

Student Research Projects Supervised (2020 – 2022)

Brain-Computer Interface Technology

- [1] J. D. L. Cruz, D. Shimizu and **K. George**, “*EEG and fNIRS Analysis Using Machine Learning to Determine Stress Levels*”, 2022 *IEEE World AI IoT Congress*.
- [2] M. Ramirez, M. A. Khalil, J. Can and **K. George**, “*Classification of "Like" and "Dislike" Decisions From EEG and fNIRS Signals Using a LSTM Based Deep Learning Network*”, 2022 *IEEE World AI IoT Congress*.
- [3] A. Desoto, F. X. Liri, **K. George**, D. Julia, J. Faller, J. Dodd, E. Santos, and D. Heng, “*Predicting Audio Training Learning Outcomes Using EEG Data and KNN Modeling*”, 2022 *IEEE World AI IoT Congress*.
- [4] M. A. Khalil, M. Ramirez, J. Can and **K. George**, “*Implementation of Machine Learning in BCI Based Lie Detection*”, 2022 *IEEE World AI IoT Congress*.
- [5] M. A. Khalil, M. Ramirez, and **K. George**, “*Using EEG and fNIRS Signals as Polygraph*”, 2022 *IEEE Annual Computing and Communication Workshop and Conference*.
- [6] F. X. Liri, A. Desoto, W. Catalan, J. Faller, J. Drouin, and **K. George**, “*Monitoring Audio Training Learning Outcomes With EEG Data*”, 2022 *IEEE Annual Computing and Communication Workshop and Conference*.
- [7] M. Ramirez, S. Kaheh, M. A. Khalil, and **K. George**, “*Application of Convolutional Neural Network for Classification of Consumer Preference from Hybrid EEG and FNIRS Signals*”, 2022 *IEEE Annual Computing and Communication Workshop and Conference*.
- [8] F. X. Liri, A. Desoto, W. Catalan, and **K. George**, “*An EEG-Based Custom Training Software Solution for Monitoring Audio Training Learning Outcomes*”, 2021 *IEEE Ubiquitous Computing, Electronics & Mobile Communication Conference*.
- [9] M. Ramirez, S. Kaheh, and **K. George**, “*Neuromarketing Study Using Machine Learning for Predicting Purchase Decision*”, 2021 *IEEE Ubiquitous Computing, Electronics & Mobile Communication Conference*.
- [10] J. D. L. Cruz, D. Shimizu, and **K. George**, “*Using EEG and fNIRS Measurements for Analysis on the Effects of Heat Stress on Short-Term Memory Performance*”, 2021 *IEEE Ubiquitous Computing, Electronics & Mobile Communication Conference*.
- [11] J. D. L. Cruz, D. Shimizu, and **K. George**, “*Using EEG for the Analysis of Heat Stress on Quick Decision-Making*”, 2021 *IEEE Annual Information Technology, Electronics and Mobile Communication Conference*.
- [12] S. Kaheh, M. Ramirez, and **K. George**, “*Study on the Effect of Product Brand and Pricing Using Biosignals*”, 2021 *IEEE XXVIII International Conference on Electronics, Electrical Engineering and Computing*.
- [13] J. D. L. Cruz and **K. George**, “*Analysis of Stress from Playing a Firefighter Simulator using EEG Signals*”, 2021 *IEEE XXVIII International Conference on Electronics, Electrical Engineering and Computing*.

- [14] A. Govalkar, J. Samawi, T. Tothong, and **K. George**, “Brain-Computer Interface for Quadcopter Morphology Manipulation”, *2021 IEEE International Conference on Electronics, Computing and Communication Technologies*.
- [15] S. Kaheh, M. Ramirez, J. Wong, and **K. George**, “Neuromarketing using EEG Signals and Eye-tracking”, *2021 IEEE International Conference on Electronics, Computing and Communication Technologies*.
- [16] J. Kachhia and **K. George**, “EEG-Based Image Classification Using Machine Learning Algorithms”, *2021 IEEE Computing and Communication Workshop and Conference*.
- [17] U. Shah, J. Wang and **K. George**, “Classifying Sound Sources Based on Directions Using Audio Visual Stimulus”, *2021 IEEE Computing and Communication Workshop and Conference*.
- [18] D. Parikh and **K. George**, “Conceptual Neuroadaptive Brain Computer Interface for Autonomous Control of Automobile Brakes”, *2020 IEEE Ubiquitous Computing, Electronics & Mobile Communication Conference*.
- [19] J. Kachhia, R. Natharani and **K. George**, “Deep Learning Enhanced BCI Technology for 3D Printing”, *2020 IEEE Ubiquitous Computing, Electronics & Mobile Communication Conference*.
- [20] B. Hoang, U. Shah, R. Villanueva and **K. George**, “Study of EEG Signals for Focus Detection for Cocktail Party Phenomenon Using Multiple Sources of Sound”, *2020 IEEE Information Technology, Electronics and Mobile Communication Conference*.
- [21] D. Parikh and **K. George**, “Quadcopter Control in Three-Dimensional Space Using SSVEP and Motor Imagery-Based Brain-Computer Interface”, *2020 IEEE Information Technology, Electronics and Mobile Communication Conference*.
- [22] B. Shirke, J. Wong, J. Libut, **K. George** and S. Oh, “Brain-IoT Based Emotion Recognition System,” *2020 IEEE Computing and Communication Workshop and Conference*.
- [23] U. Shah, R. Villanueva, B. Hoang, and **K. George**, “Focus Detection Using Spatial Release from Masking,” *2020 IEEE Computing and Communication Workshop and Conference*.

Wideband Radar Receivers

- [1] H. Lin and **K. George**, “Stack Type Detection Using Few-Shot Learning”, *2022 IEEE World Conference on Applied Intelligence and Computing*.
- [2] T. Groom and **K. George**, “Real Time FPGA-Based CNN Training and Recognition of Signals”, *2022 IEEE World AI IoT Congress*.
- [3] K. J. Lee and **K. George**, “Pulse and Signal Data Classification Using Conventional and Few-Shot Machine Learning”, *2022 IEEE World AI IoT Congress*.
- [4] C. M. Melgoza, K. J. Lee, H. Lin, T. Groom, A. Coddington, and **K. George**, “Comparing Pretrained ImageNet CNN With a Siamese Architecture for Few-Shot Learning Applications in Radar Systems”, *2022 IEEE World AI IoT Congress*.
- [5] C. M. Melgoza, K. J. Lee, H. Lin, T. Groom, A. Coddington, A. Govalkar and **K. George**, “Environment Classification and Deinterleaving Using Siamese Networks and Few-Shot Learning”, *2021 IEEE Ubiquitous Computing, Electronics & Mobile Communication Conference*.

- [6] A. Govalkar and **K. George**, “Siamese Network Based Pulse and Signal Attribute Identification”, *2021 IEEE Annual Information Technology, Electronics and Mobile Communication Conference*.
- [7] H. Lin, C. M. Martinez, K. Lee, I. Izabal, T. Groom, A. Coddington, A. Govalkar, and **K. George**, “Signal Generation and Continuous Tracking with Signal Attribute Variations using Software Simulation”, *2021 IEEE International Conference on Electronics, Computing and Communication Technologies*.
- [8] H. Lin, C. M. Martinez, K. Lee, I. Izabal, T. Groom, A. Coddington, A. Govalkar, and **K. George**, “Design and Implementation of a Digital Radar Pulse Receiver on FPGA”, *2021 IEEE Annual Information Technology, Electronics and Mobile Communication Conference*.
- [9] J. Juliano, J. Lin, A. Erdogan, and **K. George**, “MPSoC FPGA-Based Radar Warning Receiver”, *2021 IEEE International Conference on Electronics, Computing and Communication Technologies*.
- [10] J. Lin, J. Juliano, A. Erdogan, and **K. George**, “Pulse Separation Using Time-Frequency Mask and Machine Learning”, *2021 IEEE Computing and Communication Workshop and Conference*.
- [11] C. M. Melgoza, H. Lin, I. Izabal, A. Govalkar, K. J. Lee, A. Erdogan, and **K. George**, “Wavelet Analysis Using Hilbert Transform and Matching Algorithm for Radar Receiver System”, *2021 IEEE Computing and Communication Workshop and Conference*.
- [12] J. Lin, J. Juliano, A. Erdogan, and **K. George**, “Radar Pulse on Pulse Identification Algorithm Hardware Acceleration Performance Analysis”, *2021 IEEE Computing and Communication Workshop and Conference*.
- [13] J. Juliano, J. Lin, A. Erdogan and **K. George**, “Radar Pulse on Pulse Identification Parallel FFT and Power Envelope Algorithm”, *2020 IEEE Ubiquitous Computing, Electronics & Mobile Communication Conference*.
- [14] J. Lin, J. Juliano, A. Erdogan, and **K. George**, “Pulse Separation Using Independent Component Analysis”, *2020 IEEE Ubiquitous Computing, Electronics & Mobile Communication Conference*.
- [15] C. M. Melgoza, H. Lin, I. Izabal, A. Govalkar, K. Lee and **K. George**, “Comparing Radar Receiver Pulse Deinterleaving Performance of Differing Window Functions for Bandpass FIR Filter Design”, *2020 IEEE Information Technology, Electronics and Mobile Communication Conference*.
- [16] R. Bagwe, J. Kachhia, A. Erdogan and **K. George**, “Automated Radar Signal Analysis Based on Deep Learning,” *2020 IEEE Computing and Communication Workshop and Conference*.
- [17] J. Lin, J. Juliano, A. Erdogan and **K. George**, “Pulse on Pulse Deinterleaving Radar Algorithm,” *2020 IEEE Computing and Communication Workshop and Conference*.

Biomedical Devices and Robotics

- [1] F. X. Liri, A. Luu, A. Angulo, J. Dittloff and **K. George**, “Real-Time Dynamic Object Grasping with a Robotic Arm: A Design for Visually Impaired Persons”, *2022 IEEE World AI IoT Congress*.
- [2] B. Fonseca, S. R. Minera, T. Kheang, **K. George**, and A. Panangadan, “Voice Controlled Robotic Arm Helper for Visually Impaired People”, *2022 IEEE World Conference on Applied Intelligence and Computing*.
- [3] N. D. Ruppert and **K. George**, “Robotic Arm with Obstacle Detection Designed for Assistive Applications”, *2022 IEEE World Conference on Applied Intelligence and Computing*.

- [4] F. X. Liri, H. Lin, K. J. Lee, B. Fonseca, N. Ruppert, **K. George** and A. Panangadan, “Real-Time Dynamic Object Recognition and Grasp Detection for Robotic Arm Using Streaming Video: A Design for Visually Impaired Persons”, *2021 IEEE Ubiquitous Computing, Electronics & Mobile Communication Conference*.
- [5] T. Groom, D. Barrios, and **K. George**, “Design and Implementation of an RFID Based Tactile Communication Device”, *2021 IEEE Ubiquitous Computing, Electronics & Mobile Communication Conference*.
- [6] D. Heng, E. Santos, T. Kheang, K. Nguyen, H. Duraisamy, S. Raju, and **K. George**, “Internet of Things (IoT) Based Patient Fall Prediction and Monitoring System”, *2021 IEEE Ubiquitous Computing, Electronics & Mobile Communication Conference*.
- [7] T. Groom, D. Barrios, and **K. George**, “An In-Depth Analysis of RFID Versus Barcode Scanning for Tactile Learning”, *2021 IEEE International Conference on Electronics, Computing and Communication Technologies*.
- [8] R. Natharani, F. Liri, J. Samawi, H. Lin, N. Ruppert, K. Lee, **K. George**, and A. Panangadan, “Voice Controlled Object Grasping Robotic Arm for Visually Impaired Disabled Veterans”, *2021 IEEE International Conference on Electronics, Computing and Communication Technologies*.
- [9] R. Bagwe, R. Natharani, **K. George** and A. Panangadan, “Natural Language Controlled Real-Time Object Recognition Framework for Household Robot”, *2021 IEEE Computing and Communication Workshop and Conference*.

- R. Parekh, U. Shah and **K. George**, “Experimental Study on 3D Fractal Base Antennas Design for Efficient Wi-Fi Energy Harvesting”, *2021 IEEE Computing and Communication Workshop and Conference*.
- R. Bagwe and **K. George**, “Cortically-Coupled Generative Adversarial Network for Target Image Retrieval in Rapid Image Search,” *2020 IEEE International Conference on Cognitive Machine Intelligence*.
- R. Bagwe and **K. George**, “Automatic Numerical Question Answering on Table Using BERT-GNN”, *2020 IEEE Ubiquitous Computing, Electronics & Mobile Communication Conference*.
- J. H. Samawi, A. Govalkar, T. Tothong and **K. George**, “Morphing Quadcopters”, *2020 IEEE Information Technology, Electronics and Mobile Communication Conference*.
- M. Sreekanta, A. Sarode and **K. George**, “Error Detection Using Augmented Reality in the Subtractive Manufacturing Process,” *2020 IEEE Computing and Communication Workshop and Conference*.