# Dídac Gómez i Castellví

Graduate Student
University of California, Irvine
Apartment 1013G West Peltason Drive
Irvine, CA 92697
Email: dgomezic@uci.edu
Tarragona, Spain
F-1 Visa

## Education:

- 2021-Present Ph.D. in Chemical and Biomolecular Engineering University of Califronia, Irvine
- 2018-2021 B.S. Chemistry Eastern Nazarene College
- 2018-2021 Minor Engineering Eastern Nazarene College
- 2017-2018 B.S. Chemical Engineering Universitat Rovira I Virgili

## Research Experience:

Research in Chemistry (CH-499)

*Eastern Nazarene College- 2020/2021*
Advisor: Dr. Doane, Department of Chemistry and Biology
Research Project: "Investigation of Electrolyte and Electrode Preparation on Optimization of Aqueous Mg-Cu batteries"

- Responsibilities: Designed and optimized the Magnesium-Copper battery. Used analytical techniques and methods, like for example, CH-instruments and Microscopy, to study the different factors of the battery such as concentration, temperature, surface, potential, current, solvents, and electrodes. Run experiments related to battery voltage and current, and processed the data to compare the theory with the experimental. Synthesized and characterized Magnesium and Copper electrodes.
- Accomplishments: (a) Performance of an independent research and use of advanced instruments at the lab. (b) Effective study of physicochemical properties of the electrode and electrolyte. (c) Preliminary study comparing worldwide Lithium-Ion and Magnesium-Copper battery and show both advantage and disadvantages.

Integrated Preliminart Design- Higher Technical School of Engineering

*Universitat Rovira I Virgili- 2017/2018*
Advisor: Ricard Ricoma, Department of Chemical Engineering
Research Project: Design of a Chem-E-Car and a Magnesium Production Plant

- Responsibilities: Design the car from a toy car structure. Design a 3x3 series-parallel cell structure and print it using a 3D printer to optimize the vehicle's weight and distribution. Welded the crocodile clips to the top of the cell and sticked the cables to align with the compartments of the cell. Performed the energy and mass balance of the materials that enter and leave the *DOW* process for the obtention of Magnesium. Studied and optimized the galvanic cell conditions, such as temperature, concentration, surface, and time.

- Accomplishments: (a) Successfully invented a toy car whose source power was an Mg-Cu galvanic cell three series and three parallel cells. (b) Participate and finish in second place in the Chem-E-Car competition in the Universitat Rovira I Virgili. (c) A preliminary study of the process of production of metallic magnesium from seawater (d) Determination of the plant's degree of sustainability through the analysis of the environmental impact known as *Global Warming Pot*.

**Teaching Experience:**

- 2020-2021 Teaching Assistant Advanced Chem Lab (CH-350)
- 2020-2021 Peer Tutor Organic Chemistry I/II (CH-321/ CH-322) & Analytical Chemistry (CH-231)

**Certifications/Organizations:**

- 2021 Honors Society - *Eastern Nazarene College*
- 2020 Economics and International Bussines – *International Business Management Institute*
- 2019 Formative Action about Good Environmental Actions- *Port Aventura World*
- 2019 Formative Action about Basic Security Training - *Port Aventura World*
- 2019 Formative Action about Specific Occupational Hazards - *Port Aventura World*
- 2018 Best Team in the Chem-E-Car Competition – *Dow Chemical Company*

**Skills:**

- Languages: Fluent in Spanish and Catalan; Proficient in English
- Lab Techniques: UV-Vis-Absorbance, Fluorescence, Mass Spectroscopy, NMR, Gel Electrophoresis, Column Chromatography, Atomic Absorbance Spectroscopy, Electrochemistry, FT-IT, Brightfield Microscopy
- Computer: Microsoft Office, Autodesk, Mathlab, Autocad, Logic Works 5, CH-Instrument, Chimera, PyMol, Zoom.