Learning to Rank for Personalized News Article Retrieval

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Problem Statement

- News article search on an online news portal
- We try to improve the ranking of the search results by making them more relevant to the user who issues the query
- We personalize the search results taking into account the user’s demographic data (age, gender, income, job, etc.)
Data Description

• User data (age, gender, job, income, etc.)
• Click-through logs provide preference feedback from which we can tell that a given user has preferred a document to another for a given query
• We assume that a clicked document is more relevant than all higher ranking not clicked documents
Learning to Rank

\[ \{(x_R^i, x_N^i)\}_{1 \leq i \leq n}, x_R^i, x_N^i \in \mathbb{R}^P \]

\[ x := (u, q, d) \]

\[ \text{score} = w \cdot y \]
1. **Essay - 'Angels and Demons' Plays Out Religion-Science Conflict - NYTimes.com**

   CHASING THE ENEMY Ayelet Zurer and Tom Hanks, center, in "Angels & Demons." There is a warm fuzzy moment near the end of Hanks and directed by Ron Howard. Mr. Hanks as the Harvard symbologist Robert Langdon has just exposed the archvillain who was stolen from a particle collider. A Catholic cardinal who has been giving him a hard time all through the movie and has suddenly turned to

   [View Metadata](http://www.nytimes.com/2009/06/02/science/02essay.html)


   More Photos > Correction Appended Mike Huckabee walked into the lobby of the Des Moines Marriott at 5:30 a.m. on Dec. 3, deposits checked to make sure he was being credited with Marriott Rewards points toward his next stay. Then, accompanied by his wife, Janet, his press secretary -- who doubles as his Boston Marathon trainer -- he walked into the dark, freezing morning, climbed into a waiting S.U.V. and drove

   [View Metadata](http://www.nytimes.com/2007/12/12/magazine/16huckabee.html)

3. **On Religion - Between Israel and India, a Link Based on Culture and, Now, Terrorism - NYTimes.com**

   Midway through Wednesday afternoon, Ani Agnihotri was doing his multitasking thing, cruising the Internet while chatting

   [View Metadata](http://www.nytimes.com/2008/11/11/)
1. **Religion News in Brief - NYTimes.com**  
   2009-08-19 00:00:00  
   score=19.2689  
   Filed at 10:32 a.m. ET SINGAPORE (AP) -- Singapore's prime minister said in his National Day speech that "aggressive preaching" of fundamentalist Islamic views is threatening the city-state's stability. Lee Hsien Loong, a Buddhist by birth, said his education at the island's Roman Catholic High School was an example of compromise when he said "The most visceral and dangerous fault line (in Singapore) is race and religion," Lee said. Singapore's majority Buddhist C  
   View Metadata

2. **Religion News in Brief - NYTimes.com**  
   2009-08-06 00:00:00  
   score=19.1449  
   Filed at 3:49 a.m. ET HARTFORD, Conn. (AP) -- The number of American Jews who consider themselves religiously observant has declined in recent decades, as the share of Jews who consider themselves secular has risen, according to a survey. The 2008 American Religious Identification Survey found that 30% of American Jews call themselves religious -- out of a general Jewish population of about 5.4 million. The number of Jews who identify themselves  
   View Metadata

3. **On Religion - Between Israel and India, a Link Based on Culture and, Now, Terrorism - NYTimes.com**  
   2008-05-16 16:03:40  
   score=11.9889  
   Midway through Wednesday afternoon, Ani Agnihotri was doing his multitasking thing, cruising the Internet while chatti  
   View Metadata
Thank you!

http://fox.ijs.si/proxy/nytrank/