

Title (en)

SYSTEM AND METHOD FOR SCREENING PATIENTS FOR DIABETIC RETINOPATHY

Title (de)

SYSTEM UND VERFAHREN ZUR UNTERSUCHUNG VON PATIENTEN AUF DIABETISCHE RETINOPATHIE

Title (fr)

SYSTEME ET PROCEDE DE DEPISTAGE DE LA RETINOPATHIE DIABETIQUE CHEZ DES PATIENTS

Publication

**EP 1427338 A2 20040616 (EN)**

Application

**EP 02763573 A 20020830**

Priority

- US 0227586 W 20020830
- US 31595301 P 20010830

Abstract (en)

[origin: WO03020112A2] The present invention comprises a robust technique to automatically grade retinal images through detection of lesions that occur early in the course of diabetic retinopathy: dot hemorrhages or microaneurysms, blot and striate hemorrhages, lipid exudates and nerve-fiber layer infarcts. In addition, the present invention includes methods to extract the optic nerve in the appropriately identified fields, and to track and identify the vessels (measuring vessel diameters, tortuosity and branching angles). The present invention preferably identifies 3 levels: no retinopathy, microaneurysms alone, and lesions additional to microaneurysms, the latter two levels being the earliest detectable forms of the disease. The method of the present invention is particularly suited to overcoming the difficulties in grading retinopathy, which stems from image-to-image variation, low contrast of some the lesions from the background and non-uniform lighting and flare within the same image resulting in variation in the different quadrants of the same image. The system has the capability of utilizing human expert marking of images and grading of retinoathy to improve image quality assessment, lesion detection and retinopathy grading.

IPC 1-7

**A61B 13/00**; **A61B 3/00**

IPC 8 full level

**A61B 3/14** (2006.01); **A61B 3/00** (2006.01); **A61B 3/12** (2006.01); **G06T 1/00** (2006.01); **A61B 5/00** (2006.01)

CPC (source: EP)

**A61B 3/1241** (2013.01); **A61B 5/14532** (2013.01)

Citation (search report)

See references of WO 03020112A2

Cited by

US8879813B1; US8885901B1; US9002085B1; US9008391B1

Designated contracting state (EPC)

AT BE BG CH CY CZ DE DK EE ES FI FR GB GR IE IT LI LU MC NL PT SE SK TR

DOCDB simple family (publication)

**WO 03020112 A2 20030313**; **WO 03020112 A3 20031016**; **WO 03020112 A9 20040506**; AU 2002327575 A1 20030318; CA 2458815 A1 20030313; EP 1427338 A2 20040616; IL 160645 A0 20040725; JP 2005508215 A 20050331

DOCDB simple family (application)

**US 0227586 W 20020830**; AU 2002327575 A 20020830; CA 2458815 A 20020830; EP 02763573 A 20020830; IL 16064502 A 20020830; JP 2003524431 A 20020830