

# Xiomara Gonzalez

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## EDUCATION

### University of Texas at Austin

Ph.D. in Electrical and Computer Engineering, starting in Fall 2021

Advisor: Professor Mia K. Markey

### University of California, Berkeley

B.S. Electrical Engineering and Computer Science, 2015-2019

Relevant Coursework: Medical Imaging Signals and Systems, Artificial Intelligence, Introduction to Robotics, 3D Modeling and Design, Modern Physics (optics, relativity, quantum)

### Johns Hopkins Center for Talented Youth

Goldman Sachs Scholar, 2011-2015

Relevant Coursework: Engineering and Design, Foundations of Programming, Business and Entrepreneurship, Civic Leadership Institute

## INDUSTRY AND RESEARCH EXPERIENCE

### Embedded Software Engineer Intern

January 2020 - August 2020

Schlumberger Technology Corporation - Sugar Land, TX

- Developed an algorithm for the automation of the calibration processes of piston pumps that are part of Ora, a wireline formation testing platform
- Leveraged Microsoft Azure IoT services to create a pipeline that enabled remote management and control of downhole assets
- Reworked an existing code base for a tool simulator to add compatibility with CAN bus communications and Azure IoT SDKs
- As a proof of concept, remote firmware upgrades on the tool simulator's acquisition controller, power supply controller, and FPGAs were performed

### Undergraduate Research Assistant

September 2019 - December 2019

O'Connell Biomechanics Lab - Berkeley, CA

- Utilized the Vic-2D software to analyze deformations on annuli fibrosi with various loads and measure strain
- Tested the Ncorr open-source software on specked annuli fibrosi datasets to determine its viability compared to Vic-2D

### micro-CT Research Intern

June 2019 - August 2019

Advanced Light Source at Lawrence Berkeley National Laboratory - Berkeley, CA

- Automated fiber center detection in ceramic-matrix composites datasets using a mixed-scale dense deep convolutional neural network (MS-D DCNN, implemented in Python/PyTorch)
- DCNN performance resulted in an average F1 score of 0.984 on validation sets and 0.965 across multiple test data

### fastMRI Research Assistant

February 2019 - May 2019

Berkeley Institute for Data Science - Berkeley, CA

- Created a functioning pipeline to train variations of convolutional neural networks on brain and knee MRI datasets using Bridges (Pittsburgh Supercomputing Center) and XSEDE
- Wrote documentation to facilitate the set up of required software packages for neural network training on Bridges

### micro-CT Research Intern

June 2018 - December 2018

Advanced Light Source at Lawrence Berkeley National Laboratory - Berkeley, CA

- Prepared ceramic-matrix composites (CMCs) data collected at beamline 8.3.2 for analysis by reconstructing it and manually segmenting SiC fibers
- Tested the SlideCAM and FibriPy software on CMCs datasets to extract statistical analyses of fibers in samples under loads at high temperatures
- Became familiar with the imaging instrumentation and data acquisition techniques at beamline 8.3.2

## SKILLS

### **Programming Languages**

- Python, C/C++, Java, MATLAB

### **Operating Systems**

- Mac OS, Linux, Windows

### **Relevant Software**

- ImageJ, Avizo, Vic-2D, Ncorr, FibrPy, Xi-CAM
- Code Composer Studio (CCS), Git, Visual Studio
- Microsoft Azure IoT, ROS, Logisim, SolidWorks, SketchUp
- Adobe Creative Cloud, LaTeX

## AFFILIATIONS

### **Vice President 2018-2019, Webmaster 2017-2018**

Hispanic Engineers and Scientists - UC Berkeley SHPE Chapter

- Advised the administrative board and collaborated with them on highly attended events (career fairs, K-12 outreach events)
- Coordinated a budget for the organization's attendance at national conferences to maximize opportunities for members (2x attendance rate compared to previous years)
- Liaison between HES and the professional level SHPE chapters and EECS External Relations Group (XRG) at UC Berkeley

### **Alumni Volunteer, 2016-present**

- Competition judge for the Mathematics, Engineering, Science, Achievement (MESA) program, where middle and high school students enter a variety of projects relating to different STEM fields
- Aspirations in Computing scholarship reviewer for the National Center for Women and Information Technology (NCWiT)

## HONORS AND AWARDS

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|--|-------------|
| Cockrell School of Engineering Fellowship, University of Texas at Austin                       | 2021 - 2024 |
| UC Berkeley NSF Louis Stokes Alliance for Minority Participation (LSAMP) Scholar               | 2019        |
| UC Berkeley CS Scholars  | 2015-2016   |
| UC Berkeley College of Engineering Pre-Engineering Program Scholar                             | 2015        |
| UC Berkeley College of Engineering Ford Scholarship Recipient                                  | 2015        |
| National Center for Women and Information Technology (NCWiT) AiC Award - SF Bay Area Recipient | 2015        |
| Johns Hopkins Center for Talented Youth (CTY) - Goldman Sachs Scholar                          | 2011        |

## POSTER PRESENTATIONS

1. **Gonzalez, X.**, MacNeil, J. M. L., Ushizima, D. M., Barnard, H. S., Parkinson, D. Y., "Automating Fiber Detection in Ceramic-Matrix Composites Using a Mixed-Scale Dense Deep Convolutional Neural Network," UC Berkeley College of Engineering Fall Undergraduate Research Symposium, Berkeley, CA, Oct. 2019, (poster).
2. **Gonzalez, X.**, MacNeil, J. M. L., Ushizima, D. M., Barnard, H. S., Parkinson, D. Y., "Automating Fiber Detection in Ceramic-Matrix Composites Using a Mixed-Scale Dense Deep Convolutional Neural Network," UC Berkeley LSAMP Summer Research Symposium, Berkeley, CA, Aug. 2019, (poster).
3. **Gonzalez, X.**, Pelt, D., Sethian, J., Perciano, T., Ushizima, D., Barnard, H., Parkinson, D., "Three-dimensional Visualizations of Ceramic-Matrix Composites in Controlled Environments," Society of Hispanic Professional Engineers (SHPE) National Conference - Engineering Science Symposium, Cleveland, OH, Nov. 2018, (poster).
4. **Gonzalez, X.**, Pelt, D., Sethian, J., Perciano, T., Ushizima, D., Barnard, H., Parkinson, D., "Three-dimensional Visualizations of Ceramic-Matrix Composites in Controlled Environments," UC Berkeley College of Engineering Fall Undergraduate Research Symposium, Berkeley, CA, Oct. 2018, (poster).
5. **Gonzalez, X.**, Pelt, D., Sethian, J., Perciano, T., Ushizima, D., Barnard, H., Parkinson, D., "Three-dimensional Visualizations of Ceramic-Matrix Composites in Controlled Environments," Berkeley Lab Undergraduate Research (BLUR) Program Summer Research Symposium, Berkeley, CA, Aug. 2018, (poster).