



UAA College of Engineering
UNIVERSITY of ALASKA ANCHORAGE



CS&E Tenure Track Faculty Candidate

**Active Perception in Cognitively Informed
Artificial Intelligence**

Presented by: Dr. Masoumeh Heidari

ABSTRACT: As the price of data-collecting devices continues to fall, larger volumes of data become available for use. It is imperative for intelligent systems to uncover important information from such high dimensional, spatio-temporal, and noisy data. Classical computational paradigms have made impressive progress, but they are still far beyond of the holy grail of science to mimic humans' intelligence and attain human-like performance.

This presentation will give an overview on alternative computational architectures which incorporate insights from human perception, cognition, and behavior, as well as multiple real-world applications of such systems. The focus of this presentation will be on active perception in partially observable environments. First, I will discuss research solutions that enable an artificial intelligent agent to actively estimate the state of its partially observable environment. Next, I present how an agent can communicate with other agents to deal with the state estimation problem, more efficiently. The agents learn communication policies in an online and unsupervised manner -- a key characteristic that allows them to be used in environments with multiple heterogeneous sensors. I conclude my talk with future directions in active perception.

BIO: Masoumeh is a postdoctoral fellow at the Johns Hopkins University, Laboratory for Computational Audio Perception. She works at the intersection of Artificial Intelligence, Cognitive Science and Computational Neuroscience. Her primary area of research falls within Cognitively Informed Artificial Intelligence. She received her MS and PhD degrees from the University of Memphis in Computer Engineering, in 2016 and 2019, respectively. Her dissertation focused on active perception by Interaction with other agents in partially observable environments. During her PhD and

Postdoctoral fellowship, she had the opportunity to work on interdisciplinary projects, funded by NSF and NIH.

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11:30 am - 12:30 pm

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