

CURRICULUM VITAE

Name: Salah Al-Zaiti, PhD, RN, CRNP, ANP-BC, FAHA
Current Title: Professor of Nursing, Emergency Medicine, Cardiology, and Electrical & Computer Engineering, and Vice Chair of Research
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EDUCATION

Undergraduate Degrees

2002–2006 **BSN, Nursing**
The Hashemite University, Amman, Jordan

Graduate Degrees

2008–2010 **MSN, Adult Nurse Practitioner**
State University of New York, Buffalo, NY

2010–2013 **Ph.D., Cardiovascular Nursing**
State University of New York, Buffalo, NY

Postgraduate Certificates

2019 **Machine Learning**
Department of Electrical Engineering, MIT Professional Education Unit
Massachusetts Institute of Technology (MIT), Boston, MA

2020–2021 **Applied Machine Learning**
The Data Science Institute, Executive Education Unit
Columbia University, New York, NY

APPOINTMENTS AND POSITIONS

Academic Appointments

2013–2019 **Assistant Professor (Pre-tenure)**
Department of Acute & Tertiary Care Nursing (Primary)
Department of Emergency Medicine (Secondary)
University of Pittsburgh, Pittsburgh, PA

2019–2023 **Associate Professor with Tenure**
Department of Acute & Tertiary Care, School of Nursing (Primary)
Division of Cardiology, School of Medicine (Secondary)
Department of Emergency Medicine (Secondary)
University of Pittsburgh, Pittsburgh, PA

2023– **Professor with Tenure**
Department of Acute & Tertiary Care, School of Nursing (Primary)

Administrative Appointments

- 2018–2020** **Director, Interprofessional Education**
School of Nursing, University of Pittsburgh, Pittsburgh PA
- 2019–2021** **Director, Nursing Honors Program**
School of Nursing, University of Pittsburgh, Pittsburgh PA
- 2020–** **Director, Data Science Core, eHealth Hub**
School of Nursing, University of Pittsburgh, Pittsburgh PA
- 2020–** **Co-Director, T32 Technology in Acute & Chronic Illness**
School of Nursing, University of Pittsburgh, Pittsburgh PA
- 2021–2023** **Vice Chair of Research**
Department of Acute & Tertiary Care (ATC)
University of Pittsburgh School of Nursing, Pittsburgh, PA

Clinical Experience

- 2006–2008** **Registered Nurse, Bone Marrow Transplantation**
King Hussein Cancer Center, Amman, Jordan
- 2010–2011** **Nurse Practitioner, Diabetes Outpatient Clinic**
Diabetes and Endocrinology Center of WNY, Kaleida Health, Buffalo, NY
- 2018–2019** **Nurse Practitioner (per diem)**
Braddock Health Clinic, Swissvale, PA

Adjunct Appointments

- 2020–** **Affiliated Translational Researcher**
Center for Physiologic Research, UCSF, San Francisco, CA, USA
- 2024–** **Honorary Professor**
School of Nursing, University of Jordan, Amman, Jordan

LICENSURE & BOARD CERTIFICATIONS

- 2009– Registered Nurse (New York)
- 2010– Nurse Practitioner (New York)
- 2010– Board Certified Adult Nurse Practitioner, American Nurses Credential Center (ANCC)
- 2013– Registered Nurse (Pennsylvania)
- 2013– Nurse Practitioner (Pennsylvania)

HONORS & AWARDS

University Awards

Student Awards (State University of New York, Buffalo NY, USA)

- 2006 **Chancellor's Award for Student Excellence** (highest GPA, class of 2006)
- 2009 **Woodburn Presidential Fellowship**
- 2009 **Sigma Theta Tau**, Gamma Kappa Chapter, The Honors Society of Nursing
- 2010 **Anne Sengbusch Award for Excellence in Leadership**
- 2012 **Graduate Student Excellence in Teaching Award**
- 2013 **Ruth G. Elder Award for Excellence in Research** (Graduate Category)

Faculty Awards (University of Pittsburgh, Pittsburgh, PA, USA)

- 2019 **Dean's Distinguished Teaching Award**
- 2020 **Chancellor's Distinguished Teaching Award** [\[link\]](#)
- 2021 **Senior Vice Chancellor Research Seminar Series** (keynote presentation) [\[link\]](#)
- 2023 **Chancellor's Distinguished Research Award** [\[link\]](#)

Regional Awards

- 2020 **Nurse Researcher of the Year**, Pittsburgh Magazine [\[link\]](#)
- 2020 **Excellence in Nursing Research**, Nightingale Awards of Pennsylvania [\[link\]](#)

National & International Awards

- 2011 **Jos Willems Young Investigator Finalist**, ISCE, San Jose, CA
- 2012 **Best Poster Award**, ISCE, Birmingham, AL
- 2013 **Jos Willems Young Investigator Finalist**, ISCE, San Jose, CA
- 2014 **Martha N. Hill New Investigator Award**, CVSN Council, AHA [\[link\]](#)
- 2015 **Marie Cowan Promising Young Investigator Award**, CVSN Council, AHA [\[link\]](#)
- 2017 **Fellow of the American Heart Association (FAHA)**, American Heart Association (AHA)
- 2021 **Research Article of the Year Award**, AHA, (Published in *Nature Communications* [\[link\]](#))
- 2023 **Research in Nursing & Health Best Paper**, [\[link\]](#) to Article]
- 2023 **Fulbright U.S. Scholar**, international fellowship awarded for the project "AI-Enabled ECG Screening of Subclinical Coronary Artery Disease Among Refugees in Jordan"

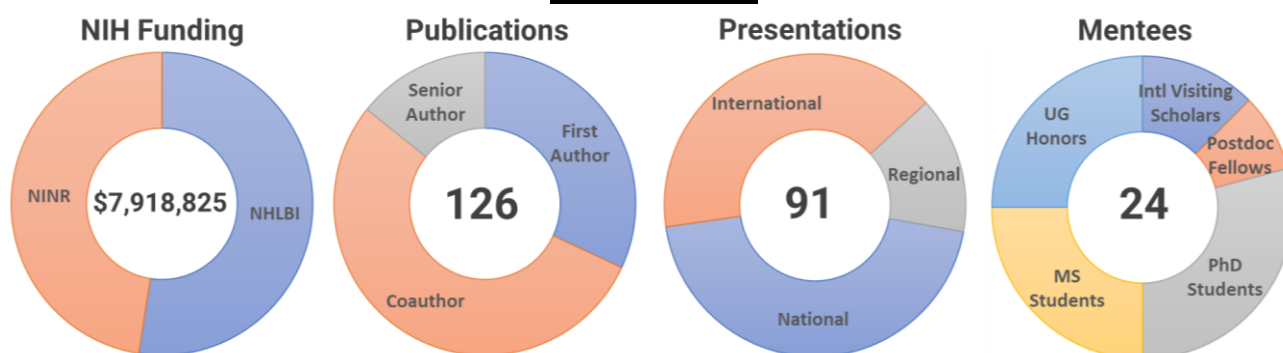
News, Highlights, Editorials, & Expert Opinion

- 2015 **Editorial Spotlight:** featured in an editorial written by Dr. Robert Lux, PhD "NSTEMI: A Novel and Robust Approach for Early Detection of Patients at Risk", [\[Link\]](#)
- 2020 **Pittwire (University of Pittsburgh News Outlet):** "New AI Research Looks to Better Diagnose Heart Attacks Before Hospital Arrival" [\[link\]](#)
- 2021 **tctMD Press:** invited to give expert opinion on "AI-Enhanced ECG Shows Potential for COVID-19 Screening" [\[Link\]](#)
- 2022 **Mayo Clinic Podcast "ECG: Making Waves":** "ECG methods for ischemia detection: Recommendations & Future Opportunities" [\[link\]](#)
- 2023 **Nature Research Briefing:** invited to give expert opinion on "Improving the diagnosis of myocardial infarction with machine learning" [\[link\]](#)
- 2023 **UPMC Press Release:** "New AI Tool Beats Standard Approaches for Detecting Heart Attacks" [\[link\]](#)
- 2023 **WTAE Pittsburgh Channel 4 News:** "University of Pittsburgh researchers and UPMC are studying AI to detect heart attacks faster" [\[link\]](#)

Patents

- 2020 **U.S. Patent:** Patent # 10,820,822 for "ECG identification of non-STE ischemic events" US Patenting and Trademark Office [\[link\]](#)
- 2023 **US Patent:** Continuation 15/562/196 to U.S. Patent # 10,820,822 for "machine learning-based ECG identification of non-STE ischemia", US Patenting and Trademark Office

RESEARCH



Ongoing Projects

NIH/NHLBI	Al-Zaiti (PI)	7/1/22–6/30/26
2R01HL137761-5	<i>Impact score = 18 (1st percentile)</i>	\$2,676,069

ECG Detection of Non-ST Elevation Myocardial Events – Two (ECG-SMART-2)

This is a multi-site clinical trial between UPITT and UNC-Chapel Hill to design and deploy a machine-learning-based graphical user interface for real-time identification of coronary events.

NIH/NINR	Al-Zaiti & Clermont (Co-PI's)	2/23/22–11/30/25
2R01NR013912-8	<i>Impact score = 24 (7th percentile)</i>	\$3,105,315

Predicting Patients Instability Noninvasively for Nursing Care –Three (PPINNC-3)

This is a multi-site clinical trial to design and pilot test an intelligent alerting system at stepdown and telemetry units. Collaboration sites are Carnegie Mellon University (CMU), UCSF, and UCLA.

NIH/NINR	Dabbs & Al-Zaiti (Co-PI)	7/1/22–6/30/27
T32 NR008857	<i>Impact score = 23</i>	\$1,551,425

Technology Research in Chronic and Critical Illness (Years 15-20)

This grant provides rigorous research training and interdisciplinary culturalization to aid nurse scientists in adopting technology to promote health, manage illness, and reduce disability.

NIH/NINR	Helman (PI)	7/1/21–6/30/24
F31 NR018589	Al-Zaiti (Sponsor)	\$203,877

Use of Predictive Analytics to Quantify Neonatal Hypothermia Burden After Cardiac Surgery

This mentored research project aims to evaluate temporal trends of unintentional hypothermia burden (temperature depth and duration) in neonates after cardiopulmonary bypass surgery.

ZOLL Foundation	Karina Kraevsky-Phillips (PI)	7/1/23–6/30/25
F31 NR018589	Al-Zaiti (Sponsor)	\$49,470

Data-driven Modeling of Pathological Mechanisms of Dyspnea in Heart Failure

This mentored research project aims to develop a data-driven triage tool that can aid in risk stratifying HF patient evaluated for dyspnea at the Emergency Department.

University of Pittsburgh	Elmer, Empey, Al-Zaiti & Wang (MPI)	7/1/23–6/30/25
CTSI Health Sciences Team Grant		\$150,000

Pittsburgh Resource for EEG & Data Science to Inform Precision Care & Outcomes (PREDICT)

This team science grant aims to fund six preliminary pilot projects in preparation for a subsequent P01 Research Program Project Grants. My pilot project focuses on using multi-modality data from EEG, ECG, ABP, and Pleth to predict neurologic recovery after cardiac arrest.

Completed Projects

NIH/NHLBI	Al-Zaiti (PI)	4/15/18–6/30/22
1R01HL137761-1	<i>Impact score = 20 (3rd percentile)</i>	\$1,479,372

Electrocardiographic Detection of Non-ST Elevation Myocardial Events for Accelerated Classification of Chest Pain Encounters (ECG-SMART)

This prospective cohort study aims to develop machine-learning-based ECG analysis tools to allow real-time identification of acute coronary syndrome in the prehospital setting.

NIH/NINR	Al-Zaiti & Pinsky (Co-PI's)	9/27/16–6/30/22
R01 NR 013912-7		\$658,069

Predicting Patients Instability Noninvasively for Nursing Care –Two (PPINNC-2)

This prospective cohort study aims to develop an intelligent alerting system based on multi-channel vital signs physiological data to alert nurses to ongoing (and future) hemodynamic instability.

NIH/NINR	Koleck (PI)	6/1/18–5/30/23
K99/R00 NR017651	Al-Zaiti (Clinical Advisory Panel)	\$912,612

Advancing Chronic Condition Symptom Cluster Science Through Use of HER and Data Science

This mentored research project aims to develop a data-driven pipeline for the characterization of symptom clusters from EHRs using a cohort of adult patients diagnosed with chronic comorbidities.

University of Pittsburgh	Al-Zaiti (PI)	9/1/20 – 4/30/22
Ruth Perkins Kuehn Award		\$30,000

Vessel-Specific ECG Leads (VSEL): A Novel Solution for Myocardial Ischemia Detection

This sub-study aims to evaluate the clinical utility of three novel ECG leads that are optimized for detecting ischemia caused by the occlusion of each of the three main coronary arteries.

NIH/NINR	Hravnak & Pinsky (Co-PI's)	9/27/16–6/30/22
R01 NR 013912	Al-Zaiti (Co-I)	\$2,659,686

Predicting Patients Instability Noninvasively for Nursing Care –Two (PPINNC-2)

This prospective cohort study aims to develop an intelligent alerting system based on multi-channel vital signs physiological data to alert nurses to ongoing (and future) hemodynamic instability.

NIH/NINR	Dabbs & Al-Zaiti (Co-PI)	7/1/17–6/30/22
T32 NR 008857-12		\$956,224

Technology Research in Chronic and Critical Illness (Years 10-15)

This grant provides rigorous research training and interdisciplinary culturalization to aid nurse scientists in adopting technology to promote health, manage illness, and reduce disability.

NIH/NINR	Frisch (PI)	7/1/19–12/31/21
F31 NR 018589	Al-Zaiti (Sponsor)	\$112,831

Modernizing Emergency Department Nurse Triage via Big Data Analytics

This retrospective cohort study aimed to develop a machine-learning decision support system to triage patients presenting to the emergency department using data available at initial triage.

Oracle for Research	Al-Zaiti (PI)	9/1/20 – 8/31/22
Cloud Credit Award		\$50,000

A Deep-Learning Based Clinical Decision Support Tool for Detecting Acute Coronary Lesions

This sub-study aims is to develop a deep-learning-based ECG interpretation system that is fully interpretable and can visually display ACS prediction in clinical practice.

This sub-study examined the molecular genetic basis of apoptosis, autophagy, and ischemic preconditioning during the evolution of acute ischemic in STEMI versus NSTEMI patients.

This pilot study aimed to develop a tool to analyze beat-to-beat repolarization lability from the standard 12-lead ECG and test its clinical value in detecting myocardial ischemia in chest pain.

This study aimed to validate the diagnostic accuracy of spatial ECG metrics and their dynamic changes against SPECT scans as a gold standard of subclinical myocardial ischemia in chest pain.

This pilot study aimed to establish the feasibility of collecting high-quality, reliable, prehospital 12-lead ECGs from our local UPMC Prehospital Network and Pittsburgh EMS agencies.

This pilot study aimed to test the feasibility of performing real-time advanced analyses of 12-lead ECG signals in the field to harvest novel signatures of ischemia that can be used during patient care.

This pilot study developed the necessary infrastructure for the acquisition, transmission, and signal processing of prehospital ECG data from Pittsburgh EMS network.

Pending Funding Decision

Evaluation of a novel ECG algorithm to identify and predict ventricular tachycardia in ICU and non-ICU patients with in-hospital cardiac arrest.

This study aims to create the largest, multi-expert, ground-truth labeled repository of ventricular tachycardia (VT) alarms in ICU patients (n = 25,298) for FDA use prior to 510(k) clearances.

PUBLICATIONS

ORCID: 0000-0002-6862-0658, citations 1586, h-index 17, i10-index 35

Scientific Statements & Guidelines

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| 2024 | 1. Armoundas A, Narayan S, Al-Zaiti SS , Lett E, Spector-Bagdady K, Friedman P, Kwitek A, Gollob M, Celi L, Arnett D, Menon B, & Bennett D. Use of Artificial Intelligence in Improving Outcomes in Heart Disease: A Scientific Statement from the American Heart Association. <i>Circulation</i> , 2023; <i>in press</i> |
| 2022 | 2. Al-Zaiti SS , Alghwiri A, Hu X, Clermont G, Peace A, et al. A Clinician's Guide to Understanding and Critically Appraising Machine Learning Studies: A Checklist for Ruling Out Bias Using Standard Tools in Machine Learning (ROBUST-ML). <i>European Heart Journal Digital Health</i> , 2022; Vol 3(2):125-40. |
| 2020 | 3. Franklin BA, Thompson PD, Al-Zaiti SS , Albert CM, Hivert M-F, Levine BD, Lobelo F, Madan K, Sharrief AZ, and Eijssvogels TMH. Exercise-related acute cardiovascular events and potential deleterious adaptations following long-term exercise training: placing the risks into perspective—an update: a scientific statement from the American Heart Association. <i>Circulation</i> . 2020;141(13): e705–e736. |

Original Research (Data-Based)

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| 2023 | 4. Al-Zaiti SS , Martin-Gill C, Zègre-Hemsey J, et al. Machine Learning for ECG Diagnosis and Risk Stratification of Occlusion Myocardial Infarction. <i>Nature Medicine</i> , 2023; Vol. 29(7): DOI:10.1038/s41591-023-02396-3 |
| | 5. Al-Zaiti SS & Bond RR. Explainable-by-design: Challenges, pitfalls, and opportunities for the clinical adoption of AI-enabled ECG. <i>Journal of Electrocardiology</i> . 2023 Aug 15. |
| | 6. Rooney SR., Kaufman R., Murugan R., Kashani KB., Pinsky MR., Al-Zaiti SS , Dubrawski A., Clermont G. and Miller JK. Forecasting imminent atrial fibrillation in long-term electrocardiogram recordings. <i>J of Electrocardiology</i> , 81, pp.111-116. |
| | 7. Prasad PA, Isaksen JL, Abe-Jones Y, Zègre-Hemsey JK, Sommargren CE, Al-Zaiti SS , Carey MG, Badilini F, Mortara D, Kanters JK, Pelter MM. Ventricular tachycardia and in-hospital mortality in the intensive care unit. <i>Heart Rhythm O2</i> . |
| | 8. Helman S, Terry MA, Pellathy T, Hravnak M, George E, Al-Zaiti SS , Clermont G. Engaging Multidisciplinary Clinical Users in the Design of an Artificial Intelligence–Powered Graphical User Interface for Intensive Care Unit Instability Decision Support. <i>Applied Clinical Informatics</i> . 2023;14(04):789-802. |
| | 9. Kraevsky-Phillips K, Sereika SM, Bouzid Z, Hickey G, Callaway CW, Saba S, Martin-Gill C, & Al-Zaiti SS . Unsupervised machine learning identifies symptoms of indigestion as a predictor of acute decompensation and adverse cardiac events in patients with heart failure presenting to the ED. <i>Heart & Lung</i> , Vol. 61(5):107-113. |
| | 10. Xiao R, Ding C, Hu X, Clifford G, Wright D, Shah A, Al-Zaiti SS , Zegre-Hemsey J. Integrating Multimodal Information in Machine Learning for Classifying Acute Myocardial Infarction. <i>Physiological Measurement</i> , 44(4):044002. |

2022

11. Pelter MM, Carey MG, **Al-Zaiti SS**, Zegre-Hemsey J, Sommargren C, Isola L, Mortara D, and Badilini F. An annotated ventricular tachycardia (VT) alarm database: Toward a uniform standard for optimizing automated VT identification in hospitalized patients. *Annals of Noninvasive Electrocardiology*, 00, e13054.
12. Bouzid Z, Faramand Z, Martin-Gill C, Sereika S, Callaway C, Saba S, Gregg R, Badilini F, Sejdić E, & **Al-Zaiti SS**. Incorporation of Serial 12-Lead ECG with Machine Learning to Augment the Prehospital Diagnosis of Non-ST Elevation Acute Coronary Syndrome. *Annals of Emergency Medicine*, Vol. 81(1):57-69
13. **Al-Zaiti SS.**, Macleod, M. R., Van Dam, P. M., Smith, S. W., & Birnbaum, Y. Emerging ECG Methods for Acute Coronary Syndrome Detection: Recommendations & Future Opportunities. *J of Electrocardiology*, Vol. 74:65-72.
14. Peace A, **Al-Zaiti SS**, Dewar F, McGilligan V, Bond R. Exploring decision making ‘noise’ when interpreting the electrocardiogram in the context of cardiac CATH lab activation. *J of Electrocardiology*, Vol. 73:157-161.
15. Bouzid Z, **Al-Zaiti SS**, Bond R, & Sejdić E. Remote and Wearable ECG Devices with Diagnostic Abilities in Adults: A State-of-the-Science Scoping Review. *Heart Rhythm*, Vol. 19(7):1192-1201.
16. Faramand Z, Alrawashdeh M., Helman S, Martin-Gill C, Callaway C, & **Al-Zaiti SS**. Your Neighborhood Matters: A Machine-Learning Approach to the Geospatial and Social Determinants of Health in 9-1-1 Activated Chest Pain. *Research in Nursing and Health*, Vol. 45(2):230-239.
17. Helman, S., Terry, M.A., Pellathy, T., Williams, A., Dubrawski, A., Clermont, G., Pinsky, M.R., **Al-Zaiti, SS.** & Hravnak, M. Engaging Clinicians Early During the Development of a Graphical User Display of An Intelligent Alerting System at the Bedside. *International Journal of Medical Informatics*, Vol. 159:104643.
18. Schwimer, D., **Al-Zaiti, SS.**, & Beach, M. (2022). Improving Corrected QT Interval Monitoring in Critical Care Units: A Single Center Report. *Critical Care Nurse*, 42(1), 33-43.

2021

19. Bouzid Z, Faramand Z, Gregg R, Helman S, Martin-Gill C, Saba S, Callaway C, Sejdić E, & **Al-Zaiti SS**. Novel ECG Features and Machine Learning to Optimize Culprit Lesion Detection in Patients with Suspected Acute Coronary Syndrome. *Journal of the Electrocardiology*, Vol. 69:31-37.
20. Helman, S., Herrup, E., Christopher, A., & **Al-Zaiti, SS.** (2021). The role of machine learning applications in diagnosing and assessing critical and non-critical CHD: A scoping review. *Cardiology in the Young*, 31(11), 1770-1780.
21. Faramand Z, Helman S, Ahmad A, Martin-Gill C, Saba S, Callaway C, Gregg R, Wang J, & **Al-Zaiti SS**. Performance and Limitations of Automated ECG Interpretation Statements in Patients with Suspected Acute Coronary Syndrome. *Journal of the Electrocardiology*, Vol. 69:45-50.
22. Finlay D, Bond R, Jennings M, McCausland C, Guldenring D, Kennedy A, Biglarbeigi P, **Al-Zaiti SS**, McLaughlin J. Overview of featurization techniques used in traditional versus emerging deep learning-based algorithms for automated interpretation of the 12-Lead ECG. *Journal of the Electrocardiology*, Vol. 69:7-11.

2020

23. Bond R, Finlay D, **Al-Zaiti SS**, Macfarlane P. Machine learning with ECGs: A call for guidelines and best practices for 'stress testing' algorithms. *Journal of the Electrocardiology*, Vol. 69:1-6.
24. Faramand Z., Martin-Gill C; Callaway CW; & **Al-Zaiti SS**. Modified HEART score to optimize risk stratification in cocaine-associated chest pain. *Am J of Emergency Medicine*, Vol. 47:307-308.
25. Bouzid Z, Faramand Z, Frisch S, Martin-Gill C, Gregg R, Saba S, Callaway C, Sejdić E, & **Al-Zaiti SS**. In Search of Optimal Subset of ECG Features to Augment the Diagnosis of Acute Coronary Syndrome at the Emergency Department. *Journal of the American Heart Association (JAHA)*, Vol. 10(3): e017871.
26. Faramand Z., Hongjin Li; Al-Rifai N, Frisch SO; Abu-Jaradeh O, Mahmoud A, & **Al-Zaiti SS**. Association between history of cancer and major adverse cardiovascular events in patients with chest pain presenting to the emergency department: a secondary analysis of a prospective cohort study. *European Journal of Emergency Medicine*, Vol. 28(1):64-69.
27. Faramand Z., Martin-Gill C; Frisch S; Callaway CW; & **Al-Zaiti SS**. The Prognostic Value of HEART score in Patients with Cocaine Associated Chest Pain: An Age-and-Sex Matched Cohort Study. *Am J of Emerg Med*, Vol. 45:303-308.
28. Frisch SO; Faramand Z., Leverknight B.; Martin-Gill C., Sereika S., Sejdic E., Callaway C., & **Al-Zaiti SS**. The Association Between Patient Outcomes and the Initial Emergency Severity Index Triage Score in Patients with Suspected Acute Coronary Syndrome. *Journal of Cardiovascular Nursing*; Vol. 35(6):550-557.
29. Khraim F; Alhamaydeh M; Faramand Z; Saba S; **Al-Zaiti SS**. A Novel Non-invasive Assessment of Cardiac Hemodynamics in Patients with Heart Failure and Atrial Fibrillation. *Cardiology Research*, Vol. 11(6):370-375.
30. **Al-Zaiti SS**, Besomi L, Bouzid Z, Faramand Z, Frisch S, Martin-Gill C, Gregg R, Saba S, Callaway C, & Sejdić E. Machine Learning-Based Prediction of Acute Coronary Syndrome Using Only the Pre-Hospital 12-Lead Electrocardiogram. *Nature Communications*, Vol. 11: 3966 (doi.org/10.1038/s41467-020-17804-2)
31. Frisch SO; Brown J; Faramand Z., Stemler J, Sejdic E, Martin-Gill C., Callaway CW; Sereika S.; & **Al-Zaiti SS**. Exploring the Complex Interactions of Baseline Patient Factors to Improve Nursing Triage of Acute Coronary Syndrome. *Research in Nursing and Health*, Vol. 43: 356–364 (doi.org/10.1002/nur.22045)
32. Alhamaydeh M, Gregg R, Ahmad A, Faramand Z, Saba S, and **Al-Zaiti SS**. Identifying the most important ECG predictors of reduced ejection fraction in patients with suspected acute coronary syndrome. *Journal of Electrocardiology*, Vol. 61 (4): 81–85.

2019

33. Frisch SO; Faramand Z., Abu-Jaradeh O.; Martin-Gill C., Callaway C., & **Al-Zaiti SS**. Prevalence and Predictors of Delay in Seeking Emergency Care in Patients Who Call 9-1-1 for Chest Pain. *Journal of Emergency Medicine*, Vol. 57(5):603-610.

34. Faramand Z., Frisch SO; Al-Robaidi K., Alrawashdeh M., Alhamaydeh M., Callaway C., Martin-Gill C., & **Al-Zaiti SS**. The Diurnal, Weekly, and Seasonal Variations of Chest Pain in Patients Transported by Emergency Medical Services. *Emergency Medicine Journal*, 36(10):601-607.
35. **Al-Zaiti SS**, Pietrasik G., Carey MG, Alhamaydeh M., Canty JM & Fallavollita JA. The Role of Heart Rate Variability, Heart Rate Turbulence, and Deceleration Capacity in Predicting Cause-Specific Mortality in Chronic Heart Failure. *Journal of Electrocardiology*. Vol. 52(1):70-74.
36. Faramand Z., Frisch SO; DeSantis A., Alrawashdeh M., Martin-Gill C., Callaway C., **Al-Zaiti SS**. Lack of Significant Coronary History and ECG Misinterpretation Are the Strongest Predictors of Undertriage in Prehospital Chest Pain. *Journal of Emergency Nursing*, Vol. 45(2):161-168.
37. Rivero D., Alhamaydeh M., Faramand Z., Martin-Gill C., Callaway C., Drew B., and **Al-Zaiti SS**. Nonspecific Electrocardiographic Abnormalities Are Associated with Increased Length of Stay and Adverse Cardiac Outcomes in Prehospital Chest Pain. *Heart & Lung: Journal of Acute and Critical Care*, Vol. 48(2):121-125.
38. **Al-Zaiti SS**, Faramand Z., Alrawashdeh M., Sereika S., Martin-Gill C., Callaway C. Comparison of Clinical Risk Scores for Triaging High-Risk Chest Pain Patients at the Emergency Department. *American J of Emergency Medicine*, Vol 37(3):461-67.
- 2018 39. **Al-Zaiti SS**, Sejdic E, Nemec J, Callaway C, Soman P, Lux R. Spatial Indices of Repolarization Correlate with Non-ST Elevation Myocardial Ischemia in Patients with Chest Pain. *Medical & Biological Engineering & Computing*, 56(1):1-12.
- 2017 40. **Al-Zaiti SS**, Alrawashdeh, M., Martin-Gill, C., Callaway, C., Mortara, D., & Nemec, J. Evaluation of Beat-to-Beat Ventricular Repolarization Lability from Standard 12-Lead ECG during Acute Myocardial Ischemia. *Journal of Electrocardiology*, 50(6):717-724
41. **Al-Zaiti SS**, Saba, S., Pike, R., Williams, J., & Khraim, F. Arterial Stiffness is Associated with QTc Interval Prolongation in Patients with Heart Failure. *Biological Research for Nursing*, 20(3):255-263.
- 2016 42. **Al-Zaiti, S. S.**, & Magdic, K. S. Paroxysmal Supraventricular Tachycardia: Pathophysiology, Diagnosis, and Management. *Critical Care Nursing Clinics of North America*, 28(3), 309-316.
- 2015 43. **Al-Zaiti SS**, Martin-Gill C, Sejdic E, Al-Rawashdeh M, and Callaway CW. Rationale, Development, and Implementation of Electrocardiographic Methods for the Prehospital Identification of Non-ST Elevation Myocardial Infarction (EMPIRE). *Journal of Electrocardiology*, Vol. 48(6):921-6.
44. **Al-Zaiti SS**, Callaway CW, Kozik TM, Carey MG, & Pelter MM. Clinical Utility of Ventricular Repolarization Dispersion for Real-Time Detection of Non-ST Elevation Myocardial Infarction in Emergency Departments. *Journal of the American Heart Association*, Vol. 4(7). pii: e002057.

45. **Al-Zaiti SS**, Rittenberger JC, Reis SE, & Hostler D. Electrocardiographic responses during fire suppression and recovery among experienced firefighters. *Journal of Occupational and Environmental Medicine*, Vol. 57(9):938-42.
46. **Al-Zaiti SS**, Carey MG, Canty Jr. JM, & Fallavollita JA. The Prognostic Value of Discordant T waves in Lead aVR: A Simple Risk Marker of Sudden Cardiac Arrest in Ischemic Cardiomyopathy. *Journal of Electrocardiology*, Vol. 48(5):887-92.
- 2014 47. Liao L, **Al-Zaiti SS**, and Carey MG. Depression and heart rate variability in firefighters. *SAGE Open Medicine*; Vol. 2: pii: e2050312114545530.
48. **Al-Zaiti SS**, Fallavollita JA, Wu YW, Tomita MR, & Carey MG. Electrocardiogram-Based Predictors of Clinical Outcomes: A Meta-Analysis of the Prognostic Value of Ventricular Repolarization. *Heart & Lung*. Vol. 43(6):516-26.
49. **Al-Zaiti SS** & Carey MG. The Prevalence of Clinical and Electrocardiographic Risk Factors of Cardiovascular Death among On-Duty Professional Firefighters. *Journal of Cardiovascular Nursing*, Vol. 44(1):59-62.
50. **Al-Zaiti SS**, Carey MG, Fallavollita JA, & Canty JM. Electrocardiographic Predictors of Sudden and Non-Sudden Cardiac Death in Ischemic Cardiomyopathy. *Heart & Lung: The Journal of Acute and Critical Care*. Vol. 43(6):527-33.
- 2013 51. **Al-Zaiti SS**, Shusterman V, & Carey MG. Novel Technical Solutions for Wireless ECG Transmission and Analysis in the Age of the Internet Cloud. *Journal of Electrocardiology*. Vol. 46(6):540-45.
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- 2011 53. **Al-Zaiti SS**, Runco KN, & Carey MG. Increased T-Wave Complexity Can Indicate Subclinical Myocardial Ischemia in Asymptomatic Adults. *Journal of Electrocardiology*. Vol. 44(6):684-8.
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Book Chapters

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INTERNATIONAL PRESENTATIONS

** indicates podium

International Society of Computerized ECG (ISCE)

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1. Riek N, Van Dam P, Bouzid Z, Mahmoud A, Ahmad A, Gokhale T, Gregg R, Sejdic E, Akcakaya M, **Al-Zaiti SS**. Robust Estimation of ST Segment Amplitude: Revisiting the Logic of Automated ECG Interpretation Systems for STEMI Classification. *Journal of Electrocardiology*
 2. ** Bouzid Z, Riek N, Van Dam P, Gokhale T, Akcakaya M, Sejdic E, **Al-Zaiti SS**. Inverse ECG Imaging as a Novel Solution for Acute Coronary Syndrome Classification from Standard 12-Lead ECG in the Emergency Department. *Journal of Electrocardiology*
 3. ** Rooney S, Kaufman R, **Al-Zaiti SS**, Dubrawski A, Clermont G, Miller K. Forecasting imminent atrial fibrillation in long-term ECG recordings. *Journal of Electrocardiology*
 4. Xiao R, Ding C, Zegre-Hemsey J, Hu X, **Al-Zaiti SS**. In Search of the Optimal ECG Input Architecture for Deep Learning-Based Prediction of Acute Myocardial Infarction. *Journal of Electrocardiology*
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12. Pelter, M. M., Carey, M. G., **Al-Zaiti, S.**, Zegre-Hemsey, J., Sommargren, C., Mortara, D., & Badilin, F. (2021). Annotation protocol designed to improve ventricular tachycardia identification during in-hospital ECG. *Journal of Electrocardiology*, 69:83.
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Heart Rhythm Society (HRS)

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European Society of Intensive Care Medicine (ESICM)

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- 2021 **32. Helman S**, Terr T, Pellathy T, Williams A, Dubrawski A, Clermont G, Pinsky M, **Al-Zaiti SS**, & Hravnak M. A User Engaged Iterative Design for the Graphical Interactive Display of Machine Learning-Based Intelligent Alerting Systems.

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The Canadian Congress of Cardiology (CCC)

- 2018 34. ** **Al-Zaiti, SS.**, Faramand, Z., Martin-Gill, C., & Callaway, C. Demographic and Clinical Predictors of ACS in Patients with Prehospital Chest Pain and Benign ECG Findings. *Canadian Journal of Cardiology*, 34(10):S201-S202.
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The International Nursing Research Congress

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NATIONAL PRESENTATIONS

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American Heart Association (AHA) Scientific Sessions

- 2023 37. Kraevsky-Phillips K, Callaway CW, Henker RA, Scott P, **Al-Zaiti SS**. Black Patients With Heart Failure Living in Distressed Communities Disproportionately Experience Excess Risk of Mortality After Emergency Department Visit for Dyspnea. *Circulation*; 148(Suppl_1):A17315.
- 2023 38. Prasad PA, Zegre-Hemsey JK, Carey M, **Al-Zaiti SS**, Sommargren CE, Isola L, Mortara D, Badilini F, Pelter MM. Comparison of the Frequency and Time to True Ventricular Tachycardia Among Patients in the Cardiac, Medical/Surgical and Neurologic Intensive Care Units. *Circulation*; 148(Suppl_1):A13943.
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- 2022 41. Ahmad A, Daoud M, Faramand Z, **Al-Zaiti SS**. Increased T Wave Amplitude In Lead aVR is a Strong Predictor of Reduced Left Ventricular Ejection Fraction In Suspected Acute Coronary Syndrome. *Circulation*, 146(S1): A15858

42. Zègre-Hemsey J, Crandell J, Wong E, Chronowski K, Tolentino A, Ronn K, Steege N, Frisch S, **Al-Zaiti SS**, Rosamond W, Dickson V, Pelter M, & DeVon H. Stable versus Dynamic Cardiac Symptom Characteristics are Associated with Adverse Outcomes Among Individuals Transported by Ambulance for Suspected Acute Coronary Syndrome. *Circulation*, 146(S1): A10852.
- 2021 43. ** Kraevsky-Phillips K, Bouzid Z, Ahmad A, Faramand Z, & **Al-Zaiti SS**. An Unsupervised Machine-Learning-Based Approach Elucidates the Prognostic Value of Symptom Clusters in Heart Failure Patients Evaluated in the Emergency Department. *Circulation*, 144(Suppl_1): A12673
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46. Helman S., Herrup E, Christopher A, & **Al-Zaiti SS**. The Role of Machine Learning-Based Decision Support Tools for Diagnosing and Assessing Congenital Heart Disease. *Circulation*, 144(Suppl_1), A12262.
- 2020 47. Ahmad, A., Alhamaydeh, M., Faramand, Z., Gregg, R., Saba, S., & **Al-Zaiti SS**. (2020). Identifying the Most Important ECG Predictors of Reduced Ejection Fraction in Patients With Suspected Acute Coronary Syndrome. *Circulation*, 142(Suppl_3), A13596-A13596.
- 2019 48. ** **Al-Zaiti SS**; Abu-Jaradeh O; Faramand Z; Al-Ghouleh I; Conley Y. Effect of Ischemic Preconditioning on Apoptosis and Autophagy: A Potential Key Role in ST-Elevation vs. Non-ST Elevation Acute MI. *Circulation*, 140:A16285
49. ** Frisch S; Hongjin L; Faramand Z; Callaway C; Martin-Gill C; Sejdic E; **Al-Zaiti SS**. Using Predictive Machine Learning Modeling for the Nursing Triage of Acute Chest Pain at the Emergency Department. *Circulation*, 140:A14879
50. Abu-Jaradeh O; Ahmad A; Frisch S; Faramand Z; Landis P; Mahmoud A; Callaway C; Martin-Gill C; **Al-Zaiti SS**. Supplemental Oxygen is Associated With Larger Infarct Size but Not Excess Risk of Adverse Cardiac Events in Non-ST Elevation Myocardial Infarction. *Circulation*, 140:A11501
51. Alhamaydeh M; Ahmad A; Frisch S; Faramand Z; Saba S; Gregg R, Callaway C; Martin-Gill C; **Al-Zaiti SS**. Tpeak–Tend Interval on the Prehospital 12-lead ECG is a Strong Predictor of Adverse Cardiac Events in Patients With Suspected Acute Coronary Syndrome. *Circulation*, 140:A11508
52. Mahmoud A; Hongjin L; Abu-Jaradeh O; Frisch S; Faramand Z; Callaway C; Martin-Gill C; **Al-Zaiti SS**. Is HEART Score Adequate for Triaging Acute Chest Pain in Cancer Survivors? *Circulation*, 140:A14860
- 2018 53. Alhamaydeh, M., Faramand, Z., Martin-Gill, C., Callaway, C., & **Al-Zaiti, SS**. Should Paramedics Withhold Nitroglycerin in Patients With Prehospital Chest Pain Who Are Tachycardiac? *Circulation*, 138:A12389

54. Frisch, S. O., Alrawashdeh, M., Martin-Gill, C., Callaway, C., & **Al-Zaiti, SS**. Geospatial Analysis of Chest Pain Patients That Call 9-1-1 in the City of Pittsburgh. *Circulation*, 138: A16400
- 2017 55. Frisch, S., Martin-Gill, C., Alrawashdeh, M., Callaway, C., & **Al-Zaiti SS**. Incidence and Predictors of Delaying Seeking Emergent Medical Care Among Patients With Suspected Acute Coronary Syndrome. *Circulation*;136:A18707
56. DeSantis, A., Landis, P., Alrawashdeh, M., Martin-Gill, C., Callaway, C., & **Al-Zaiti SS**. Predictors of Emergency Medical Personnel's Decision to Transmit or Not to Transmit the Prehospital 12-Lead ECG of Patients With Suspected Acute Myocardial Infarction. *Circulation*;136:A18641
57. Faramand, Z., Alrawashdeh, M., Martin-Gill, C., Callaway, C., & **Al-Zaiti SS**. Evaluating the Diagnostic Accuracy of Clinical Risk Scores to Detect Acute Coronary Syndrome in Patients Evaluated at the Emergency Department for a Chief Complaint of Chest Pain. *Circulation*; 136:A19451
58. Rivero, D., Alhamaydeh, M., Martin-Gill, C., Callaway, C., Drew, B., & **Al-Zaiti SS**. The Prevalence of Secondary Repolarization Abnormalities Confounding the Electrocardiographic Diagnosis of Acute Myocardial Ischemia in Patients Presenting With Chest Pain. *Circulation*;136:A18750
59. Alhamaydeh, M., Alrawashdeh, M., Martin-Gill, C., Callaway, C., & **Al-Zaiti SS**. Time of Day and Day of Week Variations in Chest Pain Encounters at the Prehospital Setting. *Circulation*;136:A18689
- 2016 60. Alhamaydeh, M., Rivero D., Alrawashdeh, M., Martin-Gill, C., Callaway, C., & **Al-Zaiti SS**. ECG Characteristics of Patients Evaluated at the Emergency Department for a Chief Complaint of Chest Pain. *Circulation*; 134:A15745
- 2015 61. ** **Al-Zaiti SS**, Pike R, Williams J, & Khraim F. The Hemodynamic Determinants and Physiologic Correlates of QTc Interval Using Impedance Cardiography in Heart Failure. *Circulation* 132(Suppl 2): A15631
- 2014 62. **Al-Zaiti SS**, Carey MG, Canty MJ, and Fallavollita JA. The Role of Heart Rate Variability in Predicting Sudden and Non-Sudden Cardiac Death in Ischemic Heart Disease. *Circulation* 130(Suppl 2): A14269.
- 2013 63. ** **Al-Zaiti SS**, Carey MG, Canty MJ, and Fallavollita JA. The Prognostic Value of Positive T waves in Lead aVR: A Simple Risk Marker of Sudden and Non-Sudden Cardiac Death in Patients With Ischemic Cardiomyopathy and Poor Left Ventricular Ejection Fraction. *Circulation* 128(22): A17920.

Society of Critical Care Medicine (SCCM)

- 2023 64. ** Rooney S, Hravnak M, **Al-Zaiti SS**, Clermont G. Racial Differences in Commercial Monitoring Software Detection of Atrial Fibrillation. *Critical Care Medicine*, Vol. 50(1):
- 2022 65. Hravnak M, Clermont G, Helman S, Pellathy T, Lagattuta T, Saul M, George B, Pinsky M, **Al-Zaiti SS**. Medical Emergency Team (MET) Calls for Ward Patients After Down-Transfer From an ICU. *Critical Care Medicine*, Vol. 50(1):617

66. Helman S, Terry M, Hravnak M, Pellathy T, George B, Pinsky M, **Al-Zaiti SS**, Clermont G. User-Engaged Design of a Graphical User Interface for Instability Decision Support in the ICU. *Critical Care Medicine*, Vol. 50(1):269

American College of Emergency Physicians (ACEP)

- 2021 67. **Faramand, Z., Ahmad, A., Martin-Gill, C., Callaway, C., & **Al-Zaiti, S**. Two Thirds of Patients with ACS in High-Risk Chest Pain Have a Negative First Conventional Troponin. *Annals of Emergency Medicine*, 78(4), S41.

Emergency Nursing (ENA Annual Conference)

- 2018 68. Faramand, Z., Frisch S., Martin-Gill, C., Callaway, C., & **Al-Zaiti SS**. HEART score: Valid assessment tool for cocaine associated chest pain
69. Frisch S., Faramand, Z., Martin-Gill, C., Callaway, C., & **Al-Zaiti SS**. Resolution of Ischemic ECGs Changes in Prehospital Chest Pain Patients

Eastern Nursing Research Society (ENRS)

- 2023 70. Gallagher M, Helman S, Scott P, **Al-Zaiti SS**. Demographic and Clinical Characteristics of Acute Coronary Syndrome Patients with Single Versus Multi-Vessel Coronary Occlusion.
71. Helman S, Sereika S, Hravnak M, Henker R, Riek N, Herrup E, Lisanti A, Gaynor W, Olsen R, Kennedy A, **Al-Zaiti SS**. An exploratory analysis of neonatal temperature trajectories after open heart surgery.
2019 72. ** Landis P.; Faramand Z.; Zegre-Hemsey J.; Frisch S.; Ren D.; Callaway C.; Frisch A.; & **Al-Zaiti SS**. The Prevalence and Outcomes of Morphine Use in the Initial Management of Patients with Acute Myocardial Infarction
2016 73. ** Alrawashdeh, M., **Al-Zaiti, S.**, Sejdic, E., Martin-Gill, C., & Callaway, C. Repolarization Dispersion on the Prehospital 12-Lead ECG Predicts Ischemic Myocardial Injury in Chest Pain Patients. *Nursing Research*; 65(2):E94.

Council for the Advancement of Nursing Science (CANS)

- 2022 74. **Al-Zaiti SS**, Bouzid Z, Faramand Z, Martin-Gill C, Saba S, Akcakaya M, Clermont G, Callaway C, Sejdic E. Evaluating race-disparities in machine learning decision support tools for acute coronary syndrome classification in the ED.
2016 75. ** **Al-Zaiti, SS**; Rittenberger J; Reis, S; and Hostler D. The Impact of Exertional Heat Stress on Cardiovascular Responses in Fire Suppression and Recovery.
2010 76. ** **Al-Zaiti SS**; Liao L; Martin H; Butler R; and Carey MG. Metabolic Syndrome: Quantified and Reduced in Firefighters

American College of Cardiology (ACC) Scientific Sessions

- 2022 77. Ahmad A, Faramand Z, Wang J, Gregg R, Martin-Gill C, Callaway C, Saba S, and **Al-Zaiti SS**. Vessel-Specific ECG Leads as a Novel Strategy for Myocardial Ischemia Detection in Patients with Suspected Acute Coronary Syndrome. *Journal of the American College of Cardiology*, 79(9_Supplement):150

- 2013 **78. ** Carey MG, Fallavollita JA, Canty MJ, and Al-Zaiti SS.** ECG Predictors of Mortality among Implantable Cardioverter-Defibrillator Candidates for the Primary Prevention of Sudden Cardiac Death. *JACC*; 61: E616.

OTHER REGIONAL PRESENTATIONS

**** indicates podium**

Invited Visiting Professor Presentations

- 2023 **79. ** Al-Zaiti SS.** Intelligent Clinical Decision Support to Improve Patient Outcomes: A Decade of Experience. *University of Rochester, Rochester, NY*
- 2023 **80. ** Al-Zaiti SS.** Machine Learning for the ECG Diagnosis and Risk Stratification of Occlusion Myocardial Infarction. *Stony Brook University, Stony Brook, NY*
- 2022 **81. ** Al-Zaiti SS.** Machine-learning based clinical decision tools and intelligent alerting systems. *University of Iowa, Iowa City, Iowa*
- 2019 **82. ** Al-Zaiti SS.** Frontiers of AI-Assisted Care: ECG Methods for the Prompt Identification of Coronary Events (EMPIRE): Algorithm Development and Testing on Two Independent Cohorts. *Stanford University, San Francisco, CA*
- 2018 **83. ** Al-Zaiti SS.** Establishing a Program of Research in a Research-Intensive Institution: Lesson Learned. *University of Texas at Houston, Houston TX*
- 2018 **84. ** Al-Zaiti SS.** Big Data in Cardiology: Machine Learning and the Electrocardiogram. *State University of New York at Buffalo, Buffalo, NY*

AHA Fellows Research Days (Northeast Affiliate)

- 2023 **85.** Helman S, Sereika S, Hravnak M, Henker R, Riek N, Herrup E, Lisanti A, Gaynor W, Olsen R, Kennedy A, **Al-Zaiti SS.** An exploratory analysis of neonatal temperature trajectories after open heart surgery.
- 2018 **86.** Faramand, Z., Frisch S., Martin-Gill, C., Callaway, C., & **Al-Zaiti SS.** Evaluating the Diagnostic Accuracy of Clinical Risk Scores to Detect ACS in Patients with Chest Pain.
- 2016 **87. ** Alrawashdeh, M., Sejdic, E., Martin-Gill, C., & Callaway, C, Al-Zaiti, SS.** Repolarization Dispersion on the Prehospital 12-Lead ECG Predicts Ischemic Myocardial Injury in Chest Pain Patients.

McGowan Institute Scientific Retreat

- 2018 **88. ** Al-Zaiti SS,** Faramand, Z., Frisch S., Martin-Gill, C., Callaway, C., & Sejdic E. Novel Methodologies and Technologies to Detect and Analyze Physiological Markers of Clinical Interest.

SAFAR Symposium (University of Pittsburgh)

- 2022 **89.** Kraevsky-Phillips K, Bouzid Z, Ahmad A, Faramand Z, & **Al-Zaiti SS.** An Unsupervised Machine Learning Approach Elucidates the Prognostic Value of Symptom Clusters in Heart Failure Patients Evaluated in the ED.
- 2021 **90.** Kates L, Faramand Z, **Al-Zaiti SS.** The Prevalence of ECG Findings Encountered by Paramedics During Ambulance Transport

- 2017 **91.** Faramand, Z., Frisch S., Martin-Gill, C., Callaway, C., & **Al-Zaiti SS.** HEART score: Valid assessment tool for cocaine associated chest pain

Pittsburgh Health Data Alliance (PHDA) Annual Retreat

- 2017 **92.** ** **Al-Zaiti SS** and Sejdic E. EMPIRE: A smart detection system for rapid diagnosis of heart attacks

Senior Vice Chancellor's Research Seminar (University of Pittsburgh)

- 2021 **93.** ** **Al-Zaiti SS.** Intelligent ECG Methods for Myocardial Ischemia Detection

MENTORING FOR THESIS & DISSERTATION

International Visiting Scholars

<i>Scholar and Affiliation</i>	<i>Training Period</i>	<i>Project Title</i>
Abdullah Ahmad Sultan, MD University of Jordan, Jordan	7/2019–6/2020 Mentor	“Fragmented QRS with Benign Early Repolarization Pattern As a Strong Predictor of Adverse Events in Patients with Suspected Acute Coronary Syndrome”
Omar Abu-Jaradeh, MD Hashemite University, Jordan	9/2018–6/2019 Mentor	“Association between supplemental Oxygen and Infarct Size in Non-ST Elevation Myocardial Infarction”
Mohammad Alhamaydeh, MD University of Jordan, Jordan	1/2017–12/2017 Mentor	“Time of Day and Day of Week Variations in Chest Pain Encounters at the Prehospital Setting”

Postdoctoral Research Fellows

<i>Name of Postdoc Fellow & Source of Support</i>	<i>Training Period & Role</i>	<i>Project Title</i>
Stephanie Helman, RN, PhD UL1TR001857	1/2024–12/2025 Mentor	“Improving outcomes in neonates with congenital heart defects after cardiopulmonary bypass surgery”
Ziad Faramand, MD, MS R01HL137761	9/2018–6/2022 Mentor	“Comparison of Clinical Risk Score for Detecting Acute Coronary Syndrome at the Emergency Department”
Donald T Smith, PhD, RN, AG-ACNP-BC, FF/EMT-P T32NR008857	9/2014–8/2016 Co-Mentor	“Analyzing Safety, Effectiveness, and Outcomes of a 5-Level Triage System in the Prehospital Care Environment”

PhD Dissertation Research

<i>Name of Student, Department, & Source of Support</i>	<i>Training Period & Committee Role</i>	<i>Project Title</i>
Navpreet Kamboj, RN, PhD(c) <i>School of Nursing – University of Toronto, Canada</i>	1/2024–12/2025 External Examiner	“Developing a NITROglycerin Dose Titration Decision Support System (NITRO DSS)”
Dania Bani Hani, RN, MSN <i>School of Nursing – University of Jordan, Jordan</i>	1/2024–12/2025 External Examiner	“Prospective external validation of AI-ECG models for diagnosing occlusion myocardial infarction”
Rui Qi Ji <i>School of Engineering – University of Toronto, Canada</i>	9/2023–9/2026 External Examiner	“AI-Augmented ECG to screen for subclinical coronary artery disease”
Nathan Riek, BS. <i>Electrical & Computer Engineering Department</i> R01HL137761	7/2022–4/2025 Co-Chair	“Machine learning methods and approaches to analyze biomedical signals and to optimize clinical decision support in healthcare”
Karina Kraevsky-Phillips, MA, BSN, RN, CCRN <i>School of Nursing</i> T32NR008857	9/2021–4/2024 Chair	“Data-Driven Phenotyping of Dyspnea in Symptomatic Patients with Heart Failure”
Zeineb Bouzid, BS, MSc., <i>Electrical & Computer Engineering Department</i> R01HL137761	9/2020–4/2024 Co-Chair	“Unveiling the potential of the 12-lead ECG in predicting ACS: from understanding the diagnostic value of handcrafted features to exploring hidden patterns in the ECG signal”
Stephanie Helman, RN, CNS, <i>School of Nursing</i> T32NR008857 F31 NR 018589	9/2019–12/2023 Chair	“Use of Predictive Analytics to Quantify Neonatal Hypothermia Burden After Cardiac Surgery”
Stephanie Frisch, RN, CCRN, <i>School of Nursing</i> T32NR008857 F31NR018589	9/2017–8/2020 Chair	“Triage chest pain patients in the emergency department: a novel machine learning approach”
Tiffany Pellathy, RN, ACNP <i>School of Nursing</i> F31NR018102	9/2018–8/2020 Member	“Machine Learning to Determine Dynamically Evolving New-Onset Venous Thromboembolic (VTE) Event Risk in Hospitalized Patients”
Mohammad Alrawashdeh, RN, MSN, <i>School of Nursing</i> T32NR008857	9/2015–8/2017 Member	“Clinicians’ Acceptance of Interactive Health Technologies to Support Patients’ Self-Management”

DNP Capstone

<i>Name of Student, Department, & Source of Support</i>	<i>Training Period & Committee Role</i>	<i>Project Title</i>
Danielle Schwimer, RN, BSN <i>School of Nursing</i>	9/2018–8/2019 Member	“A Quality Improvement Project to Enhance QTc Interval Monitoring in a Critical Care Setting: Pre and Posttest Study”

Master’s Thesis

<i>Name of Student, Department, & Source of Support</i>	<i>Training Period & Committee Role</i>	<i>Project Title</i>
Mohammad Hamaideh, MD <i>School of Public Health East Carolina University, Greenville, NC, USA</i>	1/2023–6/2024 External Examiner	“Comparative effectiveness of the HEART score in triaging diabetic and non-diabetic patients with Chest Pain”
Shaima’a Shatnawi, RN <i>School of Nursing – Jordan University of Science & Technology, Irbid, Jordan</i>	1/2024–6/2024 External Examiner	“Intention to use mobile health technologies among healthcare providers in dialysis units in Jordan”
Abdullah Ahmad, MD, MPH <i>School of Public Health Tufts University</i>	9/2021–6/2023 External Examiner	“Disparities in Analgesia Administration in a Racial Diverse Population for the Management of Acute Chest Pain in the Emergency Department”
Zeineb Bouzid, BS, MSc., <i>Electrical & Computer Engineering Department R01HL137761</i>	9/2019–8/2020 Co-Chair	“Novel Approaches to ECG Feature Selection for Dimensionality Reduction to Optimize ACS Detection using the 12-Lead ECG”
Ziad Faramand, MD <i>Clinical & Translational Science Institute (CTSI) R01HL137761</i>	9/2019–8/2020 Co-Chair	“Prognostic Value of HEART score in Patients with Cocaine Associated Chest Pain: An Age-and-Sex Matched Cohort Study”
Lucas Besomi, BS <i>Electrical & Computer Engineering Department R01HL137761</i>	9/2018–8/2019 Co-Chair	“Predicting Acute Myocardial Ischemia using Machine Learning applied to Standard 10-second 12-lead ECG”
Kamal Althobaiti, BS <i>School of Public Health</i>	9/2018–8/2019 Member	“Examining HIV Prevalence and Cultural Implications of HIV Awareness in the Middle East”

BSN Honors Thesis

<i>Name of Student, Department, & Source of Support</i>	<i>Training Period & Committee Role</i>	<i>Project Title</i>
Maura Gallagher <i>School of Nursing</i> R01HL137761	9/2022–4/2023 Chair	“Demographic and Clinical Characteristics of Acute Coronary Syndrome Patients with Single Versus Multi-Vessel Coronary Occlusion”
Alexandra Tolassi <i>School of Nursing</i> R01HL137761	9/2021–4/2022 Chair	“Associations between treatment-seeking delay and clinical course of patients with suspected acute coronary syndrome at initial ED encounter”
Lacey Maclay <i>School of Nursing</i> R01HL137761	9/2020–8/2021 Chair	“The Role of Inflammation, Immune Responses, and Ischemic Preconditioning in Acute Myocardial Infarction”
Jennifer Stemler <i>School of Nursing</i> R01HL137761	9/2020–8/2021 Chair	“Taking a Closer Look at Using the Emergency Severity Index Tool at Emergency Department Triage for Patients Who Present with Suspected ACS”
Parker Landis <i>School of Nursing</i>	9/2017–8/2018 Chair	“Evaluating the Safety of Morphine Use in the Management of Patients with Acute Coronary Syndrome”
Diana Rivero <i>School of Nursing</i>	9/2016–8/2017 Chair	“Electrocardiographic abnormalities and their effect on Clinical Decision Making in patients presenting to the emergency department with chest pain”

Other Research Trainees Funded and Mentored by Dr. Al-Zaiti

Undergraduate Research Assistants (n=15)

Maura Gallagher (2021–current)
Katherine McGrath (2021–2022)
Lacey Mclay (2019–2021)
Jennifer Stemler (2019–2021)
Adrian Bermudez (2018–2019)
Madeline Reiche (2018–2019)
Parker Landis (2017–2019)
Victoria Tori (2017–2018)
Amber DeSantis (2016–2018)
Kelsey Walden (2015–2016)
Diana L Rivero (2014–2017)
Katherine G McCoy (2014–2015)
Connor R McClellan (2014–2015)
Lindsey R. Buchanan (2014–2015)
Melinda M Douglas (2013–2015)

Graduate Students Researchers (n=12)

Nursing

Karina Kraevsky-Phillips (2022–current)
Stephanie Helman (2020–current)
Hongjin Li (2018–2019)
Mohammad Alrawashdeh (2014–2017)
Heba Khalil (2015–2016)
Khalil Yousef (2015–2016)
Justin Bala-Hampton (2013–2014)

Engineering

Nathan Riek (2022–current)
Zeinab Bouzid (2019–current)
Lucas Besomi (2018–2019)
Aya Khalaf (2017–2018)
Nicholas Scangas (2014–2015)

TEACHING

Teaching Awards & Honors

2018	Dean's Distinguished Teaching Award University of Pittsburgh
2020	Chancellor's Distinguished Teaching Award University of Pittsburgh

Classroom Teaching (Didactic)

<i>Course Number & Title</i>	<i>Level & Class Size</i>	<i>Terms Taught</i>
NUR 3082: Introduction to Machine Learning in Healthcare (3 credits)	PhD, 6-8 students	Summer 2020, Fall 2022, Summer 2023
NUR 3287: Research Design and Methods (3 credits)	PhD, 6-8 students	Spring 2019, 2020, 2021, 2022
NUR 2078: Clinical Diagnostics (3 credits)	DNP, ~10 students	Summer 2015, 2016, 2017, 2021
NUR 2004: Advanced Pathophysiology Across the Life Span (4 credits)	DNP, 107 students	Fall 2016
NUR 0005: Nursing Honors Seminar (1 credit)	BSN, ~20 students	Fall 2020, 2021
NUR 0053: Introduction to Inclusion, Equity and Diversity in Health Care (1 credit)	BSN, 20 students	Spring 2020
NUR 0067: Nursing Research: An Introduction to Critical Appraisal and EBP (3 credits)	BSN, ~60 students	Fall 2019, Spring 2020
NUR 0088: Introduction to Basic Statistics for Evidence Based Practice (3 credits)	BSN, ~60 students	Fall 2017, Spring 2018

Clinical Teaching

<i>Course Number & Title</i>	<i>Level & Class Size</i>	<i>Terms Taught</i>
NUR 1134: Transition into Professional Nursing	BSN, 5-7 students	Fall 2015, 2016, Spring 2016, 2017
NUR 1121: Advanced Clinical Problem Solving	BSN, 7-8 students	Spring 2016, 2017

Clinical Skills Lab

<i>Course Number & Title</i>	<i>Level & Class Size</i>	<i>Terms Taught</i>
NUR 2031: Diagnostic Physical Exam	DNP, 5-7 students	Fall 2014, 2015, 2016, Spring 2015, 2016, 2017
NUR 0081: Foundations of Nursing Practice I	BSN, 7-8 students	Spring 2014

Guest Lectures

<i>Course, Topic and Time Commitment</i>	<i>Level & Class Size</i>	<i>Terms Taught</i>
NUR 0067: Nursing Research “Systematic Reviews & Meta-Analysis” (1.5 hours)	BSN, 45-50 students	Spring 2021, 2022; Fall 2022
NUR 2004: Advanced Pathophysiology “Altered Cardiovascular Function” (6 hours divided over two weeks)	DNP, ~50 students	Fall 2017, 2018, 2019, 2020, 2021, 2022, Spring 2018, 2019, 2020, 2021, 2022, Summer 2018, 2019, 2020, 2021
NUR 2078: Clinical Diagnostics “Basic 12-Lead ECG Interpretation” (3 hours)	DNP, ~10 students	Summer, 2018, 2019, 2020
NUR 3789: Physical Diagnosis Anesthesia “Advanced 12-Lead ECG Interpretation” (6 hours divided over two weeks)	Nurse Anesthesia, ~40 students	Fall 2020, 2021, 2022
NUR 3044: Cancer Survivorship “Systematic & Scoping Reviews” (3 hours)	PhD, ~5-6 students	Fall 2019, 2021
BIOENG 2151: Medical Product Ideation “ECG Devices for EMS Providers” (Mentored capstone project over 15 weeks)	M.Eng., ~5-6 students	Fall 2015, 2016
BIOENG 2151: Medical Product Development “ECG for Telehealth Applications” (Mentored capstone project over 15 weeks)	M.Eng., ~5-6 students	Spring 2016, 2017
NUR 3030: Professional Development “Keys of Success for Junior Faculty” (2 hours)	PhD, 5-6 students	Fall 2015, 2016
NUR 0082: Nursing Care of Adults “Cultural Sensitivity in Nursing Care” (1 hour)	BSN, ~100 students	Fall 2015, 2016, 2017

Continuing Education

<i>Topic and Contact Hours</i>	<i>Level & Class Size</i>	<i>Terms Taught</i>
“Basic 12-Lead EKG Interpretation” (9 contact hours divided over 3 weeks)	Registered Nurses, ~20 students	Summer 2014, 2015, 2016, 2018
“Update on Coronary Artery Diseases” (3 contact hours)	Registered Nurses, ~20 students	Spring, 2015

PROFESSIONAL SERVICE

International Society of Computational Electrocardiology (ISCE)

2010–current	Professional Member
2017–current	Abstract Reviewer
2015–2018	Chair, Poster Session
2018–current	Chair, Conference Proceedings
2018–current	Liaison, <i>Journal of Electrocardiology</i>
2020–2022	Judge, Jos Willems Early Career Investigator Award Competition
2020–2023	Elected Officer, Board of Directors
2022	Conference Co-Chair, 46 th Annual ISCE Meeting, Las Vegas, NV
2023	Conference Chair, 47 th Annual ISCE Meeting, Indian Wells, CA
2023–2026	Treasurer, Board of Directors

American Heart Association (AHA)

2012–current	Professional Member
2016–2019	Member, Early Career Committee
2016–current	Abstract Reviewer, Physiological Aspects of Acute Cardiovascular Care
2017–current	Fellow of the American Heart Association (FAHA)
2018–current	Member, Research Mentoring Committee
2018–2020	Member, Kathleen Dracup Award Committee
2018–2020	Writing Group Member, AHA Scientific Statements Taskforce
2019	Moderator, Early Career Scientific Session
2020–2022	Member, Marth N Hill New Investigator Award Committee
2020–2022	Member, Marie Cowan Promising Young Investigator Award Committee
2020–current	Member, CVSN Leadership Committee
2022–current	Chair, Marth N Hill Early Career Investigator Award Committee

Editorial Boards

2012–current	Section Editor (ECG Puzzler), <i>American Journal of Critical Care</i>
2018–current	Associate/Executive Editor, <i>Journal of Electrocardiology</i>
2020–current	General Editorial Board, <i>Heart & Lung</i>
2022–current	Guest Editor, <i>Physiologic Measurement</i>
2023–current	General Editorial Board, <i>European Heart Journal – Digital Health</i>

NIH Study Sections

02/2019	Reviewer, Biomedical Computing & Health Informatics (BCHI)
06/2022	Reviewer, Organization and Delivery of Health Services (ODHS)
06/2022	Reviewer, Special Emphasis Panel (ZRG1 HSS-L)
02/2023	Reviewer, Clinical Informatics & Digital Health (CIDH)
06/2023	Reviewer, Special Emphasis Panel (ZRG1 IVBH)
02/2024	Reviewer, Clinical Data Management and Analysis (CDMA)

Grant Reviewer

2019–current	University of Pittsburgh, CTSI Pilot Awards Program
2015–2018	Sigma Theta Tau International, Small Awards Program

Reviewer for Promotion Materials

2020	School of Nursing, Taibah University, Medina, Saudi Arabia
2022	School of Nursing, Case Western Reserve University, Cleveland, OH, USA
2022	School of Nursing, The Hong Kong Polytechnic University, Hong Kong
2023	School of Nursing, University of Iowa, Iowa City, IA

Ad-hoc Peer Reviewer of Scientific Journals

2011–current	<i>Journal of Electrocardiology</i> (IF = 1.44)
2014–current	<i>Heart & Lung</i> (IF = 1.73)
2014–current	<i>EUROPACE</i> (IF = 5.23)
2016–current	<i>Circulation: Cardiovascular Quality and Outcomes</i> (IF = 4.61)
2016–current	<i>Public Library of Science (PLOS One)</i> (IF = 3.75)
2017–current	<i>Medical and Biological Engineering and Computing</i> (IF = 2.60)
2018–current	<i>Journal of Cardiovascular Nursing</i> (IF = 1.53)
2018–current	<i>Critical Care</i> (IF = 19.33)
2018–current	<i>Prehospital Emergency Care</i> (IF = 2.42)
2020–current	<i>Journal of American College of Cardiology (JACC)</i> (IF = 24.09)
2021–current	<i>Scientific Reports</i> (IF = 4.99)
2021–current	<i>Journal of the American Heart Association (JAHA)</i> (IF = 6.12)
2022–current	<i>Circulation</i> (IF = 39.92)
2022–current	<i>Nature Medicine</i> (IF = 87.24)

Abstract Reviewer

2010–2016	Sigma Theta Tau International (STTI)
2014–2016	Council for the Advancement of Nursing Science (CANS)
2016	Eastern Nursing Research Society (ENRS)
2016–current	American Heart Association (AHA) Scientific Sessions
2017–current	International Society of Computerized ECG (ISCE)

Local Service (University of Pittsburgh)

- University-Wide Committees

2016	Patent Reviewer, Office of Technology Management (OTM)
2017–	Grant Reviewer, Clinical and Translational Science Institute (CTSI)
2018–2021	Member, Senate Plant Utilization and Planning Committee (3-year term)
2019–2021	Faculty Representative, Pathways Committee, Provost Office
2021–2024	Member, Chancellor’s Distinguished Teaching Award Committee
- Office of Community Partnership:

2015	Health Fair Coordinator, Hosted at the Universal Academy of Pittsburgh in Swissvale PA, and co-sponsored by UPMC Health Plan and Walgreens
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- School of Nursing Committees:

2013–2015	Member, Academic Integrity Committee
2014–2015	Member, Evaluation & Steering Committee
2015	Reviewer, Cameos of Caring Awards
2015–current	Member, PhD Council
2015–2017	Chair, Evaluation & Steering Committee

2015–2017	Member, School-Wide Curriculum Committee
2015–2017	Member, Planning & Budget Committee
2016–2018	Member, PhD Progression & Graduation Committee
2017	Reviewer, Leslie Hoffman Research Award
2018–2020	Chair, PhD Progression & Graduation Committee
2019–2021	Chair, BSN Honors Committee
2019–2021	Chair, Reva Rubin Research Award
2020–2021	Chair, Interprofessional Education Committee
2021–2022	Chair, Roth Endowment Undergraduate Research Fund
2022–2023	Chair, Leslie Hoffman Research Award