WEARABLE COMPUTING

11AM-12PM

CSULB COLLEGE OF ENGINEERING | 100+ Women Strong
WEARABLE COMPUTING
Speakers

SUSAN HAYES
Electrical Engineer
Applied Medical

SAEIDEH MOGHAREHABED
Algorithm Engineer
Masimo

MINA TAHERI
Quality Engineer
Alcon

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#BWIE22
Susan Haynes
Manager of Technology & Development Electrical Systems
APPLIED MEDICAL
Women in Engineering
### WOMEN

- Claim your space
- Uplift women
- Build your tribe
- Inspire others
- Balance
- Be Authentic
Claim Your Space and make it YOURS!!!
Women Helping Women
Build Your TRIBE
Inspire Others
Balance
Be Authentic

NO ONE IS YOU

THAT'S YOUR SUPERPOWER.
• Established in 1987
• Approximately 4,000 Team Members
• Over 700 products available in more than 80 countries worldwide
• A New Generation Medical Device Company
• 20 Buildings in SoCal
To Make A Meaningful, Positive Difference in the World, Each and Every Day.
COVID-19
RAPID RESPONSE

Face-Shields

Nasopharyngeal (NP) Swabs
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APPLIED MEDICAL HEALTH AND WELLNESS
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Thank You!
RESEARCH BACKGROUND AND MOTIVATIONS

Saeideh Mogharehabed
Algorithm Engineer, Masimo
April 9, 2022
Outline

- Education
- Why I became an engineer?
- Why biomedical engineering?
- Research Projects:
  1. Classification of Lung Tissue in HRCT Images of Cystic Fibrosis Patients
  3. Detection and Prediction of Delirium
Education

- BSC in Electrical Engineering
- MSC in Biomedical Engineering
- MSC in Electrical and Computer Engineering
Why I became an engineer?

- Mathematics
- Creativity
- Computer science
- Mathematics
- Creativity
- Computer science
Why biomedical engineering?

- Save lives
- Improve human health and quality of life
- Decrease cost of care
- Remove human errors
RESEARCH PROJECTS
Classification of Lung Tissue in HRCT Images of Cystic Fibrosis Patients
Seizure Detection and Emotion Detection Systems Using Physiological Signals

Biosignals:
- Generated by electrochemical changes within and between cells such as nerve, muscle or heart cells.
- Contain information about the living part of body such as brain waves, heart activity, muscle tension, electrodermal activity of skin and etc.
Seizure Detection and Emotion Detection Systems Using Physiological Signals

Emotion/Seizure Detection:

Intuition: Biosignals can be used to understand the underlying physiological mechanisms of a specific biological event.

Emotional states: happiness, sadness, fear, disgust, surprise, neutral

Seizure states: Normal EEG and abnormal EEG
Masimo Wearable Devices

- SpHb*: Noninvasive and Continuous Hemoglobin
- PVi*: Pleth Variability Index
- 03*: Regional Oximetry
- SedLine*: Brain Function Monitoring

Root® Patient Monitoring and Connectivity Platform
Delirium Prediction Using Clinical Data

Window of 24 hours clinical signals such as heart rate, SpO2,

Data Cleaning → Outlier removal → Interpolation → Normalization → Neural Network → Delirium, Not-Delirium
THANK YOU
Quality Engineer are protecting patients by ensuring the delivery of only safe, effective and reliable medical device.

They are closely collaborating and coordinating with R&D, Process engineers and manufacturing engineers to achieve this goal and maintain Quality Management System.
Life-cycle of Medical Device & QE Roles
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