

International Prestigious Awards: (1) ASME Henry R. Worthington Medal (2020); (2) ASME George Westinghouse Gold Medal (2014); (3) AIAA Energy Systems Award (2013); (4) AIAA Sustained Service Award (2007); (5) Three Best Paper Awards from ASME Conferences.

Patents: US Patent: Membrane for air diffuser, Ryoichi Samuel Amano and Ammar Alkhalidi, Patent Number 8888074, 11/18/2014, Pub. No.: US 2013/0099401 A1.

Research Grant Activities

Ryo Amano received more than \$6 Million from NASA, NSF, DOE, US Air Force, and many industries for the research on energy systems.

Co-PI: Mohammad D. Qandil**Senior Energy Engineer, Tetra Tech, Madison, WI 53719****Assistant Director at the Industrial Assessment Center-University of Wisconsin Milwaukee**

- Phone: 414-229-9371
- Email: mohammad.qandil@tetrattech.com, mdqandil@uwm.edu,
- ASME Member; Association of Energy Engineers (AEE) Member; American Association of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Member.

Professional Preparation:

- University of Wisconsin-Milwaukee, Wisconsin, Mechanical Engineering Ph.D., 2021
- The Hashemite University, Zarqa, Jordan, Energy Systems, M.S., 2015
- Al-Balqa' Applied University, Amman, Jordan, Mechanical Engineering, B.S., 2012

Appointments:**Senior Energy Engineer, Tetra Tech, 11/2022 – present**

- Conduct and lead impact evaluations of demand response and energy efficiency improvements to accurately calculate and verify energy and demand savings.
- Manage project teams and oversee subcontractors conducting impact evaluation activities and energy analyses to deliver against project scope on time and budget.
- Mentor new and mid-level engineering consultants through one-on-one and group training.
- Support proposals and business development related to impact evaluation.

Application Engineer, Therma-Star, 04/2021 - 11/2022

- Interact with engineers, architects, contractors, manufacturer reps, and end-users as a subject matter expert on QUEST products and their applications.
- Provide technical support to the sales organization (internal and external).
- Provide market and customer feedback to Product Management to drive the product roadmap.
- Represent Therma-stor as a technical expert.
- Assist the Marketing department.

Lead Energy Engineer (Center Lead Student), Industrial Assessment Center at UW-Milwaukee, 08/2017-04/2021

- Perform ASHRAE level I and II energy audits on industrial facilities.
- Prepare audit reports delineating the outcomes of the assessment in terms of energy savings, cost reduction in utility bills, and return on investment.
- Contact clients, arrange assessments, and manage audit teams.
- Certified by U.S. DOE's IAC program.

Research Assistant, University of Wisconsin-Milwaukee, 08/2017 - 04/2021

- Working on micro-scale Kaplan hydro-turbine along with several types of hydrofoils, to investigate and improve the performance of turbines and to investigate cavitation in hydro-turbines and hydrofoils.
- Experimental measurements and data analysis for (Hydro turbine performance, Hydrofoil cavitation characteristic) project.

Sales Engineer, PETRA Technical Projects - Oman, 06/2015 - 08/2017

- Develop and implement effective sales techniques to meet sales targets, focusing on marketing and selling HVAC equipment and expanding sales strategies.
- Visit customer sites to gather requirements and prepare proposals, conducting site surveys to identify and provide solutions for HVAC-related issues.
- Sell HVAC products to contractors and large-scale distributors, and create sales engineering reports by analyzing and summarizing sales information and engineering trends.

Technical Support Engineer, PETRA Engineering for HVAC Industries, 07/2012 -06/2015

- Study inquiries with technical specifications, schedules, and drawings to analyze and select suitable units for clients. Prepare technical and financial proposals accordingly.
- Coordinate with sales and production departments to prepare job orders for the factory, ensuring efficient communication and control of information flow.

Special Appointments:**Assistant Director/Research Associate, Industrial Assessment Center at UW-Milwaukee, 11/2022-present**

- Helping the team with multiple tasks, audit report writing, recruiting facilities, and writing proposals.

Qualifications:

- Certificate of achievement for the completion of requirements mandated by the U.S. Department of Energy's Industrial Assessment Center Program at the University of Wisconsin, Milwaukee (+22 onsite energy assessments)
- Certified Energy Manager "CEM" "Oct. 2020"
- Staff Training in Engineering (Erasmus+ KA1 Program) "40 hours, Sep. 2019"
- Environmental Engineering (Climate-resilient Water Management) "50 hours, Oct. 2018"
- Assistant Project Management (AsPM) "16 hours, Jun. 2017"
- Renewable Energy "50 hours, Aug. 2016"

Publications: Published more than 25 papers, 9 journal papers, and 12 conference proceedings. (Most Closely Related to the Project are listed below) <https://scholar.google.com/citations?user=haWeOgsAAAAJ&hl=en>

Journals (selected papers):

- **Qandil, M.**, Abbas, A., Al Hamad, S., Saadeh, W., Amano, R.S., "Performance of Hybrid Renewable Energy Power System for a Residential Building," Trans. ASME J. Energy Resources Technology (IF=3.183), Apr 2022, 144(4): 041301 (18 pages), <https://doi.org/10.1115/1.4051541>
- **Mohammad D. Qandil**, Ahmad I. Abbas, Abdel Rahman Salem, Ahmad I. Abdelhadi, Alaa Hasan, Farah Nazifa Nourin, Mohamed Abousabae, Osama M. Selim, Juan Espindola, Ryoichi S. Amano, "Net Zero Energy Model for Wastewater Treatment Plants," Trans. ASME J. Energy Resources Technology (IF=3.183), Dec 2021, 143(12): 122101 (12 pages), <https://doi.org/10.1115/1.4050082>
- **Mohammad D. Qandil**, Ahmad I. Abbas, Ahmad I. AbdelHadi, Abdel Rahman Salem, and Ryoichi S. Amano, 2020, "Energy Analysis: Ways to Save Energy and Reduce the Emissions in Wastewater Treatment Plants", International Journal of Energy for a Clean Environment, DOI: 10.1615/InterJEnerCleanEnv.2020035138
- Qandil, M. D., Abbas, A. I., Qandil, H. D., Al-Haddad, M. R., and Amano, R. S. (May 17, 2019). "A Stand-Alone Hybrid Photovoltaic, Fuel Cell, and Battery System: Case Studies in Jordan." ASME. *J. Energy Resour. Technol.* November 2019; 141(11): 111201. <https://doi.org/10.1115/1.4043656>
- Farah Nourin, Ahmad I. Abbas, **Mohammad D. Qandil**, and Amano, R. S. (June 23, 2020). "Analytical Study to Use the Excess Digester Gas of Wastewater Treatment Plants." ASME. *J. Energy Resour. Technol.* DOI: <https://doi.org/10.1115/1.4047603>
- Ahmad I Abbas, **Mohammad D. Qandil**, Muhannad R. Al-Haddad, Mandana S. Saravani, and Ryoichi S Amano, 2019, "Utilization of Hydroturbines in Wastewater Treatment Plants", Journal of Energy Resources Technology, Vol.141, No.6, pp. 062011 (5 pages). <https://doi.org/10.1115/1.4042969>
- Hasan, A., Salem, A.R., Abdelhadi, A., Al Hamad, S., **Qandil, M.**, Amano, R.S., "Optimizing Power Reclamation of Micro Hydro Turbines in Wastewater Treatment Plant, J. Energy Resour. Technol. Jan 2022, 144(1): 012109 (16 pages), <https://doi.org/10.1115/1.4052539>
- Abdel-Hadi, A., Salem, A. R., Abbas, A. I., **Qandil, M.**, and Amano, R. S. (September 28, 2020). "Study of Energy Saving Analysis for Different Industries." ASME. *J. Energy Resour. Technol.* May 2021; 143(5): 052101. <https://doi.org/10.1115/1.4048249>

Awards and Certifications:

- "The U.S. Department of Energy (DoE), Industrial Assessment Center Outstanding Student Award 2020
- Certificate for the completion of the **Certified Energy Manager® (CEM®)**, **Certified Measurement and Verification Professional (CMVP®)**, and **Renewable Energy Professional (REP™)** courses by the Association of Energy Engineers (AEE)
- UWM Distinguished Dissertation Fellowship (DDF) 2020-2021 Award
- UWM Graduate Student Excellence Fellowship (GSEF) 2019-2020 Award
- ME Chancellor's Awards (2018, 2020 and 2021)
- Certificate for the completion of requirements mandated by the U.S. Department of Energy's Industrial Assessment Center program at the University of Wisconsin Milwaukee

Co-PI: Ahmad I. Abdelhadi

Research Associate, Dept. of Mechanical Engineering, UW-Milwaukee, Milwaukee, WI 53201

Ph: 414-439-8213; Email: aij@uwm.edu, ASME Member; AEE Member; AIAA Member;

Qualifications Summary

My research interests include fluid mechanics, hydro turbines, and energy auditing.

I specialize in heat and mass transfer in turbomachinery systems, such as hydro turbines and compressors, and renewable energy concentrating on optimizing hydro turbine systems.

Professional Preparation

Al-Balqa' Applied University, Amman, Jordan, Mechanical Engineering, B.S., 2013

University of Wisconsin-Milwaukee, Wisconsin, Mechanical Engineering Ph.D., May 2023

Appointments

Research Associate/Assistant Director, Industrial Assessment Center at UW-Milwaukee, 06/2023-Present

- Managed energy engineering team in task distribution, providing guidance and training, and keeping the team up to date with innovative energy measures and solutions.
- Supervised energy auditing teams through energy inspection walkthroughs and coordinated communication with the customers.
- Measured team performance through detailed quarterly reports to the US Department of Energy (DOE) and boosted the team performance when needed.

Energy Engineer, Industrial Assessment Center at UW-Milwaukee, 08/2018-May 2023

- Completed thorough energy assessments levels 1 and 2 to analyze energy consumption and implement cost-saving efficiency measures.
- Prepare audit reports showing outcomes of the assessment in terms of energy savings, cost reduction in utility bills, and return on investment.
- Evaluate utility bills and carry out a comprehensive analysis to trace the energy usage trend.
- Conducted 52 assessments and led 7 energy audits on various industrial facilities with 9 of them being the safety officer.
- Certified by U.S. DOE's IAC program

Research Assistant, University of Wisconsin-Milwaukee, 08/2018-present

- Researched information regarding micro-scale Kaplan hydro-turbine.
- Working on a micro-scale Kaplan hydro-turbine project, studying effects of cavitation methods on hydro-turbine.
- Working on micro-hydro turbine to generate electricity from Waste Water treatment aeration system
- Working on Hydrofoil (NACA66-012) to treat cavitation
- Utilize STAR-CCM+ as a CFD tool for testing hydro-turbines performance and various design parameters. with the following experience:
- Utilize STAR-CCM+ as a CFD tool for Vertical Wind Turbine for a class project. With the following experience

Teacher Assistant, University of Wisconsin-Milwaukee, 08/2019-present

Technical Support/Sales Engineer, PETRA Engineering for HVAC Industries working for the America's sales department, 05/2013-08/2018

Publications: Published 8 papers, 5 journal papers, and 3 conference proceedings. (Most Closely Related to the Project)

- Salem, A. R., Hasan, **A., Hadi**, A. A., Al Hamad, S., Qandil, M., and Amano, R. S. (**October 13, 2021**). "Power Generation and Oxygen Transfer Analyses for Micro Hydro-Turbine Installed in Wastewater Treatment Aeration Tank." ASME. J. Energy Resour. Technol. **March 2022**; 144(3): 032102. <https://doi.org/10.1115/1.4052538>
- Hasan, A., Salem, A. R., **Hadi, A. A.**, Al Hamad, S., Qandil, M., and Amano, R. S. (**October 20, 2021**). "Optimizing Power Reclamation of Micro Hydro Turbines in WWTPs Aeration Basins." ASME. J. Energy Resour. Technol. **January 2022**; 144(1): 012109. <https://doi.org/10.1115/1.4052539>
- Qandil, M. D., Abbas, A. I., Salem, A. R., **Abdelhadi, A. I.**, Hasan, A., Nourin, F. N., Abousabae, M., Selim, O. M., Espindola, J., and Amano, R. S. (March 4, 2021). "Net Zero Energy Model for Wastewater Treatment Plants." ASME. J. Energy Resour. Technol. **December 2021**; 143(12): 122101. <https://doi.org/10.1115/1.4050082>
- Hasan, A., Salem, A. R., **Hadi, A. A.**, Qandil, M., Amano, R. S., and Alkhalidi, A. (November 9, 2020). "The

Power Reclamation of Utilizing Micro-Hydro Turbines in the Aeration Basins of Wastewater Treatment Plants." ASME. J. Energy Resour. Technol. **August 2021**; 143(8): 081301. <https://doi.org/10.1115/1.4048869>

- **Abdel-Hadi, A.**, Salem, A. R., Abbas, A. I., Qandil, M., and Amano, R. S. (September 28, 2020). "Study of Energy Saving Analysis for Different Industries." ASME. J. Energy Resour. Technol. **May 2021**; 143(5): 052101. <https://doi.org/10.1115/1.4048249>
- **Mohammad D. Qandil, Ahmad I. Abbas, Ahmad I. AbdelHadi, Salem, A. R., and Ryoichi S. Amano, 2020, "Energy Analysis: Ways to Save Energy and Reduce the Emissions in Wastewater Treatment Plants", International Journal of Energy for a Clean Environment. 22(1): 2021. <https://doi.org/10.1615/InterJEnerCleanEnv.2020035138>**
- Juan Espindola, Farah Nazifa Nourin, Mohammad D. Qandil, Ahmad I. Abdelhadi, and Ryoichi S. Amano, 2020, "Energy Saving Analysis Using Energy Intensity Usage and Specific Energy Consumption Methods", International Journal of Energy for a Clean Environment. 22(1) DOI: [10.1615/InterJEnerCleanEnv.2020034685](https://doi.org/10.1615/InterJEnerCleanEnv.2020034685)

Awards and Certifications

- Certificate for the completion of requirements mandated by the U.S. Department of Energy's Industrial Assessment Center program at the University of Wisconsin Milwaukee.
- Award for Excellence in Applied Energy Engineering Research competition throughout the entire 31 centers in the USA by the Department of Energy "The Power Reclamation of Utilizing Micro-hydro Turbines in the Aeration Basins of Wastewater Treatment Plants." University of Wisconsin, Milwaukee – Dr. Ryo Amano (advisor) Alaa Hasan, Abdel Rahman Salem, and **Ahmad Abdel Hadi** (students)" (2020)
- Award for Excellence in Applied Energy Engineering Research competition throughout the entire 36 centers in the USA by the Department of Energy "Photovoltaic cover for wastewater treatment plant." University of Wisconsin, Milwaukee – Dr. Ryo Amano (advisor) Omar Habash, and **Ahmad Abdel Hadi** (students)"(2022)

Saif M. Al Hamad**Mechanical Engineer, M.Sc., CEM®**

- 1869 N Cambridge Ave, Milwaukee, WI, 53202
 - Phone: +1 202 981 8770
 - Email: alhamad3@uwm.edu
-

Education:

- Ph.D. in Mechanical Engineering
University of Wisconsin-Milwaukee, GPA 4.00/4.00
Jan. 2020-Present
- M.Sc. in Mechanical Engineering-Renewable Energy and Sustainable Development
Jordan University of Science and Technology, GPA 4.12/4.3, Second Rank
Sep. 2015-Feb. 2018
- B.Sc. in Mechanical Engineering-Thermal Power
Jordan University of Science and Technology, GPA (77.9%)
Sep. 2010-Mar. 2015

Work Experience:

- Energy Auditor at US DOE Industrial Assessment Center, Milwaukee, WI, USA
Jan. 2020-Present (Center's Lead Student Aug. 2022-Present)
Brief Description: Performing energy audits for industrial firms in cooperation with the IAC team and providing audit reports with energy-saving recommendations.
- Research and Teaching Assistant at the University of Wisconsin-Milwaukee
Jan. 2020-Present
- Brief Description: Working as a graduate researcher in the wind tunnel laboratory to study the performance of wind turbine blades and turbines using different innovative geometries, helping in writing proposals to the Department of Energy [Industrial Assessment Centers: (FOA) Number: DE-FOA-0002452 (**Awarded**), IACs at Trade Schools, Community Colleges, and Union Training Programs; and Building Training and Assessment Centers (BTAC) Program (FOA) Number: DE-FOA-0002940 (**Awarded**), Energy Program for Innovation Clusters: (FOA) Number: DE-FOA-0002425, Research and Development for Advanced Water Resource Recovery Systems: (FOA) Number: DE-FOA-0002336, Buildings Energy Efficiency Frontiers & Innovation Technologies (BENEFIT): (FOA) Number: DE-FOA-0002196], in addition to teaching undergraduate courses (Fluid Mechanics, MATLAB, and Control Systems).
- Part Time Lecturer at Jordan University of Science and Technology, Irbid, Jordan
Feb. 2018-Dec. 2019
Brief description: Teaching Instrumentation and Dynamic Systems Lab, Thermo-Fluid Lab and Applied Math for Engineers.
- Teaching Assistant at Jordan University of Science and Technology, Irbid, Jordan
Sep. 2015-Dec. 2017
Brief description: Working on ABET accreditation, following up students' assignments and homework, supervising students in engineering labs, performing class quizzes and supervising students during exams.
- Design Engineer at Exergy Technical Alternatives LLC, Amman, Jordan
June. 2015-Sep. 2015
Brief description: Designing and supplying energy solutions in solar and plumbing products for the construction industry.
- Trainee engineer at DAEWOO E&C at JRTR project, Irbid, Jordan
Jan. 2015-Mar. 2015
Brief description: Practical training in the field of mechanical engineering to be familiar with all mechanical equipment Research and Training Reactor.

Qualifications:

- Certificate of achievement for the completion of requirements mandated by the U.S. Department of Energy's Industrial Assessment Center Program at the University of Wisconsin, Milwaukee (+40 onsite energy assessments)
- Certified Energy Manager "CEM" "Certificate ID: 99291" "Oct. 2019"

- Fire Fighting Systems workshop “15 hours, Apr. 2015”
- Solar Cooling training workshop “Aug. 28, 2014”
- Aircraft Systems and Types workshop “15 hours, Sep. 2014”
- Heating Ventilation and Air Conditioning workshop “30 hours, Sep. 2013”

Publications:

- Al Hamad, S, Abousabae, M, Hasan, A, Habash, O, & Amano, RS. "Effect of Winglet Blade on the Performance of Small-Scale Horizontal Axis Wind Turbine." Proceedings of the ASME Turbo Expo 2023: Turbomachinery Technical Conference and Exposition. Volume 14: Wind Energy. Boston, Massachusetts, USA. June 26–30, 2023. V014T37A002. ASME. <https://doi.org/10.1115/GT2023-101643>
- Hasan, A., Abousabae, M., Al Hamad, S., and Amano, R. S. (June 8, 2022). "Experimental and Numerical Investigation of Vortex Generators and Winglets in Horizontal Axis Wind Turbine Blade Design." ASME. *J. Energy Resour. Technol.* <https://doi.org/10.1115/1.4054755>
- Hasan, A., Abousabae, M., Al Hamad, S., and Amano, R. S. (June 8, 2022). "Experimental and Numerical Investigation of Tubercles and Winglets Horizontal Axis Wind Turbine Blade Design." ASME. *J. Energy Resour. Technol.* <https://doi.org/10.1115/1.4054756>
- Selim, O. M., Al Hamad, S., and Amano, R. S. (April 1, 2022). "Experimental and Numerical Study on the Effect of Annular Combustor Design on Thermal Uniformity Jet in Crossflow." ASME. *J. Energy Resour. Technol.* October 2022; 144(10): 102308. <https://doi.org/10.1115/1.4053982>
- Al Hamad, S., Habash, O., Hasan, A., and Amano, R. S. (February 21, 2022). "Effect of the J-Shaped Wind Turbine Airfoil Opening Ratio and Thickness on the Performance of Symmetrical Airfoils." ASME. *J. Energy Resour. Technol.* May 2022; 144(5): 051303. <https://doi.org/10.1115/1.4053743>
- Hasan, A., Salem, A. R., Hadi, A. A., Al Hamad, S., Qandil, M., and Amano, R. S. (October 20, 2021). "Optimizing Power Reclamation of Micro Hydro Turbines in WWTPs Aeration Basins." ASME. *J. Energy Resour. Technol.* January 2022; 144(1): 012109. <https://doi.org/10.1115/1.4052539>
- Salem, A. R., Hasan, A., Hadi, A. A., Al Hamad, S., Qandil, M., and Amano, R. S. (October 13, 2021). "Power Generation and Oxygen Transfer Analyses for Micro Hydro-Turbine Installed in Wastewater Treatment Aeration Tank." ASME. *J. Energy Resour. Technol.* March 2022; 144(3): 032102. <https://doi.org/10.1115/1.4052538>
- Qandil, M. D., Abbas, A. I., Al Hamad, S., Saadeh, W., and Amano, R. S. (July 12, 2021). "Performance of Hybrid Renewable Energy Power System for a Residential Building." ASME. *J. Energy Resour. Technol.* April 2022; 144(4): 041301. <https://doi.org/10.1115/1.4051541>
- Kiwan, S., and Al Hamad, S. (September 14, 2018). "On Analyzing the Optical Performance of Solar Central Tower Systems on Hillsides Using Biomimetic Spiral Distribution." ASME. *J. Sol. Energy Eng.* February 2019; 141(1): 011010. <https://doi.org/10.1115/1.4041101>

Software Skills:

- | | | | |
|-----------|------------|-------------|-------------|
| • AutoCAD | • PTC Creo | • STAR CCM+ | • SAM |
| • PVsyst | • MATLAB | • EES | • MS Office |

Extracurricular Activities:

- The GLOBE program member: Participated in Oceans for Life field study “Washington, DC and California, July 30-Aug. 9, 2009”
- Association of Energy Engineers board member, JUST Chapter: Participated in AEE World Energy Conference & Expo “Washington, DC, Sep. 23-Sep. 27, 2019”
- Association of Energy Engineers board member, UW-Milwaukee Chapter: Participated in AEE World Energy Conference & Expo “Atlanta, GA, Sep. 21-Sep. 22, 2022”, and “Orlando, FL, Oct. 25-Oct. 27, 2023”

Awards and Fellowships:

- Graduate Student Excellence Fellowship, Fall 2023
- Chancellor’s graduate student award, Spring 2020, Spring 2021, Spring 2022, and Fall 2022, Spring 2023, and Spring 2024
- DGSF (Distinguished Graduate Student Fellowship), University of Wisconsin-Milwaukee, 2022-23

Walaa H. Saadeh**Mechanical Engineer, M.Sc., CEM®**

- 3916 N Oakland Ave, Milwaukee, WI, 53211
 - Phone: +1 414 326 5426
 - Email: whsaadeh@uwm.edu
-

Education:

- Ph.D. in Mechanical Engineering
University of Wisconsin-Milwaukee, GPA 3.93/4.00
Jan. 2021-Present
- M.Sc. in Chemical Engineering- Polymer Nanocomposites
Jordan University of Science and Technology, GPA (86.2%), First Rank
Sep. 2010-Jun. 2013
- B.Sc. in Chemical Engineering
Jordan University of Science and Technology, GPA (86.8%), Second Rank
Sep. 2005-Jun. 2010

Work Experience:

- Energy Auditor at US DOE Industrial Assessment Center, Milwaukee, WI, USA
Jan. 2021-Present
Brief Description: Performing energy audits for industrial firms in cooperation with the IAC team and providing audit reports with energy-saving recommendations.
- Research Assistant at the University of Wisconsin-Milwaukee
Jan. 2021-Present
- Teaching Assistant at the University of Wisconsin-Milwaukee
Dec. 2021- Dec. 2022
- Brief Description: Working as a graduate researcher in the self-healing laboratory to introduce self-healing properties into fiber-reinforced epoxy composites to improve wind turbine blades performance, helping in writing proposals to the Department of Energy (Industrial Assessment Centers); Energy Program for Innovation Clusters: (FOA) Number: DE-FOA-0002425, Research and Development for Advanced Water Resource Recovery Systems: (FOA) Number: DE-FOA-0002336, Simultaneous Wastewater Treatment and Bio-Hydrogen Production: DE-FOA-0002446, in addition to teaching Fluid Mechanics course for undergraduate.
- Lecturer at Al-Balqaa Applied University, Amman, Jordan
Sep. 2014- Nov. 2020
Brief description: Teaching different courses in the chemical and mechanical engineering departments, such as Chemical Engineering Thermodynamics, Chemical Reaction Engineering, Heat Transfer, Material Engineering, Energy Types & Energy Transformations, Environmental Engineering, and Numerical Methods, in addition to teaching different courses for the diploma in Occupational Safety & Health program.
- Process/Project Engineer at ERG (Air Pollution Control) Ltd, Amman, Jordan
Jun. 2014 – Sep. 2014
Brief description: Preparing proposals - the sales document and project costing, designing air pollution control equipment and systems, and preparing hand-over documentation to implement the project post-sale.
- Teaching and Research Assistant at Jordan University of Science and Technology, Irbid, Jordan
Dec. 2011- Dec. 2013
Brief description: Assisting in different courses and supervising different laboratories in the chemical engineering department, in addition to working on different projects regarding polymer nanocomposites. Working on ABET accreditation, following up on students' assignments and homework, supervising students in engineering labs, performing class quizzes, and supervising students during exams.
- Trainee engineer at Jordan Petroleum Refinery Company LTD (JOPETROL), Zarqa, Jordan
Jun. 2009- Sep. 2009
Brief description: Practical training in the field of chemical and mechanical engineering to be familiar with

all chemical processes and mechanical equipment used in the refinery.

Qualifications:

- Certificate of achievement for the completion of requirements mandated by the U.S. Department of Energy's Industrial Assessment Center Program at the University of Wisconsin, Milwaukee (+22 onsite energy assessments)
- Certified Energy Manager "CEM" "Oct. 2020"
- Staff Training in Engineering (Erasmus+ KA1 Program) "40 hours, Sep. 2019"
- Environmental Engineering (Climate-resilient Water Management) "50 hours, Oct. 2018"
- Assistant Project Management (AsPM) "16 hours, Jun. 2017"
- Renewable Energy "50 hours, Aug. 2016"

Publications:

- Walaa Saadeh, Mohammad D. Qandil, Ryoichi S. Amano, " Imprinted Glass Fiber-Reinforced Epoxy Nanocomposites Vascular Self-Healing Wind Turbine Blades", Journal of Energy Resources Technology, July 2022, 145(2): 022102 (8 pages), <https://doi.org/10.1115/1.4054827>
- Mohammad D. Qandil, Ahmad I. Abbas, Saif Al Hamad, Walaa Saadeh, Ryoichi S. Amano, "Performance of Hybrid Renewable Energy Power System for a Residential Building", Journal of Energy Resources Technology, Apr 2022, Volume 144, Issue 4, pp. 1-42, <https://doi.org/10.1115/1.4051541>
- Omar S. Al-Ayed, Walaa H. Saadeh, "Approaches to Biomass Kinetic Modelling", Jordanian Journal of Engineering and Chemical Industries (JJEI), 2021, Volume 4, Issue 1, pp. 1-13, <https://doi.org/10.48103/jjeci412021>
- Walaa Saadeh, Jamil Haddad, Fadi M. Anton, "Green Drying of Tomato Slices by Modified Indirect Air Solar Heater", Jordanian Journal of Engineering and Chemical Industries (JJEI), 2020, Volume 3, Issue 3, pp 48–54, <https://doi.org/10.48103/jjeci392020>
- Ali Al-Shawabkeh, Ziad S. H. Abu-Hamatteh, Walaa H. Saadeh, Waid S. Omar, "Calcium Hydroxide Washing Treatment of Jordanian Phosphogypsum for Utilization as Raw Material in Cement Industry", Environmental and Earth Sciences Research Journal, Oc 2019, Volume 6, pp. 177-184. <https://doi.org/10.18280/eesrj.060405>
- Walaa H. Saadeh, Zaid Al-Anber, "Safety Management System", Hasib Sabbagh Foundation for Education, BAU, 2015.
- Zaid Al-Anber, Walaa H. Saadeh, "Fire Protection & Prevention", Hasib Sabbagh Foundation for Education, BAU, 2015.
- Mohammed H. Al-Saleh, Walaa H. Saadeh, Uttandaraman Sundararaj "EMI shielding effectiveness of carbon based nanostructured polymeric materials: A comparative study", August 2013, Carbon 60 , pp. 146-156, <https://doi.org/10.1016/j.carbon.2013.04.008>
- Mohammed H. Al-Saleh, Walaa H. Saadeh, "Hybrids of conductive polymer nanocomposites ", Materials and Design, December 2013, Volume 52, Pages 1071–1076, <https://doi.org/10.1016/j.matdes.2013.06.072>.

Software Skills:

- | | | | | | |
|-----------|--------------|----------|-----------|----------|--------------------|
| • AutoCAD | • ASPEN plus | • MATLAB | • EndNote | • SAM | • Microsoft Office |
| • ChemCAD | • HYSYS | • Zotero | • Minitab | • Origin | • Polymath |

Awards:

- "Michael Krauski Memorial Award", Student Research Poster Competition, University of Wisconsin-Milwaukee, 2023.
- "Industrial Assessment Center Outstanding Student Award 2023", U.S. Department of Energy (DoE), 2023.
- "ME Department Chancellor's Award for Outstanding Research Productivity", University of Wisconsin-Milwaukee, 2021, 2022 & 2023.
- "Fulbright Junior Faculty Development Program (JFDP) Award", Fulbright, USA, 2020.
- "Al-Balqa Applied University Honor Medal", 2019.
- "The Outstanding Student Chapter Member Award", Association of energy engineering (AEE), Washington D.C, 2019.

Areej A. Khalil**Mechanical Engineer, M.Sc**

- 1869 N Cambridge Ave, Milwaukee, WI, 53202
 - Phone: +1 414 534 3895
 - Email: Khalilaa@uwm.edu
-

Education:

- Ph.D. in Mechanical Engineering
University of Wisconsin-Milwaukee
Jan. 2023 - Present
- M.Sc. in Engineering-Research,. Thesis topic: Optimal Building Retrofits Assessment for Zero-Energy Building Implementation
Auckland University of Technology, New Zealand, Graduated with first-class honors (GPA 8/9)
Jan. 2020 - Jan. 2021
- B.Sc. in Mechanical Engineering
Al Balqa Applied University, Jordan,
Sep. 2008 - Jan. 2013

Work Experience:

- Energy Auditor at **US DOE Industrial Assessment Center**, Milwaukee, WI, USA
Jan. 2023-Present
 - (Fourteen - (two lead, eight safety office) onsite energy assessments).
Brief Description: conduct level 2 energy audits for industrial companies and water/wastewater facilities. The audits result in energy assessment reports comprise of practical energy-saving suggestions, cutting-edge energy solutions, as well as new and creative energy assessment recommendations.
- Senior Mechanical Engineer at **Arabtech Jardaneh** (<https://www.aj-group.com/>)
Aug. 2021- Jan/2023
 - Develop the design criteria of the mechanical services for the project's buildings.
 - Study the concept definition documents, client requirements, and compare them with the code and standards (such as CIBSE and NFPA)
 - Develop the mechanical requirements and the schematic design of the buildings.
 - Lead a team of engineers on the process of designing all mechanical services for different buildings' applications.
 - Provide a full coordinated Revit model comprise of all the mechanical services
- Mechanical project engineer at **MEPS Building Engineers** (<https://meps.nz/>), New Zealand
Apr. 2021-Aug. 2021
 - Develop all the mechanical building services for varices following the local standard.
- Mechanical project engineer at **Al-Nasser + Partners** (<https://alnasserpartners.com/>)
Jan. 2017-Jan. 2020
 - Develop all the mechanical building services for varices following the local standard,
 - Follow up with the site quires, review shop drawings and conduct site inspection to test the executed systems on site.
- Junior Mechanical Engineer at **Arabtech Jardaneh** (<https://www.aj-group.com/>)
July. 2014- Jan/2017

Fellowships and Awards:

- The best performance award at Al-Nasser + Partners for the year 2017-2018
- The best performance award at Arabtech Jardaneh for the year 2021-2022

Certifications:

- Head of specialty – Class B by the Jordan engineering association , 2021
- Autodesk Revit Advanced Course, 2017
- Fire Fighting Systems Course , 2014
- Energy Management Training Course, 2013
- Aircraft Systems and Types workshop “15 hours, 2014
- Heating Ventilation and Air Conditioning Course, 2013
- Renewable Energy Training Course, 2013

Extracurricular Activities:

- Jordan Engineers Association (JEA)/ member
- AEE student chapter president
- ASHRAE® Associate member

Software Skills

- Excellent in Revit
- Excellent IES VE simulation software
- Excellent HAP, pipe sizing, and duct
- Excellent AutoCAD
- Excellent Elite Software (firefighting design)
- Excellent LG-lats Software

Hamza Alnawafah**Energy Engineer, M.Sc., NABCEP, LEED**

- 1560 N Prospect Ave, Milwaukee, WI, 53202
- Phone: +1 4143886263
- Email: alnawaf2@uwm.edu

Education:

- Ph.D. in Mechanical Engineering
University of Wisconsin-Milwaukee, GPA 3.89/4.00
Aug. 2022-Present
- M.Sc. in Environmental and Renewable Energy Engineering from German Jordanian University (GJU), GPA 89.7/100,
Sep. 2017-Feb. 2020
- B.Sc. in Energy Engineering from German Jordanian University (GJU) and HTWK Leipzig University (Germany), GPA (75%)
Sep. 2012-Aug. 2017

Work Experience:

- Energy Engineer, Industrial Assessment Center at UW-Milwaukee, 08/2022 - present.
- Research Assistant, University of Wisconsin-Milwaukee, 08/2022 - present.
- Teaching Assistant, University of Wisconsin Milwaukee, 08/2022 – present.
- Photovoltaic associate instructor for the American Board of Certified Energy Practitioners. (NABCEP), 02/2022- 08/2022.
- Instructor, Al-Hussein Technical University, 02/2020-08/2022.
- Coordinator for ERUM project (Design and build electric vehicle car with smart charging). this project funded by Boeing company.
- Part of the founding team for The Energy Academy.
- Exchange teaching at Junia University in France.
- Sales & Design Engineer, Philadelphia Solar Ltd, 09/2017-02/2018.
- Design Engineer, IBC SOLAR AG, Badstaffelstein, Germany, 08/2016-02/2017.
- Engineering Internship, ABB Ltd, 06/2015-07/2015.

Qualifications:

- Best paper award in IREC 2021 in session smart-grid, Zero Energy Building and Sustainable Cities (SGBC).
- Certificate of Completion LEED v4 core concepts & strategies.
- The Chancellor's Graduate Student Award (CGSA) for research productivity, University of Wisconsin-Milwaukee / winner 2021 & 2022.
- The Chancellor's Graduate Student Award (CGSA) for research productivity, University of Wisconsin-Milwaukee / winner 2022 & 2023.
- Certified by American Board of Certified Energy Practitioners (NABCEP) based on my qualifications and experience, 30.06.2021.1)

Publications:

([Hamza Alnawafah - Google Scholar](#))

Papers: (Total of 19 papers)

1. **Al Nawafah, H, & Amano, RS.**, "A Novel Approach to Integrating Photovoltaic Technology With Wastewater Treatment Plants (WWTPs)," *Proceedings of the ASME Power*, Long Beach, California, USA. August 6–8, 2023. V001T01A005. ASME. <https://doi.org/10.1115/POWER2023-108833>,
2. **Hamza Alnawafah, Ryo Amano.** (2023). TOWARDS MICROGRIDS AND FUTURE POWER TWINS: Integrating Photovoltaic Innovation With Wastewater Treatment Plants (WWTP), *the Association of Energy Engineers*, pp. 1-9, also, published in [Expo Poster Sessions - AEE WORLD | Energy Conference & Expo](#).
3. **Hamza Alnawafah, Ryo Amano,** "Reshaping European Energy Relations across the Mediterranean The Case of Green Hydrogen," *Policy paper*, pp. 1-30, DOI: 10.13140/RG.2.2.24839.37280.

4. Emad Abdelsalam, Fares Almomani, Feras Kafiah, **Hamza Alnawafah**, Adel Juaidi, Ramez Abdallah, Integrating solar chimney power plant with electrolysis station for green hydrogen production: A promising technique, *International Journal of Hydrogen Energy*, 2023, ISSN 0360-3199, <https://doi.org/10.1016/j.ijhydene.2023.08.305>
5. Abdelsalam, E.; **Alnawafah, H.**; Almomani, F.; Mousa, A.; Qandil, H. Enhancing the Efficiency of Bi-Facial Photovoltaic Panels: An Integration Approach. *Sustainability*, 2023, 15, 14786. <https://doi.org/10.3390/su152014786>
6. Almaita, E., Abdelsalam, E., **Nawafah, H.**, Alshkoor, S., & Shloul, M. (2023). Impact study of integrating solar double chimney power plant into electrical grid. *Energy*, 265, 126350. <https://doi.org/10.1016/j.energy.2022.126350> (Q1 , 8.857 Impact Factor, 13.4 CiteScore).
7. **Alnawafah, Hamza** and Sarrias-Mena, Raúl and Harb, Ahmad and Fernández-Ramírez, Luis M. and Llorens-Iborra, Francisco, Evaluating the Inertia of the Jordanian Power Grid. Available at *The Social Science Research Network (SSRN)*, Elsevier <https://ssrn.com/abstract=4377377> or <http://dx.doi.org/10.2139/ssrn.4377377>
8. **H. Alnawafah** and A. Harb, "Modeling and Control for Hybrid Renewable Energy System in Smart Grid Scenario - A Case Study Part of Jordan Grid," 2021 12th International Renewable Energy Congress (IREC), 2021, pp. 1-6.
9. D. Habash, E. Abdelsalam, **H. Alnawafah**, F. Almomani, T. Salameh and A. Al Makky, "Green Hydrogen: A Novel Hybrid Solar Chimney Power Plant Integrated with Electrolysis Station," *2023 Advances in Science and Engineering Technology International Conferences (ASET)*, Dubai, United Arab Emirates, 2023, pp. 1-6, doi: 10.1109/ASET56582.2023.10180725
10. Alkasrawi, Malek, Emad Abdelsalam, **Hamza Alnawafah**, Fares Almomani, Muhammad Tawalbeh, and Aya Mousa. 2021, "Integration of Solar Chimney Power Plant with Photovoltaic for Co-Cooling, Power Production, and Water Desalination" *Processes*, 9, no. 12
11. Almaita, E., Abdelsalam, E., **Al Nawafah, H.**, AlShkoor, S., & Almomani, F. (2022). Analysis and feasibility of integrating a new and novel hybrid solar chimney power plant with a traditional electrical grid. *International Journal Of Energy Research*, pp. 1-23 <https://doi.org/10.1002/er.7795>.
12. Abdelsalam, E., Almomani, F., **Alnawafah, H.** et al. Triple-renewable energy system for electricity production and water desalination. *Environmental Science and Pollution Research*, Springer, 30, 98895–98906 (2023). <https://doi.org/10.1007/s11356-022-22547-2>
13. A. Azzam, E. Abdelsalam, F. Almomani, **H. Nawafah**, M. Alkasrawi and T. Salameh, "Solar Chimney Power Plant Integrated with Water Desalination Plant for Gray Hydrogen Production," *2023 Advances in Science and Engineering Technology International Conferences (ASET)*, Dubai, United Arab Emirates, 2023, pp. 1-4, doi: 10.1109/ASET56582.2023.10180777.
14. Emad Abdelsalam, Fares Almomani, **Hamza Alnawafah**, Dareen Habash, Mohammad Jamjoum, Sustainable production of green hydrogen, electricity, and desalinated water via a Hybrid Solar Chimney Power Plant (HSCPP) water-splitting process, *International Journal of Hydrogen Energy*, 2023, ISSN 0360-3199, <https://doi.org/10.1016/j.ijhydene.2023.06.165>.
15. Abdelsalam, E.; **Alnawafah, H.**; Almomani, F.; Mousa, A.; Jamjoum, M.; Alkasrawi, M. Efficiency Improvement of Photovoltaic Panels: A Novel Integration Approach with Cooling Tower. *Energies*, **2023**, *16*, 1070. <https://doi.org/10.3390/en16031070>
16. **Alnawafah, H.**; Abdelsalam, E.; Almomani, F. Towards Implementing a Smart Grid in Jordan: Designing and Assessing the Potential for A Microgrid in King Hussein Business Park. International Conference On Energy, Environment And Storage Of Energy Conference. pp. 1-9
17. A. Harb, **H. Alnawafah** and O. Alalwan, "A Case Study of Jordanian Power Grid Stability and Sustainability with and Without an External Grid Tie Line," *2022 13th International Renewable Energy Congress (IREC)*, Hammamet, Tunisia, 2022, pp. 1-5, doi: 10.1109/IREC56325.2022.10001973.
18. **H. Alnawafah**, A. Harb, R. S. Mena, F. L. Iborra and L. M. F. Ramírez, "Modeling and Validation of Jordanian Power Grid in DlgSILENT PowerFactory Toward Implementing a Smart Grid Scenario," 2022 13th International Renewable Energy Congress (IREC), Hammamet, Tunisia, 2022, pp. 1-6, doi: 10.1109/IREC56325.2022.10001996.
19. Sunna, Jad; Abdelsalam, Emad; **Nawafah, Hamza** ; Alkasrawi, Malek; Muheidat, Ali. A Hybrid Solar Chimney Power Plant For Electricity Generation Al Ain Case Study. International Conference on Applied Energy (2022). <https://doi.org/10.46855/energy-proceedings-10287>.

Software Skills:

- Digsilent Power Factory expertise
- AutoCAD expertise
- MATLAB expertise
- Helios for 3D design expertise
- Pvsyst program expertise
- SAM

Professional Organizations Memberships:

- Association of Energy Engineers (AEE) Member, Student Member.
- Member of a MERG research team.

Asma Khasawneh, EMIT®

1915 E Kenilworth Pl, Apt. 305A, Milwaukee, WI 53202, United States

Email: khasawn2@uwm.edu | Phone: +1 (414) 394-5483LinkedIn: <https://www.linkedin.com/in/asma-khasawneh-12052b202/>**EDUCATION****University of Wisconsin-Milwaukee (UWM)**
WI, United States**Milwaukee,****PhD Student**, Mechanical Engineering.**September**

2023 – Present

Al-Hussein Technical University (HTU) Amman, Jordan**B.Sc.**, Energy Engineering. Cumulative GPA: 3.79/4.**October 2018 –**

February 2023

Thesis: "The Development of Energy Efficiency Service Companies (ESCOs): An Economic, Policy, and Technical Analysis"**CERTIFICATES****Energy Manager in Training (EMIT®) Certification**

By the Association of Energy Engineers (AEE), issued in September 2021. | Credential ID 93747

EXPERIENCE**Energy Efficiency Engineer****Milwaukee,****WI, United States** U.S. Department of Energy's Industrial Assessment Center (USDOE-IAC) at UWM

August 2023- Present

- Conduct ASHRAE level I and II energy audits for small and medium-sized industrial facilities.
- Analyze equipment, systems, and processes to enhance energy efficiency and productivity.
- Evaluate utility bills to identify optimization opportunities and trends.
- Prepare detailed audit reports showcasing potential energy savings, cost reductions, and return on investment.
- Communicate findings to clients and facilitate effective implementation of recommendations through client engagement.

Graduate Research Assistant**Milwaukee, WI,****United States** University of Wisconsin-Milwaukee (UWM)

August 2023- Present

- Research Area: Investigating Hydro Turbine Performance for Efficient Production, Green Hydrogen Production
- Utilizing STAR-CCM+ as a Computational Fluid Dynamics (CFD) tool to assess hydro-turbine performance and optimize design parameters. (learning in progress).
- Advanced techniques, including 3D printing, high-speed cameras, and high-performance computing (HPC) clusters, will be employed to support research objectives. (learning in progress).

Energy Efficiency Advisor Intern**Amman, Jordan**

German Agency for International Cooperation (GIZ)

March 2023- July 2023

Internship – Project: "Advice on and support of bilateral energy partnerships with developing countries" / Jordanian-German Energy Partnership. Specialized in the activity: Jordan's Third National Energy Efficiency Action Plan (III NEEAP).

- Assist the project team in all aspects related to the project's implementation.
- Assist specifically in advising the partner ministry with developing the National Energy Efficiency Action Plan (NEEAP) for Jordan.
- Conduct data research and analysis for the reporting on the energy intensity for Jordan's NEEAP.
- Support in the communication between the German consultants dena (German Energy Agency) and the partner ministry.
- Support for the data analysis for MEPS (Minimum Performance Energy Standards)
- Support the presentations and explanations of complex technical measures to the stakeholders.

- Support the project monitoring and updating information regularly.

Energy Efficiency Technical Support Apprentice
Amman, Jordan

Jordan Renewable Energy & Energy Efficiency Fund (JREEEF)

July 2022- February 2023

Apprenticeship in "Industrial Sector Energy Efficiency Program (ISEEP)" – Technical Support Department

- Conducted research to identify areas in the Jordanian energy market for implementing solutions and governmental incentives to enhance efficiency.
- Proposed climate mitigation and adaptation project ideas for international calls of proposals to capitalize on green investment opportunities.
- Provided technical assistance and support for energy efficiency and renewable energy projects.
- Participated in the tendering process by assisting in designing requirements and technical specifications, conducting technical evaluations, and selecting the best bid.
- Coordinated with contractors, international organizations, voluntary groups, and end-users.
- Assisted in revising project framework measurement matrices, focusing on performance indicators, and economic, social, and environmental impacts.
- Supported the project progress reporting system and annual reviews.
- Assisted in developing data collection forms for new and ongoing projects to maintain the measurement and evaluation database and analyze findings.
- Reviewed the quality of existing data in project subject areas to ensure good baseline statistics for impact evaluation.

Engineering & Business Development Intern
Jordan
Amman,

Algebra Intelligence

January

2022- March 2022

Student-Startup Internship

- Executed dashboard functional testing and generated data analysis reports to drive informed decision-making.
- Conducted site visits for the installation of smart meters and data loggers in commercial facilities, ensuring seamless hardware implementation.
- Conducted comprehensive market research to support the company's business development strategy and conducted competitor analysis within the energy sector.
- Played a key role in pitch development, including preparing and designing pitch presentations, user manuals, and hardware implementation guides.

Freelance Research Assistant
Amman, Jordan

Short-Term Contract

August 2022-

October 2022

- Conducted regional benchmarking for Minimum Energy Performance Standards (MEPs) in the industrial sector.
- Analyzed the suitability of Jordan's trade partner countries to develop incentive measures for MEPs in Jordan's industry.
- Produced comprehensive reports outlining findings and recommendations for policy development in energy efficiency within Jordan's industrial sector.

Undergraduate Researcher
United Kingdom
Bradford,

Faculty of Engineering & Informatics, University of Bradford (UoB)

September

2021- December 2021 Erasmus+ Student Exchange Program

- Investigated the effects of various X-ray radiation dosages on cellular behavior in the laboratory, employing

techniques such as Cell Culture, DNA Damage, and the Comet Assay.

- Conducted a comprehensive literature review to inform experimental design and analysis.
- Documented experiment procedures and summarized findings for potential publication.

Undergraduate Researcher

Energy Engineering Department, HTU

February 2023

Amman, Jordan

July 2020-

- Actively participated as a member of the Multidisciplinary Engineering Research Group (MERG) (<http://merg.live/>).
- Conducted research in the following areas:
 - Enhancing the performance and technology of solar chimney power plants (SCPP) and cooling towers (CT).
 - Green hydrogen production.
- Contributed to co-authoring research papers, validating results, and visualizing data.
- Supervised and mentored new research students joining the MERG team.

PUBLICATIONS & PRESENTATIONS

Journal Publications:

- Abdelsalam, E.; Almomani, F.; Kafiah, F.; Almeida, E.; Tawalbeh, M.; **Khasawneh, A.**; Habash, D.; Omar, A.; Alkasrawi, M. A New Sustainable, and Novel Hybrid Solar Chimney Power Plant Design for Power Generation and Seawater Desalination. **Sustainability** **2021**, 13, 12100. <https://doi.org/10.3390/su132112100>
- Abdelsalam, E.; Kafiah, F.; Almomani, F.; Tawalbeh, M.; Kiswani, S.; **Khasawneh, A.**; Ibrahim, D.; Alkasrawi, M. An Innovative Design of a Solar Double-Chimney Power Plant for Electricity Generation. **Energies** **2021**, 14, 6235. <https://doi.org/10.3390/en14196235>

Conference Publications:

- **Asma Khasawneh**, Emad Abdelsalam, Ahmad Azzam, Fares Almomani. Green Hydrogen: A Cooling Tower Integrated with Electrolysis Station. 15th International Conference on Sustainable Energy & Environmental Protection (**SEEP**).
- Owais Ogdeh, Aya Mousa, **Asma Khasawneh**, and Dareen Habash. Municipality Waste Management Energy Conservation Measures Economic, Environmental, Social impact: Case Study. **2022 AEE World Energy Conference and Expo**, 21-23 September 2022, Atlanta, GA.
- **A. Khasawneh**, D. Habash, E. Abdelsalam, H. Nawafah, and F. Almomani. Green Hydrogen: A Novel Solar Chimney Powerplant Integrated with an Electrolysis Station. The 2nd International Conference on Energy, Environment, and Storage of Energy (**ICEESEN2022**), 1-3 September 2022, Kayseri-Turkiye.
- **A. Khasawneh**, S. Ibrahim, E. Abdelsalam, H. Nawafah, and F. Almomani. A Novel Design of a Hybrid Solar Double- Chimney Power Plant for Generating Electricity. The 2nd International Conference on Energy, Environment, and Storage of Energy (**ICEESEN2022**), 1-3 September 2022, Kayseri-Turkiye.
- Emad Abdelsalam, Fadwa Kassem, Shadwa Ibrahim, **Asma Khasawneh**, Fares Almomani. Analysis and Feasibility of Employing a New and Novel Hybrid Solar Chimney Power Plant (HSCPP) – KSA Case Study. 13th International Exergy, Energy and Environment Symposium (**IEEES-13**), November 15-18, 2021, Makkah, Saudi Arabia

PROFESSIONAL TRAINING

- The National Science Foundation's (NSF) Innovation Corps (I-Corps) program – Milwaukee, WI, February 2024 - Present
- Renewable Power to X Training by the International PtX Hub – Amman, Jordan, March 2023
- Green Climate Fund (GCF) Accreditation Capacity Building, provided by Global Green Growth Institute (GGGI) - Amman, Jordan, October 2022.
- LEED v4 Core Concepts and Strategies Training by the Green Building Council. – Amman, Jordan, May 2021.
- Certified Energy Manager (CEM®) training course by the Association of Energy Engineers (AEE). – Amman, Jordan, March 2021.
- Entrepreneurship Bootcamp associated with HTU Center of Innovation and Entrepreneurial Excellence.

Amman, Jordan, March 2021- June 2021.

VOLUNTEERING

The Association of Energy Engineers (AEE) UWM Chapter

Committee Student Member

August

2023 -Present

Engineers Without Borders (EWB) in UWM

Committee Student Member

August

2023 -Present

The Association of Energy Engineers (AEE) HTU Chapter

Vice President

January

2022 -February 2023

Committee Student Member

September

2019 -February 2023

AWARDS

- UWM Chancellor's Graduate Student Award - Fall semester of the 2023-24 Academic Year
- Boeing Student Project Grant – “Solar Chimney Power Plant” Project - May 2021.
- First Place Winner in Irex Global Solutions Sustainability Challenge 2021 - April 2021

Technical Skills

Soft Skills

- Research and development (R&D)
- Proposal writing
- Energy auditing
- Policy Research and Analysis
- Report and technical writing
- Data analysis
- Data visualization and validation
- Project management
- Pitch development
- Monitoring and evaluation

- Adaptability
- Teamwork
- Public speaking
- Relationship building
- Strategic planning
- Market analysis
- Networking
- Communication (Written and verbal)
- Presentations
- Adaptability
- Leadership
- Collaboration

Software

- **Coding:** MATLAB.
- **Drawing:** AutoCAD, Sketchup
- **Simulation & Modeling:** PVsyst, Carrier HAP, Simulink, SAM
- **Assessment Tools:** MEASUR, EDGE App
- **Productivity tools:** Camunda BPM

Co-PI:Rafat R. Elsharef

8906 S. Pond View Dr

Oak Creek, WI 53154

Cell Phone: 414-324-1877

Work Phone: 414-571-4759

E-mail: elsharer@matc.edu, elsharef@uwm.edu**Objectives**

Work / Teach in the field of Networking and Cyber Security.

Education

- **University of Wisconsin Milwaukee – PhD–Industrial Engineering - minor in computer science - May 2021**
 - Specialized in Cyber Security for Industrial Control Systems (ICS).
 - Interest in Cyber Security for OT, IOT, and IIOT.
- **Master of Science, August 2002**
 - **Cardinal Stritch University** www.stritch.edu
- **Bachelor of Science in Electrical Engineering, December 1987**
 - **University of Wisconsin- Milwaukee** www.uwm.edu

Leadership Roles:

- Co-PI National Science Foundation (NSF) :
 - Award Number: 2201667, Award Amount: \$649,740.00, Date: 7/01/2022
 - <https://www.nsf.gov/awardsearch/simpleSearchResult?queryText=2201667&ActiveAwards=true>
- Speaker/Panelist in many technical conferences on IT and OT Security
- Assistant Director of UW-Milwaukee Industrial Assessment Center (IAC) - <https://sites.uwm.edu/ceas-iac/>
- Member of the IT Security Advisory committee for Wisconsin Section of American Water Works Association - <https://www.wiawwa.org/>
- MATC - Information Security Club Advisor
- MATC - National Collegiate Cyber Defense Competition (CCDC) Coach
- MATC - National Cyber League (NCL) Coach
- MATC - Digital Diploma creator and Lead Instructor
- VBNS Grant
 - (Very high-performance Backbone Network service) for the University of Wisconsin-Madison sponsored by the National Science Foundation (NFS).
 - Served as a Technical design contact for vBNS proposal at UW-Madison. www.vbns.net
- Zayed University:
 - Part of a consulting team that visited Zayed University coming from University of Wisconsin-Madison to evaluate the Network and computer systems used at the time.

Certifications

- Amazon Cloud Practitioner – AWS-CP
- Cisco CyberOps
- CCAI (Cisco Certified Academy Instructor). <http://Cisco.netacad.net>
- CCNA (Cisco Certified Network Associate). <http://Cisco.netacad.net>
- NET+ (Network Plus Certified). www.comptia.com
- Palo Alto firewall
- Security+
- Mobility+
- Access Data Certified Examiner (ACE)
- Access Data Certified Mobile Examiner (ME)
- Many trainings and certifications from Idaho National Labs on OT Security.
- Fortinet – In progress – Finished NSE 1,2, and 3.
- CISSP – In progress

Teaching Experience

- **UW- Milwaukee Lecturer / TA (Computer Science department) – Part Time 2005 – present**
Teaching the following courses:

- Computer Network – CompSci-520
- Computer Security- CompSci-469
- Cyber Security lab- CompSci-658
- Network Lab- CompSci-530
- Connected Systems - Business school – BUS ADM 533/817 - Using Microsoft Cloud – Azure and Amazon AWS

Teaching Experience

Faculty of IT-Networking and Security – Full Time January 02 – Present

Milwaukee Area Technical College – MATC www.matc.edu

- **Developing the following courses:**
 - Risk Management
 - Ethical Hacking
 - Penetration Testing
 - Wireless Security
 - Wireshark
 - Computer Forensics
 - Mobile Forensics
 - Advanced Forensics
 - Advanced Linux.
 - Network Security. www.matc.edu/infosec

Technical Experience

Information Security Specialist March 2001 – September 2001

Metavante Corporation www.metavante.com

- Member of the information Security Architecture team at Metavante Corporations.
- Evaluate and recommend security architecture solutions for Metavante as needed.
- Recommended Security Architecture for Server design (e-commerce).
- Recommended Security Architecture for Firewall design.
- Recommended security Architecture for Network Intrusion Detection (IDS) design.
- Evaluated Host-Based Intrusion Detection (HIDS) to protect E-Commerce server farm.
- Evaluated and recommended Cisco Secure to be implemented at Metavante.
- Worked with other network and server administrators to insure their compliance with information security guidelines and policies.

Senior Network Engineer September 99 – March 2001

M&I Data Services www.midata.com

- Core Network support team

Senior Network Engineer February 99 – September 99

WiscNet www.wiscnet.net

- Support the educational backbone of Wisconsin www.wiscnet.net

Network Engineer November 96 – February 99

University of Wisconsin-Madison www.wisc.edu ; **Division of Information Technology- DoIT** www.doit.wisc.edu

- Support the educational backbone of Wisconsin.

Network Specialist/MIS manager June 95 – November 96

University of Wisconsin – Madison www.wisc.edu

Network Specialist September 93 – June 95

University of Wisconsin – Whitewater www.uww.edu

- Designed campus backbone using fiber optics.

Network Manager August 91 – September 93

University of Wisconsin – Milwaukee www.uwm.edu

- Managed and administered several MS LAN Manager and Novell servers.

Other interests:

- Software Defend Radio (SDR)
- Amateur Radio (Ham):
- Call sign N9TLE.

Mohamed I. Youssef**Current Address:** 2350 W Good Hope Rd, Glendale, WI - 53209**Cell Phone:** +1 (414)-338-4936 **E-mail:** m.i.youssef@outlook.com**Education**

-
- | | |
|---------------------------|--|
| Aug.2023-Present | PhD Candidate in Mechanical Engineering |
| (Milwaukee, WI – USA) | o Mechanical Engineering Department, University of Wisconsin Milwaukee |
| Aug.2012-Dec 2013 | Masters of Science in Engineering Management |
| (Melbourne, FL – USA) | o Engineering Systems Department, Florida Institute of Technology |
| Sept.2005-Jul.2010 | BSc. BSc in Mechanical Power Engineering |
| (Cairo – Egypt) | o Mechanical Power Engineering Department, Ain Shams University |

Professional Certificates

-
- | | |
|--|---|
| o Certified Energy Manager – CEM (AEE) | o Risk Management Professional- RMP (PMI) |
| o Project Management Professional- PMP (PMI) | o Certified KPI Professional CKPI – P (KPI Institute) |
| o Certified Maintenance & Reliability Professional - CMRP (SMRP) | |

Skills**Software:**

-
- | | | | | | |
|---------------|--------------|----------------|---------------------|--------------------|----------------------|
| o AutoCAD 2D | o Sketch UP | o SPSS – IBM | o Energy Plus V.5.0 | o Photoshop CS 6 | o Microsoft Projects |
| o Solid Works | o Revit 2020 | o Primavera P6 | o Arena 14.5 | o Visual PROMETHEE | o Microsoft Office |

Professional Experience

-
- | | | |
|---|------------------------------------|---|
| Aug.2023- Present | Energy Audit Engineer | UWM-Industrial Assessment Center, (Milwaukee – WI, USA) |
| <ul style="list-style-type: none"> o Planning energy audits for the off-site and on-site energy assessment plans o Evaluating building envelope and systems analysis (HVAC, water, electrical and industrial operations) o Investigating current energy consumption and recommending energy conservation and efficiency measures o Identifying issues that have impact on energy usage o Providing energy reports to clients with cost estimations for the implementation plans and payback periods o Reviewing the final report for the DOE for conclusive approval | | |
| Aug.2015- Present | Senior Mechanical Engineer | Institute of Public Administration, (Jeddah - KSA) |
| <ul style="list-style-type: none"> o Member of various technical and engineering committees o Reviewing and approving material submittals and project invoices (MEP) o Site supervision, project control and performing project review reports of a net worth of 375 million USD projects | | |
| Jul.2014- Jan. 2015 | Projects Coordinator | MRI Inc., (Melbourne-FL, USA) |
| <ul style="list-style-type: none"> o Gathering requirements and Stakeholders management o Overseeing the project budget, schedule and cost estimation o Performing status reports, performance reviews & Project Documentation | | |
| Aug.2013- Dec.2013 | Graduate Research Assistant | Florida Institute of Technology, (Melbourne-FL, USA) |
| <ul style="list-style-type: none"> o Supervised and assisted with grading of student assignments o Supported research activities and projects o Conducted research, surveys and data collection for thesis purposes | | |
| Apr.2011-Apr.2012 | Projects Engineer | Total Solutions (Petroleum Integrated Services), (Cairo - Egypt) |
| <ul style="list-style-type: none"> o Managed the New WSV Laboratory in Kattamia project for Schlumberger Logelco Inc.-Egypt. (250K USD) | | |

- Supervised the West Delta Deep Marine Phase 8/A project for Technip.
 - Supervised the execution of Tank No.8 demolishing-Musturod Farm Exxon Mobil-Egypt Branch. (100K USD)
- Aug.2010-Mar.2011** *Technical and Sales Engineer* **MAS Trading Co. (YORK-SHIPLEY)**, (Cairo - Egypt)
- Delegated with maintenance and sales of York-Shipley Fire tube Boilers
 - Provided pre-sales technical assistance and after-sales support services

Volunteering Positions

Jun.2014-Jul.2014 *HVAC Engineer Assistant* Brevard Board of County Commissioners (Viera -FL, USA)

Apr.2014-May2014 *Planning Engineer* Brevard Board of County Commissioners (Viera -FL, USA)

Publications

26th Jan. 2022 *A Multi-Criteria Decision Making Approach to the New Product Development Process in Industry*

ISSN: 2683-5894 DOI: <https://doi.org/10.31181/rme2001260122y> (Reports In Mechanical Engineering)

Awards

Jan.2013 *ME Graduate Students Research Achievement (MEGSRA)* (University of Wisconsin Milwaukee)