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Education

Ph.D., (Critical care focus), University of Pittsburgh, Pittsburgh, PA/USA	2015
MSN, (Adult Gerontology Acute Care Nurse Practitioner), University of Pittsburgh, Pittsburgh, PA/USA	2015
BSN, Nursing, Oklahoma City University, Oklahoma City, OK/USA	2009
AAS, Nurse Science, Oklahoma State University, Oklahoma City, OK/USA	2007
B.Eng. (Computer Science and Engineering), Periyar University, TN/India	2002

Certificates and Licensure

Massachusetts Board Certified Nurse Practitioner #RN2336284	2017
Massachusetts Registered Nurse #RN2336284	2019
Texas #RN909325	2016
Pennsylvania #RN618341	2010
Critical care registered nurse (CCRN)	2014

Academic Appointments

Associate Professor, Massachusetts General Hospital Institute of Health Professions, Boston, MA	2019- Present
Assistant Professor (Tenure-track), University of Texas at Austin, Austin, TX	2016-2019
Assistant Professor, University of Pittsburgh, Pittsburgh, PA	2015-2016
Graduate Student Researcher, University of Pittsburgh, PA	2012-2015
Teaching Assistant, University of Pittsburgh, PA	2011-2012
Instructor, Oklahoma State University, Oklahoma City, OK	2005-2009

Clinical Appointments

Registered Nurse, Integris-Baptist Medical Center, Oklahoma City, OK	2009-2010
Registered Nurse, OU Medical Center, Oklahoma City, OK	2007-2008

Administrative Appointments

Network Engineer, Reliance Industries, Navi Mumbai, India	2002-2003
Computer Programmer, Gatestech Infoway, Secunderabad, India	2001-2002

Honors and Awards

Nursing Honor Society (Sigma Theta Tau)	2008
Outgoing Outstanding student (Oklahoma City University)	2008
University Gold Medallion Award for Outstanding Engineering Student	2002

Publications

◆ = data-based

Peer-reviewed articles

1. [◆](#)Hravnak M., Chen L., Fiterau M., Dubrawski A., Clermont G., Guillame-Bert M., **Bose E.**, Pinsky MR. (2015). Temporal variation in patient instability in continuously monitored step-down unit patients: Implications for Rapid Response Systems. *Resuscitation*. 89, 99-105. PMID: 25637693.
2. **Bose, E.**, Hravnak, M. (2015). Thromboelastogram (TEG): A Practice Summary for Nurse Practitioners Treating Hemorrhage. *The Journal for Nurse Practitioners*. 11(7), 702-709.
3. [◆](#)Hravnak M, Chen L, Dubrawski A, **Bose E**, Clermont G, Pinsky MR. (2015). Real Alerts and Artifact Classification in Archived High-Frequency Multi-signal Vital Sign Monitoring Data—Implications for Mining Big Data. *Journal of Clinical Monitoring and Computing*. 2015; (DOI) 10.1007/s10877-015-9788-2.
4. **Bose, E.**, Hoffman, L., Hravnak, M. (2016). Monitoring Cardiorespiratory Instability: Current Approaches and Implications for Nursing Practice. *Intensive and Critical Care Nursing*. 34, 73-80.
5. [◆](#)Chen, L., Dubrawski, A., Wang, D., Fiterau, M., Guillame-Bert, M., **Bose, E.**, Kaynar, A., Wallace, D., Guttendorf, J., Clermont, G., Pinsky, M.R., Hravnak, M. (2016). Using Supervised Machine Learning to Classify Real Alerts and Artifact in Online Multi-signal Vital Sign Monitoring Data. *Critical Care Medicine*. 44(7), e456-63.
6. [◆](#) **Bose, E.**, Hravnak M., Sereika, S. (2017). Vector Autoregressive Models and Granger Causality in Time Series Analysis in Nursing Research: Dynamic Changes among Vital Signs Prior to Cardiorespiratory Instability Events as an Example. *Nursing Research*. 66(1), 13-19.
7. [◆](#)**Bose, E.**, Chen, L., Clermont, G., Dubrawski, A., Pinsky, M.R., Ren, D., Hoffman, L., Hravnak, M. (2017). Risk for Cardiorespiratory Instability Following Transfer to a Monitored Step-Down Unit. *Respiratory Care*. 62(4). DOI: 10.4187/respcare.05001
8. [◆](#)**Bose, E.**, Clermont, G., Chen, L., Dubrawski, A., Ren, D., Hoffman, L., Pinsky, M.R., Hravnak, M. (2017). Cardiorespiratory instability in monitored step-down unit patients: using cluster analysis to identify patterns of change. *Journal of Clinical Monitoring and Computing*. DOI: 10.1007/s10877-017-0001-7
9. [◆](#) Zuniga, J., **Bose, E.**, Park, J., Bluhm, M.D., Garcia, A.A. (2017). HIV Symptom Cluster Analysis in Persons Living with HIV and Diabetes. *Journal of the Association of Nurses in AIDS care*. DOI: 10.1016/j.jana.2017.07.004
10. [◆](#)**Bose, E.**, Radhakrishnan, K. (2018). Using unsupervised machine learning to identify subgroups among home health heart failure patients using telehealth. *Computers Informatics and Nursing*. 36(5). DOI: 10.1097/CIN.0000000000000423
11. [◆](#)**Bose, E.**, Maganti, S., Bowles, K., Brueshoff, B., Monsen, K. (2019). Machine learning methods for identifying critical data elements: Toward reduced nursing documentation burden. *Nursing Research*. 68(1). DOI: 10.1097/NNR.0000000000000315
12. [◆](#)Garcia, A., **Bose, E.**, Zuniga, J.W. Zhang (2019). Mexican Americans' Diabetes Symptom Prevalence and Clusters. *Applied Nursing Research*. 46, 37-42. DOI: 10.1016/j.apnr.2019.02.002
13. [◆](#) Zubcevik N., Mao, C., Wang, QM., **Bose, E.**, Octavien, RN., Crandell, D., Wood, LJ (2020). Symptom Clusters and Functional Impairment in Individuals Treated for Lyme Borreliosis. *Frontiers in Medicine* 7:464. DOI: 10.3389/fmed.2020.00464
14. [◆](#)Gopalakrishnan, V., **Bose, E.**, Nair, U., Cheng, Y., Ghebremichael, M. (2020). Pre-HAART CD4+ T-Lymphocytes as Biomarkers of Post-HAART Immune Recovery in HIV-TB Coinfected Children. Preprint ArXiv: <https://doi.org/10.21203/rs.3.rs-47535/v2>

Books and chapters

1. Ogundele, O., **Bose, E.**, Pinsky, M.R. (2014). Pulmonary Artery Catheterization. Monitoring Technologies in Acute Care Environments. (pp 53-64). Springer.
2. **Bose, E.**, Hravnak, M., Pinsky, M.R. (2015). The Interface between Monitoring and Physiology at the bedside. *Critical Care Clinics* 31(1):1-24. PMID: 25435476
3. Hravnak M, Mazzocchi A, **Bose E.**, Pinsky MR. (2016) Causes of failure to rescue. In Rapid Response Systems: Concept and Implementation. 3rd Ed. New York. Springer Inc.

Peer-Reviewed Presentations and Abstracts

Bose, E. , Hravnak, M. Psychometric Analysis of the Charlson Comorbidity Index Deyo Method. <i>Critical Care Medicine</i> . 40 [12 Suppl]: 20.	2012
Bose E. , Hravnak, M. Early physiologic predictors of Cardiorespiratory Instability in step-down unit patients. Eastern Nursing Research Society.	2013
Hravnak, M., Chen, L., Bose, E. , Fiterau, M., Guillame-Bert, M., Dubrawski, A., Clermont, G., Pinsky, M.R.(2013). Real alerts and artifact in continuous non-invasive vital sign monitoring: Mono-vs. Multi-process. <i>Critical Care Medicine</i> . 41 [12 Suppl]: A66.	2013
Hravnak, M., Chen, L., Bose, E. , Fiterau, M., Guillame-Bert, M., Dubrawski, A., Clermont, G., Pinsky, MR. (2013). Artifact patterns in continuous noninvasive monitoring of patients. <i>Intensive Care Medicine</i> . 39 [2 Suppl]: S405	2013
Hravnak M, Chen L, Dubrawski A, Wang D, Bose E , Clermont G, Pinsky MR. Random Forest Models Separate Vital Sign Events as Real or Artifact in Continuous Monitoring Data. <i>Critical Care Medicine</i> . 42 [12 Suppl]: 42.	2014
Bose, E. , Hravnak, M., Clermont, G. (2014). Vector Autoregressive (VAR) model for exploring causal dynamics of Cardiorespiratory Instability. <i>Critical Care Medicine</i> . 42 [12 Suppl]:283.	2014
Chen, L., Fiterau, M., Dubrawski, A., Clermont, G., Guillame-Bert, M., Bose, E. , Pinsky, M.R., Hravnak, M. Active Machine Learning to increase annotation efficiency in classifying vital sign events as artifact or real alerts in continuous noninvasive monitoring. <i>American Journal of Respiratory and Critical Care Medicine</i> . 189, A3627	2014
Hravnak, M., Chen, L., Dubrawski, A., Clermont, G., Bose, E. , Fiterau, M., Guillame-Bert, M., Pinsky, M.R. Supervised Machine Learning can classify artifact in multi-signal vital sign monitoring data from step-down unit (SDU) Patients. <i>Intensive Care Medicine</i> . 40[1 Suppl]: S29.	2014
Wang D, Chen L, Fiterau M, Dubrawski A, Hravnak M, Bose E , Wallace D, Kaynar M, Clermont G, Pinsky MR. Multi-tier ground truth elicitation framework with application to artifact classification for predicting patient instability. <i>Intensive Care Medicine</i> . 40[1 Suppl]: S289.	2014
Fiterau M, Dubrawski A, Chen L, Hravnak M, Clermont G, Bose E , Guillame-Bert M, Pinsky MR. Artifact adjudication for vital sign step-down unit data can be improved using Active Learning with low-dimensional models. <i>Intensive Care Medicine</i> . 40[1 Suppl]: S289.	2014
Fiterau M, Dubrawski A, Hravnak M, Chen L, Pinsky MR, Clermont G, Bose E. Archetyping artifacts in monitored noninvasive vital signs data. <i>Critical Care Medicine</i> . 42 [12 Suppl]: 51.	2014
Fiterau M, Bose E , Chen L, Guillame-Bert M, Wang D, Clermont G, Dubrawski A, Hravnak M, Pinsky MR. Semi-automated adjudication of vital sign alerts in step-down units. <i>Intensive Care Medicine Experimental</i> , 3(Suppl 1): A769 doi:10.1186/2197-425X-3-S1-A769.	2015

Hravnak M, Chen L, Dubrawski A, Wang D, **Bose E**, Clermont G, Kaynar AM, Wallace D, Holder A, Pinsky MR. Machine Learning Can Classify Vital Sign Alerts as Real or Artifact in Online Continuous Monitoring Data. *Intensive Care Medicine Experimental*, 3(Suppl 1): A550 doi:10.1186/2197-425X-3-S1-A550. 2015

Bose E., Clermont G, Chen L, Dubrawski AW, Pinsky MR. Characterizing Initial Cardiorespiratory Instability Patterns In Monitored Step-Down Unit Patients. *Critical Care Medicine*. 43 [12 Suppl 1]:39. 2015

Bose E. Monitoring Cardiorespiratory Instability: Current approaches and implications for nursing practice. *Journal of Nursing and Care*. 5(10). 2016

Bose E., Garcia A, Zuniga J, Zhang W. Mexican Americans' Diabetes Symptom Clusters. *Southern online journal of Nursing Research*. 2017

Invited Presentations

International

Psychometric Analysis of the Charlson Comorbidity Index Deyo Method, Society of Critical Care Medicine, San Juan, PR 2012

National

Diurnal variation in vital sign alerts according to Medical Emergency Team (MET) trigger criteria in continuously monitored step-down unit (SDU) patients. International Conference of Rapid Response Teams and Systems meeting, Miami, FL 2014

Vector Autoregressive (VAR) model for exploring causal dynamics of Cardiorespiratory Instability. Society of Critical Care Medicine Meeting, Phoenix, AZ 2015

Regional

Early Physiological Predictors of Cardiorespiratory Instability in Step-down Unit Patients. Poster Presentation at 25th Annual Scientific Session- Eastern Nursing Research Society 2013

Mexican Americans' Diabetes Symptom Clusters. Southern Nursing Research Society 31st Annual Conference, Addison, TX 2017

Educational Activities

Courses taught

N489 F Adult Gerontology CNS Acute Care 2016-2019

N396 J Advanced Health Assessment

NS395 Correlation and Regression in Healthcare Research

NUR 1121/1221 Advanced Clinical Problem Solving 2015-2016

NUR 1281 Foundations of Nursing Practice

NUR 1134 Transitions into Professional Practice

NUR 0082C Management of Acute and Chronic Health Problems

MATH 1513 College Algebra 2008-2009

ICSM 0213 Intermediate Algebra 2005-2007

ICSM 0123 Introduction to Algebra

Clinical supervision

Teaching Assistant, University of Pittsburgh Medical Center 2011-2012

External Educational Activities

Network Medicine, Harvard University, Boston, MA 2019

Cardiometabolic Health Congress, Chicago, IL 2019

European Society of Cardiology, Amsterdam, Netherlands 2020

Professional Development

Gut Check: exploring your microbiome (Coursera) 2019

Professional Memberships and Activities

Affiliate, Dept. of Veteran Affairs, United States Government 2017-Present

Research Member, Center for Nursing Informatics, University of Minnesota 2017-Present

Member, AHA Council on Cardiovascular and Stroke Nursing, # 230061691 2017-Present

Member, Eastern Nursing Research Society (ENRS) # 97685 2012-Present

Member, American Association of Critical Care Nurses (AACN) # 01048515 2010-Present

Member, Society of Critical Care Medicine (SCCM) # 171879 2010-Present

Member, Eta Chapter, Sigma Theta Tau National Honors Society # 0576716 2008-Present

Editorial Boards

Journal of Nursing Measurement 2015-Present

The American Journal of Critical Care 2016-Present

Journal of Cardiovascular Nursing 2016-Present

Nursing Research 2017-Present

Institutional Service

Representative, Graduate Professional Student Government, University of Pittsburgh 2011-2012

Treasurer, Doctoral Student Organization, University of Pittsburgh 2012-2013

Member, Graduate Studies Committee, University of Texas at Austin 2016-2019

Elected member, Executive Committee, University of Texas at Austin 2018-2019

Member, Research Operations Committee, MGH Institute of Health Professions 2019-Present

Community Service

Austin Pregnancy Resource Center, Volunteer 2017-2019

American Red Cross Disaster Relief Center, Member, Action Team 2010-2016