HOLKAN VAZQUEZ SANCHEZ

Environmental Science and Engineering, **PhD.**

KAUST

www.holkan.org | holkan_vazquez@hotmail.com | +966 560567137 | 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

ACADEMIC PUBLICATIONS

Holkan Vazquez Sanchez
Environmental Science and Engineering, **PhD.**

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. doi

- **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. doi

- **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. doi

- **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. doi

AS CO-AUTHOR

- **Abiotic Stress-Triggered Nanocarriers for Seed Nanopriming 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. doi

- **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. doi

- **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. doi

- **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. doi

- **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. doi

Google Scholar Profile ORCiD

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CONFERENCES

Holkan Vazquez Sanchez
Environmental Science and Engineering, **PhD.**

- **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".