Introduction

- Georgia Koutrika, Alkis Simitis, Yannis E. Ioannidis: Précis: The Essence of a Query Answer. ICDE 2006

- Kostas Stefanidis, Marina Drosou, Evaggelia Pitoura: PerK: Personalized Keyword Search in Relational Databases through Preferences. EDBT 2010
Personalized Keyword Search

- **Keyword search**
  - Enables users to find information without knowing the database schema or complicated queries
  - May return a huge volume of data

- **Benefits of personalization**
  - Enables returning personalized results to individual users or groups
  - Enables returning smaller number of results that are also more relevant to the user(s)
Personalized Keyword Search

- Personalization can be implemented in several ways:
  - Weights assigned to the edges of the database graphs (Koutrika et al. 2006)
    - Q = \{western\}:
      - cp1 = \{western\}, C. Eastwood > J. Wayne
  - Pairwise preferential ordering (Stefanidis et al. 2010)

\[
\begin{array}{c}
\text{MOVIE} \\
\text{GENRE}
\end{array}
\]

\[
\begin{array}{c}
\text{(MID) 0.9} \\
\text{(MID) 1.0}
\end{array}
\]

- C. Eastwood
- J. Wayne
Sources

- arXiv.org (arxiv.org)
- Google Scholar (scholar.google.com)
- Google (www.google.com)

Keywords: keyword, keyword-search, keyword-based, personalized, personalization, database, query, search, user profile, preferential, preferences, ordering
Current Trends: Overview

- Online services
- Cloud services
- E-Commerce
Current Trend: Online Services

- Personalization in search engine results
- Personalization through browsing history
- The Internet of Things
  - Geo-location used as an external context to offer personalization
Current Trends: Cloud Services

- Ranked keyword search for encrypted data
Current Trends: E-Commerce

- Keyword search and personalization of results in e-commerce product searches
E-Commerce and Product Search

- Growing field
- Multiple product categories and a huge volume of data
  - Keyword search simplifies searches and produces accurate results
E-Commerce and Product Search
- Duan et al. 2013

- Vocabulary gap between the specifications of products in the database and the keywords people use in search queries (H. Duan et al. 2013).

  - new computer

  - laptop with dedicated graphics card

  - asus rog i7 win10 nvidia geforce 960m

- Probabilistic model to find and rank the most relevant items for generic queries
Additional Reading

Additional Sources

- science-direct.com
  - Leading information solution for researchers, teachers, students, health care professionals and information professionals. It is the world's largest electronic collection of science, technology, and medicine full-text and bibliographic information. It offers a wide variety of features and content.

- acm.org
  - The world's largest educational and scientific computing society, delivers resources that advance computing as a science and a profession. ACM provides the computing field's premier Digital Library and serves its members and the computing profession with leading-edge publications, conferences, and career resources.

- ieeexplores.ieee.org:
  - Provides web access to more than four-million full-text documents from some of the world's most highly cited publications in electrical engineering, computer science and electronics.
Current Trends: Overview

- Social Media (Twitter, Facebook, LinkedIn, etc)
  - Items and user context data are highly dynamic: Real-time scoring in personalized keyword search.

- Implicit feedback techniques based on user’s interactions to automatically capture user’s interests.

- Personalized keyword search and semantic approach.
  - User information needs are typically rather complicated.

- Personalized keyword search on XML documents.
Current Trends: Social Media

- Real-time scoring in personalized keyword search.
  - Propose a machine learned candidate selection framework to prune irrelevant documents.

- LinkedIn: Web Platform to find people, jobs, companies, groups and other professional content.

- Results in real time, must offer a high degree of data freshness, and must respond with low latency.

- Search engines are known to be good at retrieving a small set of relevant documents matching a given query out of a huge document set.

- **Retrieval process in two stages**: 1. First invoke a computationally inexpensive model to select a small candidate. 2. Perform a more computationally expensive second pass scoring and ranking on the obtained candidate set.
Current Trends: Social Media

- Real-time scoring in personalized keyword search.


- LinkedIn: Web Platform to find people, jobs, companies, groups and other professional content.

  JobMiner: providing a better understanding of the dynamic processes in real time in this kind of platforms and in that way obtaining a more accurate identification of important entities in the job market.
Current Trends: Implicit feedback techniques

- An explicit request of information to the user implies to burden the user, and to rely on the user's willingness to specify the required information.

- Sometimes this scenario is not realistic.

- Several techniques have been proposed to automatically capture the user's interests: They are based on the collection and the analysis of: browser history, query history, click-trough data, desktop information, document display time, bookmarks, and several other kinds of signals.
Current Trends: Implicit feedback techniques

- G. Pasi: "Implicit feedback through user-system interactions for defining user models in personalized search", 2014.
  - Implicit feedback techniques to collect user interests and preferences via user-system interactions are presented.

  - Developing a dynamic updated ontology model based on capturing the implicit context information and implementing the personalized scalability demands of context model for different users.

Current Trends: Semantic approach

- Personalized keyword search and semantic approach.


- Traditional information retrieval systems, and particularly Web search engines, have focused on keyword matching.

- LinkedIn: Web Platform to find people, jobs, companies, groups and other professional content.

- It is important to understand the structure of the information.
Current Trends: Semantic approach

- Personalized keyword search and semantic approach.


- Effective access to information on the Web is being hampered by information overload, unavailability of information, navigation issues and user diversity.

- **Goal**: view generation with incremental graph visualization to enable end-user grade exploration of semantic web content.
Current Trends: Personalized Keyword Search on XML documents

  - Improving the search of XML documents according to the user requirement and preference.

- X. Liu, L. Chen, Ch. Wan, D. Liu, N. Xiong, "Exploiting structures in keyword queries for effective XML search", 2015.
  - Focused on the query side of XML keyword search.

  - It develops a novel method, called SAIL, for efficient XML keyword search.
Additional Reading


- Advantages and Disadvantages of Personalized Search, RAJIB KUMAR, 
  [http://www.techncom.net/2012/03/advantages-disadvantages-personalized-search/](http://www.techncom.net/2012/03/advantages-disadvantages-personalized-search/)

- [scholar.google.com](http://scholar.google.com)
  - Personalized Task Recommendation in Crowsourcing
Current Trends: Personalized search

- Personalization & Search Engine Rankings.
  - Search result was the same years ago # The search result of today are personalized.
Country

Someone in the US searching for “football” will get results about American football; someone in the UK will get results about the type of football that Americans would call soccer.

Locality: Search engines tailor results to match the city.

Personal History: Used by SEO (Google, Bing)

What has someone been searching for and clicking on from their search results?

What sites do they regularly visit?

Have they “Liked” a site using Facebook, shared it via Twitter?
Personalized History therefore takes personalization to an individual level.

- **Social Connections**
  - It is based on someone's friends behaviour on Social network i.e.; What does your friends think about a website?
  - Search engines view those connections as a user’s personal set of advisors (As it happens offline).
Elements of Personalization & How to Perform Better in Personalized Search.

In this articles, more detailed used by SE to personalized a search are added.

Logged-in visitors

- Location: where is the searcher
- Device: What type of devices or OS used
- Browser: Search history, potentially what you’ve clicked on in the results.
- Email calendar: In the case you are using Gmail, Google calendar, Google will use the data for potential search result
- Google+
- Visit history
- Bookmarks:
If we logged-out the search the results of a search will appear differently still they are many ways of personalization. A fresh and unused window will show a different result than those of the browser that we use everyday.

Performing better personalized search:
- Get potential searchers to know and love your brand before the query
- Be visible in all the relevant locations for your business
- Get those keyword targets dialed in
- Share content on Google+ and connect with your potential customers
- Be multi-device friendly and usable
Advantages and Disadvantages of Personalized Search.

- The starting point of personalized search was the launch of the ‘Search plus Your World’ program by Google.

- The Goal was to enable people with who you interact within your community could have a direct influence on the search results shown to you.

- As a result nowadays, it is impossible to ignore personalization in search engine query.
Advantages of Personalized Search.

- Personalized make search result centered to the users needs and context of use.
- It had increase the creation of high quality, interactive content for the benefit of the users.

Disadvantages of Personalized Search.

- Personalized restrict the users scope of search and force to operate certain limitations, therefore limit the users to discover new result outside his circle.
- In the case of Google's “Search Plus Your World”, personalization of the user's search does not include other social media sites as Facebook, Twitter.