### People: ChengXiang Zhai, Xuehua Shen and Bin Tan  
**Project:** *User-Centered Adaptive Information Retrieval (UCAIR)*  
(Supported by NSF CAREER IIS-0347933 and NSF IIS-0428472)

![UCAIR Toolbar in Action](image)

**Results so far:**  
- Decision theoretic framework for interactive IR  
- Context-sensitive retrieval models  
- Eager implicit feedback of short-term search history  
- Mining and exploiting of long-term search history  
- UCAIR search agent  
- Evaluation based on TREC data set and real web search

**What?**  
A novel retrieval strategy that emphasizes user modeling (“user-centered”), search context modeling (“adaptive”) and interactive retrieval  
A personalized search agent that sits on the client-side, integrates information around a user, collaborates with each other and goes beyond search toward task support

**Why?**  
Better representation of the user’s information need  
Expected to improve search accuracy significantly through customizing and optimizing results for individual users  
Unique advantages for personalization: privacy-preserving, non-intrusive and load-balancing

**How?**  
Putting the user at the center of the retrieval process  
Modeling the user implicitly in the interactive retrieval process  
Proposing decision theoretic framework to optimize system actions  
Mining and exploiting user search history  
Building UCAIR search agent to improve the web search

This picture shows how UCAIR can re-rank search results from Google and optimize search results for a user searching information about the Jaguar car using the query “jaguar”. The left side shows the original mixed result page about Jaguar cars and Jaguar software. The right side shows the automatically re-ranked results by UCAIR after the user has viewed the 2nd result, which is about Jaguar car. The new result page no longer have results about the Jaguar software; instead, two new results about Jaguar cars have been pushed up by UCAIR, which were originally ranked down in the results from Google.