

# CÉSAR A. VILLALOBOS


I have undertaken award-winning genetic engineering projects<sup>1</sup>, researched novel bioprinting techniques<sup>2</sup>, and even combated lichen growing in old churches!<sup>3</sup>

Currently searching for a graduate program that allows me to work at the intersection of life science and engineering, leveraging my management and communication skills to develop impactful technologies and bring them to the people who need them the most.



View this CV online with links at [cesaraaron.com](http://cesaraaron.com)

## EDUCATION

- 2020  
|  
2016
- **B.S., Biotechnology Engineering**  
Tecnológico de Monterrey  Monterrey, NL
    - Specialization in Molecular Biology
    - Grade average: 92%
    - A five-year degree on biotechnology, engineering, and business in Mexico's #1 university<sup>4</sup> and #8 school worldwide for entrepreneurial studies.<sup>5</sup>
  - **Data Science: Foundations Using R**  
Johns Hopkins University
    - Learnt data science tools and techniques applied to biostatistics, with a focus on R programming.
  - **Introduction to Bioethics**  
Oxford University
    - Intensive course on contemporary concepts and dilemmas in bioethics. Credited with a defense of human reproductive cloning.

## RESEARCH EXPERIENCE

- 2020
- **Undergraduate Researcher**  
Shrike Zhang Laboratory  Harvard Medical School
    - Designed and printed 3D cholangiocarcinoma chips through lithography-based biofabrication.
    - Compiled and evaluated methods for the production of porous biomaterials.
    - Optimized bioink production protocols for internal use. Reduced critical reagent use by 90%.
- 2019
- **Research Assistant**  
NutriOmics (Dr. Silverio's Lab)  Tecnológico de Monterrey
    - Assisted post-doc Dr. Laura Margarita López Castillo in her research on insect pests, maize, and their interactions.

## CONTACT

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## SKILLS

Tissue Culture	
Genetic Engineering	
Molecular Diagnostics	
English	
Spanish	
Premiere Pro	
R	
Matlab	
Minitab	
French	
Python	

Last updated on 2021-01-12.

- 2019 ● **Undergraduate Researcher**  
 Shih Laboratory 📍 Concordia University

  - Started a mutant E. coli strain library for later screening.
  - Was consulted on for the design of an efficient microfluidic chip for directed evolution of enzymes.
  - Trained a Master's student on synthetic biology techniques (i.e. primer design, construct assembly, PCR, cloning, screening, etc.)
- 2018 ● **Undergraduate Researcher**  
 Misiones Coloniales de Chihuahua, A.C. 📍 Chihuahua, CH

  - Investigator in a microbial identification project to inform how to deal with biodeteriogens on cultural heritage.
  - Designed a procedure for lichen identification, which replaced the ineffective culture of mycobionts, saving resources and time to a team of 16 researchers.
  - Standardized and scaled zinc oxide nanoparticle production, in a non-specialized lab, to be used as antifungal solutions.
- 2018 ● **Lead Mathematician**  
 iGEM Tec-Chihuahua 📍 Tecnológico de Monterrey

  - Won a gold medal and was nominated to three special prizes, as judged by international experts in a synthetic biology competition.
  - Developed a predictive diffusion model for the honeybee-mediated delivery of recombinant antimicrobial peptides for veterinary use.
  - Troubleshoot the team's procedures; discovered and fixed a fundamental problem in the digestion process and the design of synthesized sequences.
  - Created a report assessing ethical, legal, and social implications of the project.
- 2018 ● **Undergraduate Researcher**  
 Tecnológico de Monterrey 📍 San Cristobal, CS

  - Developed plant tissue culture media and hoods for use and reproduction in low-income rural settlements.

## INDUSTRY EXPERIENCE

- 2019  
|  
2015 ● **Translator and Assistant**  
 Consultoría Lingüística Profesional 📍 Chihuahua, CH

  - Translated, reviewed, and synchronized multimedia content from Spanish to English and vice versa.
  - Video editor for conference advertisement and online lessons.
  - Data analysis and collection; creation of a client database from multiple sources.

I have worked in a variety of roles ranging from consultancy to product development. I like collaborative environments where I can learn from my peers.

- 2019 ● **Operations Intern – Consultant**  
 Innovación y Competitividad 📍 San Pedro, NL

  - Communicated scientific advances to private and public investors, familiar and unfamiliar with the subject matter.
  - Evaluated patent requests with international IP databases to prove novelty.
  - Wrote grant proposals and created project budgets for affiliated R&D laboratories.
- 2019 ● **Product Development Intern**  
 Griffith Foods 📍 Monterrey, NL

  - Won an internal competition to develop a novel plant-based foodstuff product for Griffith Foods (non-disclosure agreement).

## TEACHING EXPERIENCE

- 2021 ● **“Detrás de la Ciencia” Event Organizer**  
 Tecnológico de Monterrey 📍 Monterrey, NL

  - Organized the first edition of a series of talks on Philosophy of Science and plural epistemology.
- 2020 ● **Student Adviser**  
 Tecnológico de Monterrey 📍 Monterrey, NL

  - As a last-year student, helped younger students with homeworks, onboarding, and career advice.
- 2018 ● **Social Events Director (elected)**  
 SAIBT 2018 Student Council 📍 Chihuahua, CH

  - Elective office
  - Organized a series of lectures for Biotechnology Engineering students.
- 2018 ● **Guest Lecturer**  
 Universidad del Valle de México 📍 Chihuahua, CH

  - Lectured high-school biology students on genetic engineering
- 2017 ● **Teacher Assistant**  
 Tecnológico de Monterrey 📍 Chihuahua, CH

  - Assisted a lab class to introduce high schoolers to common biotechnology protocols including: PCR, rat enzyme assays, and DNA extraction.

I am passionate about education and outreach. I believe that we are all better off if everyone in our surroundings is scientifically literate and socially aware.

2016



### **English Teacher**

VIFAC

📍 Chihuahua, CH

- Volunteer english teacher at a local women's shelter.



## SELECTED PRESS

2018



### **Chihuahuenses buscan salvar las abejas (Spanish)<sup>6</sup>**

Conecta

- Tells the story of our project in the 2018 iGEM competition.



## SELECTED PUBLICATIONS, POSTERS, AND TALKS

2019



### **Selling your project: wiki design and the power of science communication**

GENOMA Conference

- Invited to give a talk on effective science communication and webpage design for undergrad scientists from across Mexico.

2018



### **iGEM project presentation<sup>7</sup>**

Hynes Convention Center / New England Biolabs Campus

- Selected as spokesperson for the project, presented several times at the conference.
- The team was selected from all international contestants to present our project to Nobel Laureate Richard Roberts and his team at New England Biolabs.
- Accompanied by a poster<sup>8</sup> and a website<sup>9</sup>.

2018



### **Antifungal properties of ZnO and TiO<sub>2</sub> nanoparticles<sup>10</sup>**

TEC Nano 2018

- Presented at an MIT nanotechnology conference in Mexico.

2018



### **Biotechnological Solutions in Architecture**

Instituto Tecnológico de Chihuahua

- Lectured along with Eduardo Tarango and Cynthia González, Ph.D.

2018



### **Znap: A Start-up Proposal (Spanish)<sup>11</sup>**

Parque Tecnológico Orión

- Runner-up pitch (outmatched 13 teams) in a biotech start-up hackaton. Awarded free guidance by a specialized incubator.

2018

● **Biodeteriogens in Cultural Heritage (Spanish)<sup>12</sup>**

Revista CiBlyT

- Authored with Alejandro Robles, Atzin Alcaraz, and Abril Natera.
- Accompanied by a poster<sup>13</sup>.

 LINKS

- 1: <http://2018.igem.org/Team:Tec-Chihuahua>
- 2: <https://shrikezhang.com/>
- 3: <https://cesaraaron.com/wp-content/uploads/2020/05/Tec-Nano-2018.pdf>
- 4: <https://www.topuniversities.com/university-rankings/latin-american-university-rankings/2020>
- 5: <https://www.princetonreview.com/press/top-entrepreneurial-press-release>
- 6: Spanish] <https://tec.mx/es/noticias/chihuahua/educacion/chihuahuenses-buscan-salvar-las-abejas>
- 7: <https://cesaraaron.com/wp-content/uploads/2020/05/iGEM-2018-Presentation.pdf>
- 8: [https://cesaraaron.com/wp-content/uploads/2020/05/iGEM\\_poster.png](https://cesaraaron.com/wp-content/uploads/2020/05/iGEM_poster.png)
- 9: <http://2018.igem.org/Team:Tec-Chihuahua>
- 10: <https://cesaraaron.com/wp-content/uploads/2020/05/Tec-Nano-2018.pdf>
- 11: Spanish] <https://cesaraaron.com/wp-content/uploads/2020/05/NANOBIOCIDAS-PRESENTACION.pdf>
- 12: Spanish] <https://cesaraaron.com/wp-content/uploads/2020/05/San-Luis-Potosí.pdf>
- 13: <https://cesaraaron.com/wp-content/uploads/2020/05/poster-nanoparticulas-scaled.jpg>