



Saleh Ibrahim Alzahrani  
Assistant Professor

### Personal Data

Nationality | Saudi  
Date of Birth | 15/01/1990  
Department | Biomedical Engineering  
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### Language Proficiency

Language	Read	Write	Speak
Arabic	✓	✓	✓
English	✓	✓	✓
Others			

### Academic Qualifications (Beginning with the most recent)

Date	Academic Degree	Place of Issue	Address
12/05/2019	Ph.D.	Colorado State University	Fort Collins, Colorado, USA
17/12/2016	Master of Science	Colorado State University	Fort Collins, Colorado, USA
20/06/2012	Bachelor of Science	Umm AlQura University	Makkah, Saudi Arabia

### PhD, Master or Fellowship Research Title: (Academic Honors or Distinctions)

PhD	A Comparison of Tripolar Concentric Ring Electrodes to Disc Electrodes for Decoding Real and Imaginary Finger Movements
Master	P300 Wave Detection Using EMOTIV EPOC+ Headset: Effects of Matrix Size, Flash Duration, and Colors



### Professional Record: (Beginning with the most recent)

Job Rank	Place and Address of Work			Date
Assistant Professor	Imam Abdulrahman Bin Faisal Univeristy	Dammam -Saudi Arabia	August 2019	Present
Lecturer	Imam Abdulrahman Bin Faisal Univeristy	Dammam -Saudi Arabia	December 2016	August 2019
Teaching Assistant	Imam Abdulrahman Bin Faisal Univeristy	Dammam -Saudi Arabia	December 2012	December 2016

### Scientific Achievements

#### Published Refereed Scientific Researches

(In Chronological Order Beginning with the Most Recent)

#	Name of Investigator(s)	Research Title	Publisher and Date of Publication
1	Paras Memon, Charles Anderson, <b>Saleh Alzahrani</b>	Individual Finger Detection Using Tripolar EEG Electrode.	8th International BCI Meeting Dolce La Hulpe, Sonian Forest, Brussels, Belgium, Summer, 2021
2	<b>SI Alzahrani</b> , IA Aljamaan, EA Al-Fakih	Forecasting the spread of the COVID-19 pandemic in Saudi Arabia using ARIMA prediction model under current public health interventions	<i>Journal of infection and public health</i> 13, no. 7 (2020): 914-919.
3	C. Anderson, W. Besio, S. <b>Alzahrani</b> .	Comparison of Conventional and Tripolar EEG Electrodes in BCI Paradigms	<i>Proceedings of the Seventh International Brain-Computer Interface Meeting: BCIs, Not Getting Lost in Translation</i> , pp. 50, May, 2018, Asilomar Conference Center, Pacific Grove, California.
4	<b>S Alzahrani</b> , CW Anderson	EEG P300 wave detection using Emotiv EPOC+: Effects of matrix size, flash duration, and colors	PeerJ, 2017

### Current Researches



#	Research Title	Name of Investigator(s)
1	A Novel Method for Visual Acuity Detection via Brain Signals	Saleh I. Alzahrani
2	Classification of Seizure and Non-Seizure Signals with PCA and Linear and Non-linear Classifiers	Ibrahim Aljamaan and Saleh I. Alzahrani
3	Fabrication of Medical Personnel Protective Equipment Using Anti-Viral Biomaterials Capable of Absorbing & Killing Cov-SARS-2 upon Attachment	Saleh I. Alzahrani, Ebrahim AlFakih, Ibrahim Aljamaan, Mohammad Albiloshi
4	Design of Commercial Ventilators for Covid-19 Patients	Ghazi AlOtaibi, Saleh I. Alzahrani, Ebrahim AlFakih, Ibrahim Aljamaan, Omar AlOmar
5	Design of Dual – Function Ventilators for Covid-19 Patients	Ebrahim AlFakih, Aljamaan, Ibrahim Al-Naib, Ibraheem Al-Zahrani, Saleh
6	Emergency Basic Ventilators for Covid-19 Patients	Aljamaan, Ibrahim AL-FAKIH, EBRAHIM Al-Naib, Ibraheem Al-Zahrani, Saleh

### Guest/Invited Lectures

Title	Subject	Organization	Date
NeuroArab2020 conference Talk	New Emerging Electrode TCRE and its applications in Brain-Computer Interfaces	Invited Lecture to the NeuroArab2020 conference	16/6/2020
SBME Seminar	A Comparison of Tri-polar Concentric Ring Electrodes to Disc Electrodes for Decoding Real and Imaginary Fingers Movements	Bioengineering Department – Colorado State University	10/09/2018
8 <sup>th</sup> International BCI Meeting	A comparison of tri-polar concentric ring electrodes to disc electrodes for decoding real and imaginary fingers movements	BCI Society	24/05/2018



## Membership of Scientific and Professional Societies and Organizations

- IEEE
- BCI Society

## Teaching Activities

### Undergraduate

#	Course/Rotation Title	No./Code	Extent of Contribution (no. of lectures/Tutorials. Or labs, Clinics)
1	Design of Medical Devices	BIOEN 521	2 Credit Hour
2	Signals and Systems in BME	BIOEN 461	3 Credit Hour
3	Introduction to Communication Systems and Networks	BIOEN 442	2 Credit Hour
4	Project Management	BIOEN 511	1 Credit Hour

### Brief Description of Undergraduate Courses Taught: (Course Title – Code: Description)

#### **BIOEN 521- Design of Medical Devices**

This multidisciplinary problem based learning module is design to bridge the technical knowledge with the broader practical design and commercial challenges and aims to advance the students' knowledge and skills in the area of medical device design through case studies. It will enable students to develop a critical understanding and awareness of effective implementation strategies for new and emerging technologies utilizing the appropriate design routes.

#### **BIOEN 461 - Signals and Systems in BME**

This course serves to introduce the students to fundamentals of signal and systems analysis and manipulation and their application in the medical field. This course also reinforces mathematical knowledge in differential calculus and adding universal quantitative analysis tools such as Fourier analysis. The course topics include: Laplace transforms, Fourier (series & integral) transforms, convolution and the response of linear systems, frequency response, Bode diagrams and Polar Plots. Sampling, Discrete-time signals; frequency analysis of discrete-time signals, spectral estimation, data records and digital filters; and compression of biomedical signals through time-domain and frequency domain coding. Includes laboratory and computational experiences with biomedical applications.

#### **BIOEN 442 - Introduction to Communication Systems and Networks**

In this course the students will learn the important methods, architectures, and implementations of communication systems and networks. The course topics include Analysis and design of analog communication systems: AM and FM modulation and demodulation. Noise in AM and FM systems. Digital communication systems: Sampling,



quantization and encoding. PCM and PAM systems. Digital modulation and demodulation/detection techniques. Time and Frequency Division Multiplexing. Probability of error in digital communication systems. Basics of point-to-point, primarily digital, physical-layer communications with sampling, quantization, multiplexing, and modulation theory and design. Presentation and analysis of Elements of local area networks and packet communication at the network services layers.

#### **BIOEN 511 - Project Management**

Explanation of the Project Management principles and main tools through the example of a simple four phases Project Life Cycle. The course is compliant with Project Management Institute standard.

#### **Committee Membership**

#	From	To	Position	Organization
1	August 2019	Present	Member	College SDP Committee
2	August 2019	Present	Head	Biomedical SDP Committee

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#### **Last Update**

20/02/2021