



**Fall 2011 Colloquium**  
**Temple University**  
**Computer and Information Sciences**

**DISTINGUISHED LECTURE**

***Never-Ending Learning***

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**Wednesday, 10/19, 11am, TECH Center 111**

**Abstract:**

What would it take to develop machine learners that run forever, each day improving their performance and also the accuracy with which they learn? This talk will describe our attempt to build a never-ending language learner, NELL, that runs 24 hours per day, forever, and that each day has two goals: (1) extract more structured information from the web to populate its growing knowledge base, and (2) learn to read better than yesterday, by using previously acquired knowledge to better constrain its subsequent learning.

The approach implemented by NELL is based on two key ideas: coupling the semi-supervised training of thousands of different functions that extract different types of information from different web sources, and automatically discovering new constraints that more tightly couple the training of these functions over time. NELL has been running nonstop since January 2010 (follow it at <http://rtw.ml.cmu.edu>), and had extracted a knowledge base containing over 900,000 beliefs. This talk will describe NELL, its successes and its failures, and use it as a case study to explore the question of how to design never-ending learners.

**Bio:**

**Tom M. Mitchell** is the E. Fredkin University Professor and head of the Machine Learning Department at Carnegie Mellon University. His research interests lie in machine learning, artificial intelligence, and cognitive neuroscience. Mitchell is a member of the U.S. National Academy of Engineering, a Fellow of the American Association for the Advancement of Science (AAAS), and a Fellow and Past President of the Association for the Advancement of Artificial Intelligence (AAAI). Mitchell believes the field of machine learning will be the fastest growing branch of computer science during the 21st century. His web page is

<http://www.cs.cmu.edu/~tom> .