SCIENTEX CONFERENCES
Where Holistic Knowledge Blooms

Global Healthcare 2022

2nd International Conference on

GLOBAL HEALTHCARE AND NUTRITION

November 17-18, 2022 | Paris, France

🌐 https://www.healthcare.scientexconference.com/

✉ healthcare@scientexconferences.com

📞 +1-202-773-8420

TITLE: Using Machine Learning Models to Predict Emergency Medical Service Call Demand by Time and Space

Name: Dr. R. Justin Martin
Affiliation: Coca-Cola/Citibank/Calloway Faculty Fellow & Assistant Teaching Professor
at Wake Forest University School of Business
Country: United States of America
Email ID: martinr@wfu.edu

ABSTRACT

Given that the demand for ambulances is known to fluctuate spatially and temporally based on the time of day and day of the week, EMS practitioners depend on call volume forecasts to develop staffing and dynamic redeployment plans. In this study, spatially distributed hourly call volume predictions are generated using a multi-layer perceptron (MLP) artificial neural network model following feature selection using an ensemble-based decision tree model. K-Means clustering is applied to produce heterogeneous spatial clusters based on call location and associated call volume densities. The predictive performance of the MLP model is benchmarked against both a selection of traditional time-series forecasting techniques and a common industry method. Results show that MLP models outperform time-series and industry forecasting methods, particularly at finer levels of spatial granularity where the need for more accurate call volumes forecasts is more essential.

Presenter Name: Dr. R. Justin Martin
Mode of Presentation: Oral
Contact Email: martinr@wfu.edu

BIOGRAPHY

Dr. R. Justin Martin is the Coca-Cola Citibank Calloway Faculty Fellow and Assistant Teaching Professor of Information Systems & Analytics at the Wake Forest University School of Business.

Prior to his career in academia, Dr. Martin worked as a software developer and business technology analyst with Bank of America. His industry experience spans a wide variety of areas, including software and web development, information technology management, healthcare informatics, and logistics technology. Dr. Martin teaches courses in information systems management, application development, operations management, and analytics. In 2018, he was awarded the "Excellence in Undergraduate Teaching Award" for the 2017-2018 academic year by the Belk College of Business at UNC Charlotte. His research interests are of an interdisciplinary nature and currently focus on the application of machine learning methods for developing advanced forecasting/prediction models within the Emergency Medical Services industry.

Dr. Martin earned a PhD in Computing and Information Systems, a MS in Systems Engineering (Engineering Management), and a BSBA degree in Management Information Systems & Operations Management from the University of North Carolina at Charlotte.