

Bárbara Mondragón Herrada

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SUMMARY

Biomedical engineer specializing in instrumentation and mixed reality, with experience developing interdisciplinary projects that integrate hardware, software, and 3D technologies. Skilled in research-oriented problem solving, teamwork, and leadership, with a strong focus on applying innovative engineering solutions to healthcare and human-centred challenges.

EDUCATION

2019 - 2023 Bachelor's Degree in Biomedical Engineering at **Universidad Iberoamericana Ciudad de México**

PROJECTS

Research Assistant at Synlab

Apr 2024 - present

- Develop Unity environment for the Fusibles project.
- Program mixed reality environments.
- Design user interfaces.

Project Intern at Centre of Rehabilitation Engineering and Technology (Ibero CDMX)

May 2025 - present

- Program microcontrollers to support selected channels for IMU sensors.
- Collaborate in the programming of machine learning algorithms for the control of soft robots.

Project Intern at Ontario Tech University

Jan 2024 - Mar 2025

- Developed a mixed reality system in Unity for heart anatomy training for surgeons.
- Modelled and modified 3D heart parts for printing.
- Integrated hardware into 3D-printed parts to enable recognition in the virtual environment.

Social Service at Centre of Rehabilitation Engineering and Technology (Ibero CDMX)

Jun 2023 - May 2024

- Developed a mixed reality system in Unity for heart anatomy training for surgeons.
- Modelled and modified 3D heart parts for printing.
- Integrated hardware into 3D-printed parts to enable recognition in the virtual environment.

Wearable Projects Developer with fashion design students (Ibero CDMX) Jun 2023 - May 2024

- Implemented gesture-based control system that activated LED signal lights while cycling.
- Designed and assembled the wiring between microcontroller, IMUs, and LEDs to ensure reliable system integration.
- Prototyped a wearable cycling cloak that enhanced road safety through intuitive, sensor-based signalling.

App Developer with the psychology department (Ibero CDMX) Jun 2023 - May 2024

- Collaborated in programming a mobile application designed to address emotional issues in the context of the pandemic.

WORK EXPERIENCE

Product Development Engineer at Kimberly Clark de México Oct 2024 - Feb 2025

- Developed innovative products for Kimberly-Clark Mexico's Evenflo category.
- Proposed new concepts in the baby food and breastfeeding sector.
- Reviewed defective products to determine root causes and propose improvements.

IT Assistant at Universidad Nacional Autónoma de México Jan 2023 - Dec 2023

- Managed digital platforms and social media for the XXII Multidisciplinary Diploma on Family Violence and Human Rights.
- Resolved issues related to technology platforms.
- Facilitated communication with specialists.

PUBLICATIONS

Mondragón, Bárbara and Carlos Galván-Duque (2023). "Training system for the use of transhumeral prosthesis". In: *RIUD: repositorio U. Distrital* 14.28, pp. 600–614. URL: <https://repository.udistrital.edu.co/items/23e83415-44a0-4a9d-ad52-b080665c592d>.

KEY COMPETENCIES

Software	Unity, Python, C#, JavaScript, C, Matlab, SQL
Languages	Spanish (native), English (C1), French (A2)
Motion Analysis	Vicon, Kinovea
3D Modeling	Autodesk Inventor, Blender

COURSES

- Creation of Macros in Excel - Ibero-American University Mexico City (2021)
- Workshop: Determinant Criteria in the Innovation Process – 43rd National Congress of Biomedical Engineering (2020)

- Mobile App Development Workshop for People with Disabilities - Cultural Center of Spain in México (2020)

EXTRACURRICULAR ACTIVITIES

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| • Gender Representative of the Biomedical Engineering Student Society | 2022 - 2023 |
| • Member of Flag Football Team at Universidad Iberoamericana CDMX | 2022 - 2023 |
| • Education Officer of the SDG Hub of United Nations | 2020 - 2022 |