

**Wichita State University**  
**Department of Electrical Engineering, and Computer Science**  
**ISME Colloquium Presentation**

Fujian Yan

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**Title:** Comprehension of Object Semantics and Spatial Relationship for Robotic Scene Understanding and Reasoning  
**Date:** Friday – November 2, 2018  
**Time:** 1:00 pm – 2:00 pm  
**Location:** Clinton Hall, 214

### **Abstract**

The presented method aims to assist robots to reason the environment by cognitive perception. The cognition method focuses on two parts, the first one is the object semantics comprehension, the second one is the spatial relationship understanding. The object semantics comprehension is based on dictionary definitions of the object. CNN is used to resolve the dictionary definitions into machine compensable logic segments, which include the function of the object, the property of the object, the category of the object, and the composition of the object. The spatial relationship understanding is based on logic inference. Observation based spatial relationship are used as input to generate more potential spatial relationships automatically.

### **Speaker Biography**



Fujian Yan is currently a PhD student majoring in Electrical Engineering and Computer Science at the EECS Department of Wichita State University. Since he joined Wichita State University, in January 2018, he has worked as a graduate research assistant in the Robot Intelligence Laboratory. His current interest include interaction with robot using controlled natural language, autonomous robot, and logic inference applied in robot reasoning.