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## Artificial Intelligence Seminars

# Learning what we don't know: Unsupervised learning for animal calls

**Speaker** Dr. Marie A. Roch, PhD  
Professor  
Department of Computer Science  
San Diego State University

**Where** GMCS-405

**When** 10:30am-11:30am, Friday, December 1, 2017

### About

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Professor **Marie A. Roch** received her Ph.D. degree from The University of Iowa. Prior to joining San Diego State University, she held positions at Florida International University and AT&T Bell Laboratories. Professor Roch's research interests are in pattern recognition, particularly as applied to categorization of audio signals. Her current work is in pattern recognition for bioacoustics, the study of sound production and perception in animals. She studies questions of identification, behavior, and communication through acoustics

### Abstract

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A fundamental problem in the analysis of calls produced by animals is how to analyze data whose structures are poorly understood. We examine this problem in two different contexts. In the first, we ask the question of whether or not recent work on the primate preauditory and/or auditory cortex can help to determine acoustic landmarks, or segmentations, that may permit the identification of potential acoustic units, within primate calls. The ability to detect such landmarks could provide new methods for approaching animal communication. Second, we discuss a method for providing preliminary assays of the number of marine mammal species present in environments where species assemblages are not well studied. Methods of preliminary assessment can enable better planning for the use of expensive resources such as visual surveys and provide insights into how animals use a study area spatially and temporally.

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