



# Emily Mower Provost

(University of Michigan)

**Friday, Feb. 22**

Doherty Hall 2315

2:30 pm Talk

4:00 pm Snacks (LTI 5<sup>th</sup> Floor)

## HUMAN-CENTERED COMPUTING: USING SPEECH TO UNDERSTAND HUMAN BEHAVIOR

Emily Mower Provost is an Associate Professor in Computer Science and Engineering at the University of Michigan. She received her B.S. in Electrical Engineering (summa cum laude and with thesis honors) from Tufts University, Boston, MA in 2004 and her M.S. and Ph.D. in Electrical Engineering from the University of Southern California (USC), Los Angeles, CA in 2007 and 2010, respectively.

She is a member of Tau-Beta-Pi, Eta-Kappa-Nu, and a member of IEEE and ISCA.. Her research interests are in human-centered speech and video processing, multimodal interfaces design, and speech-based assistive technology. The goals of her research are motivated by the complexities of the perception and expression of human behavior.

Engineering approaches to human behavior analysis are complicated by the lack of a one-to-one mapping between the behavioral cues that an individual generates and how an external observer interprets those cues. This many-to-many mapping injects noise into both the data and ground truth. As a result, many of the models and assumptions used in traditional machine learning and signal processing must be used with caveats or adapted to meet the needs of this domain.

I will discuss our work on algorithmic approaches to characterize and predict how humans perceive signals that modulate spoken communication, focusing on emotion and mood. I will highlight our efforts in tracking mood for individuals with bipolar disorder. These technologies have the potential to forward diagnosis and treatment by providing constrained, repeatable, and easily modifiable assessment protocols, objective measures, and interaction scenarios.