Web Search: Challenges & Opportunities

- Challenges
  - Scalability   ➔ **Parallel indexing & searching (MapReduce)**
    - How to handle the size of the Web and ensure completeness of coverage?
    - How to serve many user queries quickly?
  - Low quality information and spams   ➔ **Spam detection & Robust ranking**
  - Dynamics of the Web
    - New pages are constantly created and some pages may be updated very quickly

- Opportunities
  - many additional heuristics (e.g., links) can be leveraged to improve search accuracy   ➔ **Link analysis & multi-feature ranking**