

Jessica de Souza

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I am a first-year Ph.D. student at the University of California San Diego, where I am advised by Edward Jay Wang, from the Ubiquitous Data & Computing Laboratory. At UCSD, my research focuses on bringing solutions for healthcare, enabling affordable and convenient health monitoring for patients at home and working professionals, by using the smartphone's touch data and sensors. More specifically, I am exploring new ways of measuring accurate blood pressure in older adults that need an easy self-assessment of blood pressure information for heart diseases. For this, I am exploring signal processing techniques, electronics and sensors, phone applications, and device prototyping, all combined to solve problems in human-computer interaction applied to the medical field. My research interests are related to the impacts of ubiquitous computing and human-computer interaction in healthcare, and how can we build devices accessible for people in need, especially for chronic illnesses. I am also interested in seeking new ways to acquire reliable biological data, either by using sensors, smartphones, or other kinds of input. Some of the skills I put together to achieve my current goals are hardware prototyping, programming in Python and C, signal processing, project organization and management.

Education History

- **Ph.D., Electrical and Computer Engineering** **Jan. 2020 - Present**
University of California San Diego (UCSD), USA *Current GPA 3.7*
- **B.E., Telecommunications Engineering** **2013 - 2019**
Federal Institute of Santa Catarina (IFSC), Brazil
- **Exchange Student, Electrical and Computer Engineering** **2014 - 2015**
University of Nevada, Reno, USA

Employment History

Research.....

- **UC San Diego** **Dr. Edward J. Wang**
Graduate Student Researcher, Ubiquitous Data & Computing Lab *Since January 2020*
Currently developing an accurate blood pressure measurement technique using a smartphone, a customized finger clip, and signal processing techniques for accessible health monitoring. Past project: Smart eyeglasses and thermal imaging to monitor breathing in different scenarios and motion conditions.

- **Microsoft Research, Redmond** **Dr. Sidhant Gupta and Dr. Jonathan Lester**
Undergraduate Intern, Clinical Sensing and Analytics Group *May 2018 - August 2018*

At MSR I created a novel wearable pulse sensing interface to improve cardiovascular health monitoring, with a non-invasive signal enhancement technique. I evaluated and compared it to existing wearable interfaces in a controlled study.

- **Federal Institute of Santa Catarina, Brazil**
Research & Extension

1. **Dr. Elen M. Lobato and Ramon M. Martins**
Research student *June 2017 - December 2017*

I analyzed heart activities from a dataset involving myocardial infarction, arrhythmias, and healthy subjects, to predict abnormalities in cardiovascular exams.

2. **Dr. Jorge H. Busatto Casagrande**
Research student *June 2016 - December 2016*

Developed a novel sensor for electrical and hydraulic monitoring in residential electric showers to reduce water and energy consumption.

3. **Dr. Pedro Armando da Silva Junior**
Extension student *February 2016 - June 2016*

Taught middle and high school students the concepts of embedded systems and basic robotics. Worked towards increasing the number of students in the STEM field.

- **University of Nevada, Reno** **Dr. Yantao Shen**
Research student, Bioinstrumentation and Automation Lab *June 2014 - July 2015*

Worked on the "E-Braille" project, collecting bioimpedance from the fingertip to find correlations between applied force and bioimpedance, for an electrical stimulation system.

Industry.....

- **AQTech Power Prognostics, R&D Team**
Software Development Analyst *July 2019 – November 2019*

I worked with Analog Devices' WirelessHART technologies for a wireless sensor network for an energy power plant. Implemented protocols and coded in firmware and intermediate level (C/C++) for specific applications. I also started and managed the testing table process for large-scale device manufacturing.

- **IMEX Medical Group**
Equipment Maintenance and Installation Intern *March 2019 – July 2019*

Provided corrective and preventive maintenance in digital X-rays, ultrasounds, mammography, and CT. I also did remote access to install and correct bugs in x-ray systems, exam visualization software, and hospital database. I have gained experience with the following brands for hardware and software: Terarecon, IRAY, Barco, Hologic Dimensions, Alpinion Medical Systems.

Honors, Awards, and Grants

- **2017** Second place at the IFSC Innovative Ideas Contest, Brazil. 10,000.00 BRL grant.
- **2017** Best extended abstract at the VIII Computer on the Beach. UNIVALI, Brazil.
- **2015** Outstanding First-Year Student In Chinese. University of Nevada, Reno, USA.
- **2015** Outstanding Academic Achievement for GPA. University of Nevada, Reno, USA.
- **2014** Scholarship Holder of CAPES (Improvement Coordination of Higher Education Personnel), in the Brazil Scientific Mobility Program (BSMP).

Technical and Personal skills

- **Programming Languages:** Familiar with: C, C++, Python, Java, Android, VHDL, PowerShell, HTML.
- **Industry Skills:** Signal processing, analog and digital circuits, wireless communication & RF, computer networks, embedded systems (hardware & firmware), prototyping, medical imaging equipment.
- **Personal Skills:** Written and oral communication, management, activity and environment organization, problem-solving, leadership, creativity, eager to learn.
- **Softwares:** MATLAB, Multisim, Quartus ModelSim, GIT, Linux, Proteus Circuit, AutoCAD.

Extra-curricular activities

- Student Volunteer at Ubicomp/ISWC: ACM international joint conference on pervasive and ubiquitous computing. Online. Online. 2020.
- Presented several inspirational talks at my undergraduate university about: engineering careers, opportunities during college, exchange programs, why is it important to learn a new language, experiences as a woman in STEM. Between 2015 and 2018.
- Attended the Annual Ideagen UN Empowering Women Girls 2030 Summit. United Nations NY. 2018.
- Organizing committee, ChipCon: Connecting Ideas. Florianopolis, Brazil. 2017 and 2018.
- Organizing committee, IEEE Latin American Symposium on Circuits and Systems. Florianopolis, Brazil. 2016.

References

- Edward Wang, Ph.D., UC San Diego.
- Sidhant Gupta, Ph.D., Microsoft Research.
- Roberto Wanderley da Nóbrega, Ph.D., Federal Institute of Santa Catarina.