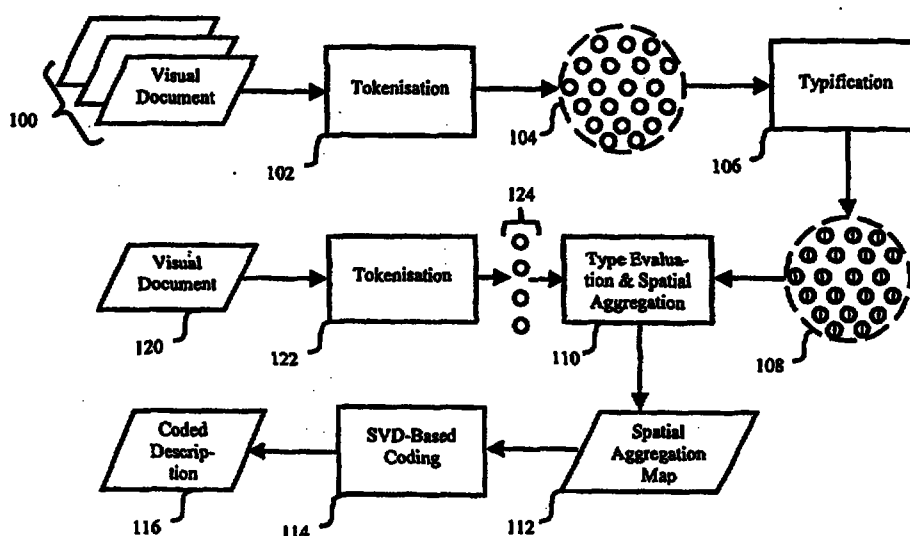




INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁷ : G06F 17/30, G06T 7/40	A1	(11) International Publication Number: WO 00/43910 (43) International Publication Date: 27 July 2000 (27.07.00)
(21) International Application Number: PCT/SG99/00001 (22) International Filing Date: 22 January 1999 (22.01.99) (71) Applicant (for all designated States except US): KENT RIDGE DIGITAL LABS [SG/SG]; 21 Heng Mui Keng Terrace, Singapore 119613 (SG). (72) Inventor; and (75) Inventor/Applicant (for US only): LIM, Joo, Hwee [SG/SG]; 286B, Toh Guan Road #04-32, Singapore 602286 (SG). (74) Agent: SPRUSON & FERGUSON PTE LTD; 51 Bras Basah Road #02-03, Plaza by the Park, Singapore 189554 (SG).		(81) Designated States: GB, SG, US. Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>

(54) Title: METHOD AND APPARATUS FOR INDEXING AND RETRIEVING IMAGES USING VISUAL KEYWORDS

**(57) Abstract**

A method, an apparatus and a computer program product for indexing and retrieving image data using visual keywords (108) is disclosed. Visual keywords (108) are prototypical, visual tokens (104) and are extracted from samples of visual documents (100) in a visual-content domain via supervised and/or unsupervised learning processes. An image or a video-shot key frame is described and indexed by a signature (112) that registers the spatial distribution of the visual keywords (108) present in its visual content. Visual documents (100) are retrieved for a sample query (120) by comparing the similarities between the signature (112) of the query (120) and those of visual documents (100) in the database. The signatures (112) of visual documents (100) are generated based on spatial distributions of the visual keywords (108). Singular-value decomposition (114) is applied to the signatures (112) to obtain a coded description (116).