Zhuoming XU · Xiao CAO · Yisheng DONG
Yahong HAN

s-HITSc: an improved model and algorithm for topic distillation on the Web

Published online: 15 October 2005
© Springer-Verlag 2005

1 Soft Comput (2006) 10:2–11

Unfortunately, the paper s-HITSc: an improved model and algorithm for topic distillation on the Web by Zhuoming XU, Xiao CAO, Yisheng DONG and Yahong HAN (DOI 10.1007/s00500-005-0457-0) was published with errors. The correct sections are given here:

Section 2.1: **I** operation: $\mathbf{a}[u] := \sum_{\{v|(v,u) \in E\}} \mathbf{h}[v]$

Section 2.1: **O** operation: $\mathbf{h}[u] := \sum_{\{v|(u,v) \in E\}} \mathbf{a}[v]$.

Section 3.2: Definition 1 (site s_Q): A *site*

Section 3.2: Definition 2 (site base-set $\mathcal{B}_Q$): A *site base-set* $\mathcal{B}_Q$

Section 3.2:

```
Algorithm Aggregation( $\mathcal{B}_Q$ )
//Algorithm for forming a site base-set.
 $\mathcal{B}_Q = \{p_1, p_2, \dots, p_n\}$ : a page base-set containing  $n$ 
pages.
1.  $m := 1$ ;  $C_1 := \{p_1\}$ ;  $id_1 := p_1$ .
2. FOR  $i := 2$  TO  $n$  DO
3.   [ GET a page  $p_i \in \mathcal{B}_Q$ , and set  $put := FALSE$ .
4.     FOR  $j := 1$  TO  $m$  DO
5.       IF URL_host( $p_i$ ) = URL_host( $id_j$ ) THEN
6.         [  $C_j := C_j \cup \{p_i\}$ .
7.           IF URL_depth( $p_i$ ) < URL_depth( $id_j$ )
8.             THEN  $id_j := p_i$ .
9.           Set  $put := TRUE$ , then EXIT from the  $j$ 
10.            loop. ].
11.        IF NOT  $put$  THEN [  $m := m+1$ ;  $C_m := \{p_i\}$ ;
12.           $id_m := p_i$ . ].
13. Set sites  $s_Q^1 := (id_1, C_1)$ ,  $s_Q^2 := (id_2, C_2)$ , ...,
14.    $s_Q^m := (id_m, C_m)$ , and site base-set
15.    $\mathcal{B}_Q := \{s_Q^1, s_Q^2, \dots, s_Q^m\}$ .
16. RETURN  $\mathcal{B}_Q$ .
```

The online version of the original article can be found at <http://dx.doi.org/10.1007/s00500-005-0457-0>

Z. XU · Y. DONG
Department of Computer Science and Engineering,
Southeast University, Nanjing, 210096, China
E-mail: ysdong@seu.edu.cn

Z. XU (✉) · X. CAO · Y. HAN
College of Computers and Information Engineering,
Hohai University, Nanjing, 210098, China
E-mail: zmxu@acm.org
E-mail: xcao@ieee.org
E-mail: hanyahong@hotmail.com

Section 3.3:

Algorithm **Weighting**($\mathcal{B}_Q, R_Q$)
 //Algorithm for weighting nodes with content analysis.
 $\mathcal{B}_Q = \{s_Q^1, s_Q^2, \dots, s_Q^m\}$: a site base-set containing m sites.
 R_Q : a page root-set.
 1. Represent the topic of query Q as
 $\mathbf{t}_Q := \mathbf{centroid}(R_Q)$.
 2. FOR $j := 1$ TO m DO
 3. Represent the topic of site s_Q^j as
 $\mathbf{t}_j := \mathbf{vector}(\mathbf{pseudo-page}(s_Q^j.C))$.
 4. FOR $j := 1$ TO m DO
 5. Set relevance-weight $\mathbf{w}[j] := \mathbf{similarity}(\mathbf{t}_j, \mathbf{t}_Q)$.
 6. RETURN $\mathbf{w}$.

Section 3.4: I_w operation:

$$\mathbf{a}[u] := \sum_{\{v|(v,u) \in E\}} (\mathbf{w}[v] \times \mathbf{h}[v])$$

Section 3.4 Algorithm SGraph:

Algorithm **SGraph**(Q, ε, r, d)
 //Algorithm for constructing a site neighborhood-graph and weighting the nodes.
 Q : a broad-topic query.
 ε : a text-based search engine or a text index system.
 r, d : natural numbers.
 1. Let root-set R_Q denote the top r results of ε on Q .
 2. Initialize page base-set $B_Q := R_Q$.
 3. For each page $p \in R_Q$, do:
 4. [Add all pages hyperlinked to by p to B_Q .
 5. Add at most d pages hyperlinking to p to B_Q .]
 6. Form site base-set $\mathcal{B}_Q := \mathbf{Aggregation}(B_Q)$.
 7. Set weight vector $\mathbf{w} := \mathbf{Weighting}(\mathcal{B}_Q, R_Q)$.
 8. Induce site neighborhood-graph G by $\mathcal{B}_Q$.
 9. Return G .

Section 3.4 Algorithm Witeration:

Algorithm **Witeration**(G, k, c)
 //Algorithm for reporting top-ranked authorities & hubs.
 k, c : natural numbers.
 1. Initialize vectors $\mathbf{a}$ and $\mathbf{h}$ to $\mathbf{z} = (1, 1, \dots, 1)^T \in R^n$.
 2. FOR $i := 1$ TO k DO
 3. [Apply the I_w operation on $\mathbf{h}$ to compute $\mathbf{a}$.
 4. Apply the O_w operation on $\mathbf{a}$ to compute $\mathbf{h}$.
 5. Normalize $\mathbf{a}$ and $\mathbf{h}$ to unit vectors.]
 6. Report the nodes with the c largest coordinates in vector $\mathbf{a}$ as *authorities*, and the nodes with the c largest coordinates in vector $\mathbf{h}$ as *hubs*, respectively.

References 6: 6. Craswell N, Hawking D, Robertson S (2001) Effective site finding using link anchor information. In: Proceedings of the 24th annual international ACM SIGIR conference on research and development in information retrieval, ACM Press, New Orleans, pp. 250–257