

HOLKAN VAZQUEZ SANCHEZ

Environmental Science and Engineering, PhD.

KAUST



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Holkan Vazquez Sanchez

WORK EXPERIENCE

- Assembly and Process Engineer** (SEPT 2018 - AUG 2019)
Jatco (Japanese Automatic Transmission Company)
Aguascalientes, Mexico
Full-time engineer. **Planned improvements projects on assembly line.** Achieved new technologies integration for process automation taking into consideration high-quality standards. Worked in team with other departments (maintenance, production, design and quality) to increase the performance of the assembly line.
- Experience Logistics Assistant** (OCT 2016 - DEC 2017)
Tecnológico de Monterrey | Innovation and Development Direction
Aguascalientes, Mexico
Part-time assistant. **Coordinated educational activities for enterprises** with a multidisciplinary team of 10 people. Achieved a completion from open to close period of 3 courses. Worked actively with other Departments and Directions within the campus.

EDUCATION

- (Ph.D.) Environmental Science and Engineering**
King Abdullah University of Science and Technology (KAUST)
AUG 2021 - MAY 2026 Thuwal, Saudi Arabia
Thesis: "Integrated sustainability assessment of novel energy storage technologies"
- (MBA) Master of Business Administration**
Universidad del Valle de México (UVM)
JAN 2020 - DEC 2021 Mexico City, Mexico
Major: Sustainable development and circular economy business.
- (M.Sc.) Master of Science in Engineering Sciences**
Tecnológico de Monterrey (ITESM)
AUG 2019 - JUL 2021 Mexico City, Mexico
Thesis: "Life Cycle Assessment of a Binary-cycle Geothermal Power Plant in Mexico"
- (B.Sc.) Bachelor in Renewable Energy Engineering**
Universidad Abierta y a Distancia de México
JAN 2024 - PRESENT Mexico City, Mexico
- (B.Sc.) Bachelor of Science in Mechatronics Engineering**
Tecnológico de Monterrey (ITESM)
AUG 2014 - DEC 2018 Aguascalientes, Mexico
Mention of Excellence, Best grade of the class 2018.
National Prize CENEVAL-EGEL, undergraduate final exam.
- Automotive and Aeronautics Design Program**
École Supérieure des Techniques Aéronautiques et de Construction Automobile
JAN 2018 - MAY 2018 Montigny-le-Bretonneux, France
Student exchange program.
- Technician in Mechatronics Engineering**
C.B.T.i.s. #168 "Francisco I. Madero"
AUG 2011 - MAY 2014 Aguascalientes, Mexico
High school degree.

STRENGTHS

- Teamwork
- Problem Analysis
- Good communication skills
- Flexibility and adaptation to changes

COMPUTER SKILLS

- Python
- MATLAB
- PostgreSQL
- SolidWorks
- CATIA
- SimaPro
- LCA for Experts (GaBi)
- GREET
- Brightway
- Activity Browser

LANGUAGES

- Spanish**
Beginner Intermediate Advanced Native Speaker
- English** TOEFL IBT: 100 pts
Beginner Intermediate Advanced Native Speaker
- French** DELF B2
Beginner Intermediate Advanced Native Speaker

IN ADDITION

Academic Publications

Visit the links below:

Google Scholar Profile

ORCID

Developed Software



e-Hydrogen Cost Optimizer




A desktop application to perform TEA and LCA of e-Hydrogen production worldwide.

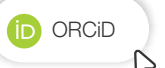
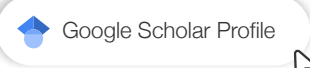
GitHub

AS FIRST AUTHOR

- **Techno-economic optimization of e-hydrogen production in Saudi Arabia.**
Vazquez-Sanchez, H., Echegoyen-Lopez, M., Kyritsis D.C., Kosco J., Morales, M. G., & Sarathy, S. M.
[Next Energy](#), 2026. 
- **A life cycle assessment of e-hydrogen production in Saudi Arabia.**
Vazquez-Sanchez, H., Okeke, I. J., Singh, E., Baaqel, H., Saville, B. A., MacLean, H. L., & Sarathy, S. M.
[International Journal of Hydrogen Energy](#). 2025. 
- **A techno-economic analysis of a thermally regenerative ammonia-based battery.**
Vazquez-Sanchez, H., Nagaraja, S. S., Cross, N. R., Hall, D. M., & Sarathy, S.M.
[Applied Energy](#). 2023. 
- **Life cycle assessment of a binary cycle geothermal power plant in Mexico.**
Vazquez-Sanchez, H. & Santoyo-Castelazo, E.
[Institutional Repository of Tecnológico de Monterrey](#). 2021. 

AS CO-AUTHOR

- **Abiotic Stress-Triggered Nanocarriers for Seed Nanoprimering and Early-Stage Plant Development.**
Aguilar Perez, K. M., Mriden, M., Sharma, V., Hannouche, K., Maatouk, B., Fang, F., Raji, M., Vazquez-Sanchez, H., & Khashab, N. M.
[ACS Nano](#). 2025. 
- **Minimizing renewable hydrogen costs at producer's terminal gate with alkaline electrolyser, proton exchange membrane, and their co-installment: A regional case study in China.**
Hong, F. T., Lin, H., Vazquez-Sanchez, H., Xue, X., Li, Y., Zhang, L., & Sarathy, S. M.
[International Journal of Hydrogen Energy](#). 2024. 
- **Optimizing islanded green ammonia and hydrogen production and export from Saudi Arabia.**
Florez, J., AlAbbad, M., Vazquez-Sanchez, H., Morales, M. G., & Sarathy, S. M.
[International Journal of Hydrogen Energy](#). 2024. 
- **Hydrocarbon-based membranes cost-effectively manage species transport and increase performance in thermally regenerative batteries.**
Cross, N. R., Vazquez-Sanchez, H., Rau, M. J., Lvov, S. N., Hickner, M. A., Gorski, C. A., Nagaraja, S. S., Sarathy, S. M., Logan, B. E., & Hall, D. M.
[Electrochimica Acta](#). 2023. 
- **Integrated Sustainability Assessment Framework of Industry 4.0 from an Energy Systems Thinking Perspective: Bibliometric Analysis and Systematic Literature Review.**
Vallarta-Serrano, S. I., Santoyo-Castelazo, E., Santoyo, E., García-Mandujano, E. O., & Vázquez-Sánchez, H. [Energies](#). 2023. 



- **Monaco Prize for Innovation in Transportation and Renewable Hydrogen. 2025 | FINALIST**
[Monaco Hydrogen Alliance. Monaco.](#)
"e-Hydrogen Cost Optimizer".
- **25th COTA International Conference of Transportation Professionals. 2025 | SPEAKER**
[South China University of Technology. China.](#)
"Techno-economic Optimization and Environmental Assessment of e-Hydrogen Production in Saudi Arabia".
- **KAUST Research Conference Energy in the Circular Economy 2025. 2025 | POSTER PRESENTATION**
[King Abdullah University of Science and Technology. Saudi Arabia.](#)
"A Techno-economic Analysis of e-Hydrogen Production in Saudi Arabia".
- **3rd Edition ACWA Power Innovation Days. 2025 | POSTER PRESENTATION**
[King Abdulaziz City for Science and Technology. Saudi Arabia.](#)
"A Techno-economic Analysis of e-Hydrogen Production in Saudi Arabia".
- **Core-to-core joint workshop between KAUST & Tohoku University IFS. 2024 | SPEAKER**
[Tohoku University. Japan.](#)
"A life cycle assessment of e-hydrogen production using proton-exchange membrane water electrolysis coupled with desalination in Saudi Arabia".
- **SETAC Europe 26th LCA Symposium. 2024 | POSTER PRESENTATION**
[Chalmers University of Technology. Sweden.](#)
"A life cycle assessment of e-hydrogen production using proton-exchange membrane water electrolysis coupled with desalination in Saudi Arabia".
- **ENOWA - KAUST Energy Summit. 2024 | POSTER PRESENTATION**
[ENOWA NEOM @ KAUST. Saudi Arabia.](#)
"A life cycle assessment of e-hydrogen production using proton-exchange membrane water electrolysis coupled with desalination in Saudi Arabia".
- **Future Hospitality Summit. 2024 | SPEAKER**
[Riyadh.](#)
"Why Gen Z Are Turning To Sustainable Businesses As Their Future Employer?".
- **Innovation Days 2024 ACWA Power. 2024 | POSTER PRESENTATION**
[King Abdullah University of Science and Technology. Saudi Arabia.](#)
"Optimizing islanded green ammonia and hydrogen production and export from Saudi Arabia".
- **8th Thermal and Fluids Engineering Conference. 2023 | SPEAKER**
[University of Maryland. United States.](#)
"A Techno-economic Analysis of a Thermally Regenerative Ammonia-based Battery".
- **International Battery Seminar and Exhibit. 2023 | POSTER PRESENTATION**
[Cambridge EnerTech. United States.](#)
"A Techno-economic Analysis of a Thermally Regenerative Ammonia-based Battery".
- **International Symposium on Renewable Energy and Sustainability 2020. 2021. | POSTER PRESENTATION**
[Universidad Iberoamericana. México.](#)
"Life cycle assessment of a Binary-Cycle Geothermal Power Plant in Mexico".
- **2o Simposio de estudiantes asociados a proyectos de investigación. Energía y sustentabilidad. 2020. | SPEAKER**
[Universidad Veracruzana. México.](#)
"Life cycle assessment of a Binary-Cycle Geothermal Power Plant in Mexico".