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Veronica Toro Arana

Curriculum Vitae

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Education /Academic Awards

Stanford School of Medicine

M.D. Candidate

Scholarly Concentration: Bioengineering with Cardiovascular Application

- First MIT rower to receive NCAA Postgraduate Scholarship (2016-17)

Stanford, CA

June 2022

Massachusetts Institute of Technology (MIT)

B.S. in Biological Engineering; Portuguese Concentration

GPA: 4.9/5.0

Cambridge, MA

June 2016

- Finalist for the Rhodes Scholarship (2015)
- Finalist for the Marshall Scholarship (2015)
- James E. Cunningham Memorial Scholarship for outstanding women in Biological Engineering (2014-15)
- Class of 2001 Student-Life Scholarship (2013-14)
- Inducted in MIT Tau Beat Pi Honor society for exemplary character and distinguished scholarship in engineering (2016)

Academia San Jose High School

Valedictorian; Highest PEAU College Board Exam in Puerto Rico; Highest SAT in school GPA 4.0/4.0

San Juan, PR

May 2012

Teaching/ Mentoring Experience

Cardiovascular Institute

Student Leader/ Teaching Assistant

Stanford, CA

Feb. 2016- present

- Organized a 12-student Cardiothoracic Surgery Skills course taught by Paul Chang in Spring 2017 Quarter.
- Organized an 8-student Cardiovascular 3D Imaging course with Dr. Fleischmann for the Spring 2017 Quarter.

MIT ReachOut

Reading Tutor

Cambridge, MA

Sept. 2013-May 2015

- The MIT ReachOut program matches tutors with underprivileged children at the Cambridge Community Center to engage them in reading, writing and language arts.
- As a ReachOut tutor I developed my own curriculum and met with my assigned student twice a week for an hour.

MIT Tutorial Services Room

Organic Chemistry, Biology and Biological Engineering Tutor

Cambridge, MA

Sept. 2013- May 2015

- The MIT Office of Minority Education (OME) offers tutoring services to interested undergraduate students of MIT.
- As an OME tutor, I met with my assigned student for an hour once or twice per week.

Partners for Youth with Disabilities

Mentor

Boston, MA

Jan. 2014- May 2016

- The goal of the Mentor Match Program of Partners for Youth with Disabilities is to help young people with disabilities meet their full potential for personal development and independence.
- As a mentor in the program, I was matched with a high school girl with a mental disability. I met with her twice a month to talk about her daily life and her future plans, to discuss her questions and concerns or alternatively just to have fun!

Big Sister Association of Greater Boston

Mentor

Boston, MA

Feb. 2014- May 2016

- Big Sister Association of Greater Boston's mission is to help girls realize their full potential by providing them with positive mentoring relationships with women.
- I have been matched with Mia, a very energetic and ambitious fourth-grade girl. We used to meet once a week to work on projects that we came up with together. The last project we worked on was writing her first computer program.

Muscular Dystrophy Association Summer Camp

Voluntary Assistant

Barranquitas, PR

June 2013

- The Muscular Dystrophy Association's Summer Camp provides an environment for kids with muscular dystrophy to explore a wide variety of fun activities without feeling disabled.
- As the Voluntary Assistant of one of the campers I was responsible for helping her with most daily activities (getting out of bed, getting dressed, showering, going to the restroom, swimming at the pool, riding a horse, etc.) for a week (170 hours).

Research/ Internships

Cardiovascular Biomechanics Computation Lab

Researcher

Stanford, CA

March 2017 – present

- Worked on the construction of Patient Specific Models from Angiography for CABG Surgery Planning.
- Currently the lead of a retrospective study relating the RVOT morphology of patients with Tetralogy of Fallot (and accompanying hemodynamics) to the long-term outcomes of their Pulmonary Valve Replacement Surgery.

Department of Cardiothoracic Surgery

Researcher

Stanford, CA

May 2017 –present

- Conducting a retrospective study on the long-term outcomes of mitral valve repair performed by Dr. Joseph Woo and his residents using a systematic approach.

Mobile Adverse Event Reporting System (MAERS)

Clinical Liaison; Researcher

San Francisco, CA

May 2017 – present

- Currently working on a mobile application for adverse event reporting to the FDA on the construction.
- Conducting research on mobile technology features that improve the completion rate and accuracy of the reports.
- In the process of developing a start-up for implementation of the features being researched.

Laboratory for Tissue Engineering and Organ Fabrication at the Massachusetts General Hospital

Undergraduate Researcher

Boston, MA

Jan. 2013-July 2016

- Developed a project to enhance synthetic bone scaffolds by using recombinant Dentin Matrix Phosphoprotein I (DMPI).
- Presented a poster at the MGH Scientific Advisory Committee 2014 Poster Session.
- Cloned E. coli to co-express DMPI and Casein Kinase II, thus producing phosphorylated recombinant DMPI.
- Studied the effects of DMPI phosphorylation on Mesenchymal Stem Cell differentiation to bone.

MIT TATA Center for Technology and Design

Student Innovator/Investigator

Cambridge, MA

Sept. 2015- July 2016

- Designed a novel surgical ultrasound debridement tool with a group of 5 students and a mentor.
- Designed and executed protocols to test the efficacy of our device in removing fluorescent Staph. Aureus biofilms.

Cell and Molecular Therapy Center (University of São Paulo)

Researcher

São Paulo, Brazil

June - August 2014

- Optimized a protocol to investigate the expression of MMP2 and MMP9 in samples from endometriosis patients.
- Tested the protocol on cell cultures and animal tissues, leaving it ready for use on patient samples.
- Collected eutopic and ectopic samples of Brazilian patients during various endometriosis surgeries.

Hamel Chemical Engineering Lab (MIT)

Undergraduate Researcher

Cambridge, MA

Sept. 2012- Dec. 2012

- Worked with a DasGip bioreactor to observe the conditions (pH, temperature, etc.) for the optimization of the production of Avastin (Bevacizumab monoclonal antibody) from Chinese Hamster Ovary Cells.
- Used the Flex CD/VD to assay the amount of Ig-G (antibody) produced as well as the viability of the cells.

Endometriosis Application Building (MIT)

Undergraduate Researcher

Cambridge, MA

Sept. 2012-Dec. 2012

- Compiled clinical data about endometriosis patients to build a patient-doctor interphase mobile application.
- Met with endometriosis surgeons to determine the necessary functionalities for the application.

Dr. García Rinaldi Medical Internship Summer Program

Intern

Mayagüez, PR

July 2013

- Participated in medical rotations in various clinics, public and private hospitals, and federally qualified health centers.
- Performed research about sexually transmitted disorders in Puerto Rico and gave a final group presentation.

Leadership

Cardiovascular Interest Group

Founder and Leader

Stanford, CA

Oct. 2016 – Oct. 2017

- The goal of the Cardiovascular Interest Group is to foster a community of students and faculty that are enthusiastic about the field of Cardiovascular Medicine, to expose medical student to the different aspects of the field, and to engage in the learning of skills that are essential to a career in the field.
- Having founded the group in 2016, I recruited some classmates to help with the organization of the event and secured funding from Stanford's Cardiovascular Institute.
- We hosted monthly events consisting of talks by experts in different specialties, and workshops to develop essential skills (ex. ECG analysis and image interpretation).

Latino Medical Students Association (LMSA) – Stanford Chapter

Stanford, CA

Co-Chair and Mentorship Coordinator

Sept. 2016 – Sept. 2017

- LMSA is a non-profit organization founded to represent, support, educate and unify Latino Medical Students.
- As co-chair, I helped recruit members and organize events to foster community for the Latino Medical Students at Stanford.
- As mentorship coordinator, I worked with Stanford's Chicanos/Latinos in Health Education to set-up mentorship between the Latino undergraduate pre-medical students and the Latino Medical Students, with the goal of providing aid, support and encouragement throughout their path to medicine.
- I organized a talk by Puerto Rican Cardiovascular Surgeon Dr. Raúl García Rinaldi concerning "The Past, Present and Future of Medicine in Puerto Rico, in the Aftermath of Hurricane María.
- I organized two donation drives for the relief of Puerto Ricans after Hurricane Maria.

MIT MedLinks

Cambridge, MA

Community Health Coordinator (2015-2016); Membership Coordinator (2014-2015);

Sept. 2012- May 2016

Simmons Hall Director (2013-2014); MedLink

- MedLinks is a peer health advocacy program designed to help MIT students connect to campus support and medical resources and determine when and how to seek medical attention.
- As Community Health Coordinator, I organized campus-wide events promoting health and wellness at MIT (providing breakfast before exams, care-package making events, how to cope with stress at MIT panels, etc.).
- As Membership Coordinator, I kept track of the activity of the entire MedLinks membership to ensure each of the 200 members fulfilled the program requirements.
- As Simmons Hall Director, I supervised the 15 MedLinks in Simmons Hall, held meetings to discuss concerns and updates regarding their assigned student sections, and served as liaison between the MedLinks organization, MIT Medical and Simmons.

MIT Colleges Against Cancer

Cambridge, MA

Relay for Life Director (2015-2016); Team Management Vice-President (2013-2014; 2014-2015)

Sept. 2012- May 2016

- Relay for Life is the American Cancer Society's largest fundraising event. MIT Colleges Against Cancer is responsible for organizing the MIT Relay for Life every year.
- As MIT Relay for Life Director, I coordinated all the event logistics (location, date, food, speakers, activities, sponsorship).
- As Team Management Vice-President, I registered more than 100 teams and over 1,000 participants each year for the Relay for Life of MIT (2013, 2014, 2015), raising a total of over \$90,000 each year for the American Cancer Society.

MIT Minority Association of Pre-Medical Students

Cambridge, MA

President (2015-2016); Vice-President (2014-2015); Event Planning Committee (2013-2014)

Sept. 2013- May 2016

- The Minority Association of Pre-Medical Students (MAPS) encourages and prepares MIT students from underrepresented minority groups to be competitive applicants for medical school.
- As President, I piloted a mentoring program between MIT minority pre-medical students and physicians, and a physician specialty lecture series with the help of the Massachusetts Hispanic Medical Association.
- As Vice-President, I organized the first Medical Student Mentoring Night that the Massachusetts Medical Society held outside of its headquarters, and the first one to include undergraduate students. The event had an attendance of over 100 students from different institutions. I was inducted into the Massachusetts Medical Society Honor Roll for this reason.
- As part of the Event Planning Committee, I planned events to promote health professions among underrepresented minority students and to help them prepare to apply to medical school.

MIT Association of Puerto Rican Students (APR)

Cambridge, MA

Vice-President (2014-2015); Social Chair (2013-2014); Member

Sept. 2012- May 2016

- As Vice-President, I served as liaison between APR and the other six Latino organizations on campus.
- As Social Chair, I organized social and cultural events, such as conferences, dinners, study breaks and dances, to create a strong and supportive community among the community of about 50 Puerto Rican Students at MIT.

Athletic Involvement

Puerto Rican National Rowing Team – Puerto Rico's Woman Single Sculler

June 2013- present

Rowing Athlete of the Year by the Puerto Rico Olympic Committee (2014, 2015)

2014: Pan-American Trials for Latin America, Central American Games, World Rowing Championships.

2015: World Rowing Championships.

2016: Olympic Trials for Latin America, Head of the American, Head of the Lagoon Champion, BIAC Corkscrew Regatta.

2017: Southeast Master's Championship, Royal Canadian Henley.

2018: America Cup, Central America and Caribbean Cup Champion.

MIT Women's Crew

Sept. 2012- May 2016

NCAA Post-Graduate Scholarship (2016); CRCA Scholar Athlete (2015); Academic All-Patriot League Team Member (2014, 2015, 2016); Patriot League Academic Honor Roll (2014, 2015), "Most Inspirational Rower" on the team (2016)

2015-16: Starter in the first varsity boat for the Open Weight Crew. Bronze Medal at the Patriot League Championships.

2014-15: Starter in the first varsity boat for the Open Weight Crew. Grand Final at the Patriot League Championships.

2013-14: Started in the second varsity boat and then moved up to the first varsity boat for the Open Weight Crew.

2012-13: Started in the novice boat, then moved up to the second varsity boat of the Lightweight Crew.