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A Versatile Tool for Privacy-Enhanced Web Search

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Title:	A Versatile Tool for Privacy-Enhanced Web Search
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Abstract:	We consider the problem of privacy leaks suffered by Internet users when they perform web searches, and propose a framework to mitigate them. Our approach, which builds upon and improves recent work on search privacy, approximates the target search results by replacing the private user query with a set of blurred or scrambled queries. The results of the scrambled queries are then used to cover the original user interest. We model the problem theoretically, define a set of privacy objectives with respect to web search and investigate the effectiveness of the proposed solution with a set of real queries on a large web collection. Experiments show great improvements in retrieval effectiveness over a previously reported baseline in the literature. Furthermore, the methods are more versatile, predictably-behaved, applicable to a wider range of information needs, and the privacy they provide is more comprehensible to the end-user.