

# People: Yi Zhang Institution: University of California, Santa Cru

## Project : Bayesian Graphical Models for Adaptive Filtering



What?

**Problem:** A user often does not know that she/he needs to know.

**Task:** Adaptive filtering system that pushes information to the user (somewhat related to PIM)

Results so far:

- Online active learning is useful but challenging (ICML 03)
- Graphical models can integrate implicit and explicit user feedback and create complex user models (HLT05)
- Borrowing data from other users helps solving the cold start problem for a new user
- Automatically learned user specific multivariate utility functions from explicit user feedback (in process)

How: **Bayesian Decision Theory + Graphical Models**

- The system learns its objective => user criteria modeled as a multivariate utility function defined over sub utilities
- The system represents what it has learned => complex user models represented as probabilistic graphical models
- The system learns smartly => trading off exploration and exploitation and doing active learning based on Bayesian decision theory
- The system works well for new users => borrowing information from existing users using hierarchical Bayesian
- Evaluation on several data sets 1) user study with 20+ users over four weeks: implicit and explicit feedback about web news collected; 2) TREC data

N  
E  
X  
T

