

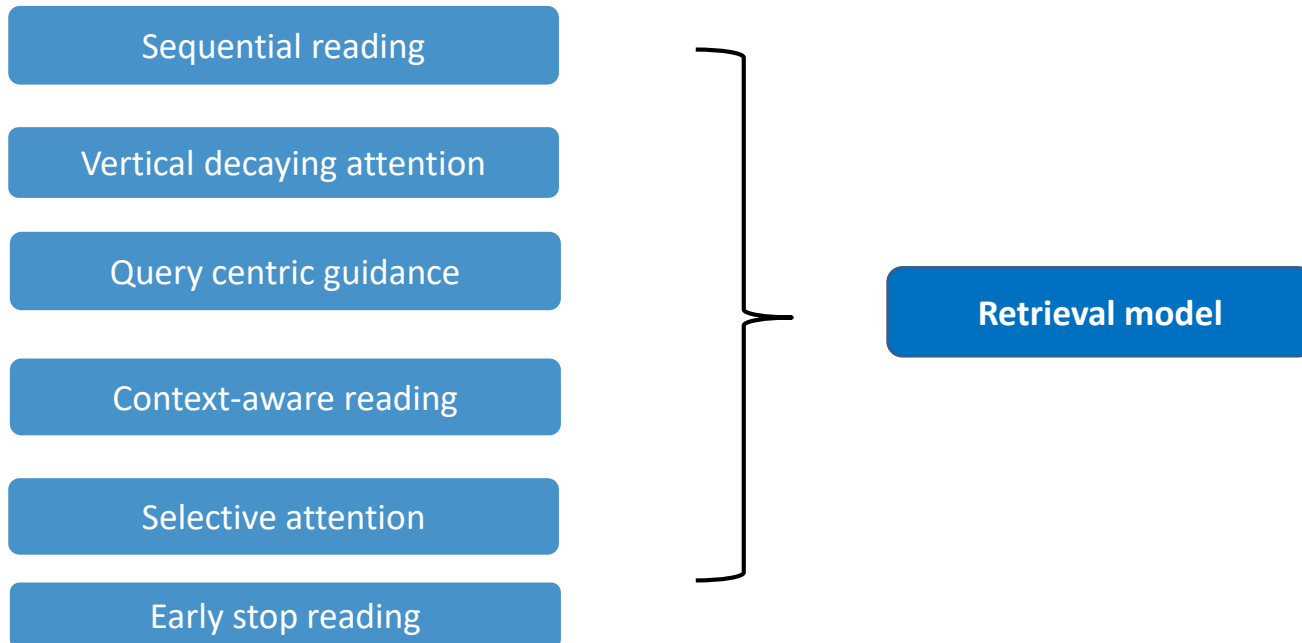
# Understanding the Role of Human-Inspired Heuristics for Retrieval Models

**XIANGSHENG LI, Yiqun LIU, Jiaxin MAO**

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# Problems & Ideas

- Problems of existing retrieval model
  - Only using human reading behaviors
  - Unclear definitions of human reading heuristics
  - Unknown understanding of human reading heuristics in retrieval models
- Ideas: Studies on human reading heuristics in retrieval models



# Main Contributions

- **Sequential reading**
  - Better to split a document into several short passages and explicitly consider the presented order (e.g., position embedding).
- **Vertical decaying attention**
  - Not a good idea to directly force attention(weight) to be decaying.
  - Estimated human attention derived from user behavior is able to improve ranking performance
- **Query centric guidance**
  - Semantic proximity is better and more efficient than spatial proximity.
- **Context-aware reading**
  - Fine-grained semantic representation also needs contextual information.
- **Selective attention & Early stop reading**
  - Tradeoff between computational cost and ranking performance.
  - Reinforcement learning is a good way to selectively read necessary text.