



Institute for Data Sciences and Engineering  
COLUMBIA UNIVERSITY

## SEMINAR EVENT

DATE: THURS, MAR 13

TIME: 6:00 P.M.

LOCATION: DAVIS  
AUDITORIUM, ROOM  
412, SHAPIRO CEPSR



**SPEAKER:** **Dr. Thomas G. Dietterich**

*Oregon State University*

**TITLE:** **Challenges for Machine Learning in Computational Sustainability**

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**Title:** Challenges for Machine Learning in Computational Sustainability  
**Abstract:**

Research in computational sustainability seeks to develop and apply methods from computer science to the many challenges of managing the earth's ecosystems sustainably. Viewed as a control problem, ecosystem management is challenging for two reasons. First, we lack good models of the function and structure of the earth's ecosystems. Second, it is difficult to compute optimal management policies because ecosystems exhibit complex spatio-temporal interactions at multiple scales.

This talk will discuss some of the many challenges and opportunities for machine learning research in computational sustainability. These include sensor placement, data interpretation, model fitting, computing robust optimal policies, and finally executing those policies successfully. Examples will be discussed on current work and open problems in each of these problems.

**Bio:**

Thomas G. Dietterich (AB Oberlin College 1977; M.S. University of Illinois 1979; Ph.D. Stanford University 1984) is one of the founders of the field of Machine Learning. Among his research contributions was the application of error-correcting output coding to multiclass classification, the formalization of the multiple-instance problem, the MAXQ framework for hierarchical reinforcement learning, and the development of methods for integrating non-parametric regression trees into probabilistic graphical models (including conditional random fields and latent variable models).

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