



TEXAS A&M UNIVERSITY

Department of Electrical
& Computer Engineering

Friday, Oct. 23, 2020 | 4:40 – 5:05 p.m. CST

Bio-Group Seminar | Meeting ID: 514 754 727 | <https://tamu.zoom.us/j/514754727>

A Soft, Wearable, Electronic-tattoos Device for Capturing Photoplethysmographic Measurements

Abstract

Cardiovascular disease such as hypertension, stroke and heart attack are the number one cause of death in the world. Every 40 seconds one person dies from cardiovascular and chronic disease and roughly 84 million people in the US suffer from them. Monitoring physiological parameters on human body enables more effective management of disorders and can prevent future illnesses. We leverage a novel flexible circuit technology to build the electronic tattoo (e-tattoo) system with a sensor array for non-invasive monitoring blood flow and photoplethysmography (PPG) signals. We rely on semi-permanent connection of the e-tattoo with the skin, that will allow us to augment and enhance physiological information extraction. For example, the slope of diastolic phase may provide insights into the blood pressure given the sensor does not move relative to the skin. The e-tattoo allows robust, non-invasive measurements of blood flow and offers enhanced reliability in presence of motion artifacts.

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Milenka Gamero received the Bachelor of Science degree in Mechatronic Engineering from National University of Engineering, Lima, Peru, in 2013. From 2013 to 2017, she worked in the oil industry at Schlumberger and in the biomedical sector as a Field Engineer. In 2017, she obtained the Fulbright Scholarship. Currently working in the PhD in Electrical Engineering at Texas A&M University under Dr. Park guidance. Her current research is in wearable devices and Post-traumatic stress disorder (PTSD).