

I-SENSE Distinguished Seminar Series



TOPIC

Multimodal Learning and Sense-Making in Deeply Sensed Environments

This presentation emphasizes the crucial role of multimodal learning within heterogeneous, densely sensed environments, spotlighting its fundamental contributions to enhancing real-world applications and human-machine interactions. Multimodal learning enhances our ability to integrate and interpret data from diverse sensory inputs, facilitating the development of computational models that are more accurate and context aware.

This talk focuses on several works in our lab where we develop techniques for advancing multimodal learning, including sensor fusion for robust contextual embeddings. These improve accuracy for tasks like identifying optimal moments to interrupt an active driver, as well as timing interactions in social dining scenarios with robot-assisted feeding to minimize social discomfort. We detail our approach, which achieves an F1-score of 0.874 for timing in-car speech interactions and 0.862 for social dining scenarios with robot-assisted feeding, demonstrating the effectiveness of our model. We also introduce the Generative Explanatory Sensor System (GeXSe) framework to provide enhanced sense-making of complex environments. By leveraging generative modeling to offer visual explanations from heterogeneous sensor data, GeXSe enables context-awareness and paves the way for seamless human-AI interaction. Our ongoing efforts aim to further narrow the gap between human needs and technological advancements, promoting more natural and efficient interactions.

SPEAKER

Jorge Ortiz, Ph.D.

Assistant Professor of Electrical
and Computer Engineering at
Rutgers University

Hosted by Jason Hallstrom, Ph.D.

Thursday, April 4

11 a.m. – 12 p.m.

Engineering East Building,
EE303c, Boca Raton Campus
and on Zoom



Unable to join in-person? Attend on Zoom
<http://tinyurl.com/433nfbva>

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