

WALEED ALHAYAZA

Research Specialist

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EDUCATION

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|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2021 - 2023 | Master of Science in Systems Architecting and Engineering (4.00/4.00)
The University of Southern California, Los Angeles, CA |
| 2013 - 2017 | Bachelor of Science in Mechanical Engineering (3.63/4.00)
The Pennsylvania State University, University Park, PA
Engineering Leadership Development Minor
Dean's list : Spring 2016, Spring 2015, Fall 2014, Summer 2014, Spring 2014. |
| 2012 - 2013 | Certificate of Completion – Foundation Year Program
The University of Kansas, Lawrence, KS
Customized college program for KAUST's Gifted Students, designed to enhance engagement with STEM. |

EXPERIENCE

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| Riyadh, KSA
Cambridge, USA
2018 - Present | Research Specialist at the Center for Complex Engineering Systems, CCES.
MASSACHUSETTS INSTITUTE OF TECHNOLOGY (MIT)
KING ABDULAZIZ CITY FOR SCIENCE AND TECHNOLOGY (KACST) <ul style="list-style-type: none">> Joined the Technology Leaders Program, a program that is designed to train and prepare a qualifying generation of leaders and decision makers.> Worked on conducting and leading research in different projects with a focus on interdisciplinary research questions using a variety of tools for data analysis, optimization and simulation. |
| Cambridge, MA, USA
2018 - 2022 | Research Affiliate.
MASSACHUSETTS INSTITUTE OF TECHNOLOGY (MIT) <ul style="list-style-type: none">> Worked under the supervision of Christoph Reinhart, Kamal Toumi and Adam Schlosser.> Hack the City : Applied Data Science for Public Good, MIT IAP Course> System Dynamics : Systems Thinking and Modeling for a Complex World, MIT IAP Course |
| State College, PA, USA
2013 - 2017 | Engineering Leadership Development Program : International Enterprise and Development
THE PENNSYLVANIA STATE UNIVERSITY, UNIVERSITY PARK, PA <ul style="list-style-type: none">> Worked for a semester in cross cultural teams from the United States and Hungary to complete cutting edge enterprise solutions. Additionally , evaluated and assessed team intercultural engineering project collaboration skills. |
| Thuwal, KSA
(Jul. - Aug.) 2016 | Research intern at Professor Gilles Lubineau's lab
KING ABDULLAH UNIVERSITY OF SCIENCE AND TECHNOLOGY (KAUST) <ul style="list-style-type: none">> Studied the potential of micro CT scan and worked on developing a nondestructive method for determining age at death of adults using their teeth. |

FELLOWSHIPS AND AWARDS

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| 2020 | Rewarded with a Fully funded scholarship for MS and PhD degrees.
Technical Leaders Program (TLP), King Abdulaziz City for Science and Technology (KACST). |
| Sep.2017 | Grand Challenge Scholar Recognition
The Pennsylvania State University, University Park, PA <ul style="list-style-type: none">> Certificate of Excellence presented by Anthony Atchley, Senior Associate Dean in the College of Engineering. The Grand Challenge Scholar Program was initiated in response to a call for the US to lead efforts in addressing the 21st century grand challenges.> The certificate recognizes the Grand Challenge Scholar for academic preparation to address grand challenges facing society through an interdisciplinary curriculum that includes hands on project, entrepreneurial experience, service learning, and global dimension experience. |
| 2012 - 2017 | KAUST Gifted Student Program (KGSP)
PSU, University Park, PA KU, Lawrence, KS KAUST, Thuwal, Saudi Arabia. <ul style="list-style-type: none">> The program focused on training top one percent of high school graduates across Saudi Arabia by providing them with a full scholarship to study abroad and summer research experiences. |
| 2013 - 2017, 2022 | Saudi Arabian Cultural Mission Excellence Awards : <ul style="list-style-type: none">> Received eleven academic excellence rewards for undergraduate-level (total of \$17,300) |

RESEARCH PROJECTS

URBAN AGRICULTURE.

AUG. 2019- SEPT. 2021

Principal Investigators : Prof. Christoph Reinhart (MIT) and Prof. Adnan Alsaati (KACST).

The scope of the project focused on the pillars of modern sustainable society; Food, Water, and energy.

- Developed an Interactive Online Foodprint Simulator.
- Modeled food's carbon footprint based on food items and geographical location.
- Analyzed Food and Agriculture Organization data.
- Built a hydroponic food system.
- Developed a gamified platform, which decision makers and urban planners can utilize to predict the outcome of their decisions and choices on the interaction of the water, food, and energy nexus.

(Read more : www.walhayaza.com)

[Python](#) [Data Science](#) [Analysis](#) [Information Modeling](#) [QGIS](#)

INDUSTRY 4.0 - SMART LOGISTICS

AUG. 2019 - SEPT. 2021

Principal Investigator : Prof. Kamal Youcef Toumi (MIT) and Prof. Anas Alfaris President of (KACST).

Utilizing recent advancements of Industry 4.0, the project aimed at creating highly effective smart logistic systems. Developed a multidimensional optimization of the system. Plus, focused on enhancing the instrumentation and automation within the logistics system by developing agent-based models for technology testing and simulation.

(Read more : www.walhayaza.com)

[Anylogic](#) [Data Science](#) [Python](#)

EXTREME WEATHER EVENTS UNDER A CHANGING CLIMATE

JUN. 2018 - JUL. 2019

Principal Investigator : Prof. Adam Schlosser (MIT) and Prof. Adnan AlSaati (KACST).

Investigated extreme weather events of dust, precipitation and heat waves in order to look at how these events affect the built environment. Furthermore, produced future runs of climatic behavior and looked at future actions and precautions to be taken in building systems and design to limit these effects.

(Read more : www.walhayaza.com)

[Remote Sensing](#) [Matlab](#) [Spatial Analysis](#)

URBAN WATER MANAGEMENT

JUN. 2018 - JUL. 2019

Principal Investigator : Prof. Ken Strzepek (MIT).

Examined the water resources of Riyadh city by focusing on wastewater management, and precipitation. To do so, a cost-benefit analysis was developed for the usage of wastewater demand for irrigation.

- Formulated an optimization problem to optimize the use of reclaimed water for irrigation in Riyadh city.

(Read more : www.walhayaza.com)

[GIS](#) [GAMS](#) [Optimization](#) [Geo-technical Modeling](#) [Water Resources Modeling](#)

SKILLS AND SCORES

Programming	Python, Matlab, Rhapsody (SysML)
Modeling	Agent based modeling, Geospatial modeling
Software	Solidworks, AnyLogic, QGIS
GRE	Quantitative Reasoning : 168 Verbal Reasoning : 160
National Standardized Tests	Standard Achievement Admission Test (SAAT) : 100% General Aptitude Test (GAT) : 95%
Languages	Arabic (Native), English (Fluent)

PUBLICATIONS

- Published Khadija BENIS, **Waleed ALHAYAZA**, Adnan ALSAATI and Christoph REINHART, "“What’s the Carbon Content of your Food?”–Development of an Interactive Online Foodprint Simulator.” *Urban Agriculture 2020 - 2nd International Conference on Urban Agriculture and City Sustainability.*
- Published Komurcu, M.; Schlosser, C.A.; Alshehri, I.; Alshahrani, T.; **Alhayaza, W.**; AlSaati, A.; Strzepek, K. "Mid-Century Changes in the Mean and Extreme Climate in the Kingdom of Saudi Arabia and Implications for Water Harvesting and Climate Adaptation." *Atmosphere* 2020.
- Published Komurcu, M.; Schlosser, C.A.; Alshehri, I.; Alshahrani, T.; **Alhayaza, W.**; AlSaati, A.; Strzepek, K. (2019) "High-Resolution Climate Simulations of the Arabian Peninsula for Regional Sustainability Studies." [online] *AMS-99th American Meteorological Society Annual Meeting.*
- Published Komurcu, M.; Schlosser, C.A.; Alshehri, I.; Alshahrani, T.; **Alhayaza, W.**; AlSaati, A.; Strzepek, K. (2019). *Water in the Arabian Peninsula. 43rd NOAA Annual Climate Diagnostics and Prediction Workshop.*