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(54) **ARCHITECTURE FOR REAL-TIME 3D IMAGE REGISTRATION**

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(52) **U.S. Cl.** **382/303; 382/154; 382/300; 382/304**

(58) **Field of Classification Search** **382/303, 382/304, 154, 300**

See application file for complete search history.

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(57) **ABSTRACT**

A system architecture is disclosed that facilitates rapid execution of 3D registration or alignment algorithms. A first image module (e.g., RAM) is included to store data corresponding to images to be registered. A processor coupled to the first storage module accesses the data and determined mutual histogram (MH) values which are then used to compute mutual information (MI) between the images. The processor accumulates the MH values in a second image module. The second storage module is accessible so that registered images can be displayed. The architecture is scalable facilitating distributed calculations to speed-up the registration process.

15 Claims, 21 Drawing Sheets

