

Mauricio Patón Gassó, PhD

Waters Edge, Abu Dhabi, United Arab Emirates

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Summary

I am a researcher with over **8 years of expertise** in mathematical modeling. My work covers diverse fields, including environmental biotechnology and public health epidemiology. I have demonstrated ability to quickly adapt and excel across various domains.

Core competencies include:

Software Skills: Proficient in Python, R, and MATLAB for data analysis, machine learning, and scientific computing. Experience with Git, unit testing, and code formatting to ensure code quality and collaboration.

Soft Skills: Research proficiency, proposal writing, effective presentation organization.

Employment

POSTDOCTORAL RESEARCHER AT KHALIFA UNIVERSITY

2019-TODAY

Mathematical Modelling for COVID-19:

- Developed compartmental models to assess the spread of COVID-19.
- Evaluated [the effectiveness of potential interventions](#), including [vaccine distribution strategies across different age groups](#) to minimize fatalities.

COVID-19 Policy Insights:

- Collaborated with the Department of Health (DOH) in Abu Dhabi.
- Simulated pandemic trajectories to inform decision-makers about [effective interventions while considering economic impact](#).
- Evaluated hospitalization risks associated with different SARS-CoV-2 variants.
- Ensured accurate alignment of COVID-19 cases and hospitalization data through record merging, and validation.

Secured University Funding:

- Played a pivotal role in securing 1.3 million AED in funding for Khalifa University.
- Developed research proposals that facilitated project agreements between the DOH and our institution.

Wastewater Treatment Modelling:

- Developed an [online simulation dashboard](#) to showcase the efficacy of the proposed wastewater treatment for the effluent from a nuclear plant.

PHD CANDIDATE AT MASDAR INSTITUTE / KHALIFA UNIVERSITY

2015-19

Systematic Methodology for Bioenergetics Evaluation of Metabolic Pathways:

- Developed a systematic approach to assess the ATP yield generated in metabolic pathways.
- Applied this methodology to evaluate the optimal ATP yield in the oxidation of propionic acid in anaerobic conditions.
- Provided valuable insights into which pathways are favored and under which conditions.

Bioenergetics Integration in a Bioreactor Simulator:

- Integrated the dynamic calculation of the bioenergetics of microbial reactions in a bioreactor simulator software framework.
 - Applied the simulator to evaluate the impact of bioenergetics on kinetic processes under anaerobic conditions.
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Education

PhD in Interdisciplinary Engineering - Khalifa University (UAE) **2015-19**

Thesis: "Bioenergetics analyses of microbial reactions for anaerobic digestion modelling"

MSc in Hydraulic Engineering and Environment - Polytechnic University of Valencia (Spain) **2010-12**

Thesis: "Modelling anaerobic digestion process of a pilot plant treating bioethanol plant wastewater"

BSc in Environmental Sciences - Polytechnic University of Valencia (Spain) **2004-10**

Thesis: "Modeling anaerobic digestion process of sludge from WWTP. Influence of the sludge composition on biogas production"

Additional courses

- HarvardX Data Science Professional Certificate Program - [Certificate](#)
- Complete Course of Machine Learning: Data Science with R Studio (Udemy) - [Certificate](#)
- DeepLearning.ai Machine Learning Specialization - [Certificate](#)
- DeepLearning.ai Neural Networks and Deep Learning – [Certificate](#)
- DeepLearning.ai TensorFlow Developer – [Certificate](#)
- Introduction to Git and GitHub – [Certificate](#)