Real-time Localization of Articulated Surgical Instruments in Retinal Microsurgery

Nicola Rieke, David Joseph Tan, Chiara Amat di San Filippo, Federico Tombari, Mohamed Alsheakhali, Vasileios Belagiannis, Abouzar Eslami, Nassir Navab

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Highlights

- A method for instrument pose estimation in in-vivo RM sequences is proposed.
- The main idea is the modeling of the surgical instrument as an articulated object.
- By separating tracking and pose estimation, the method yields all joints in real-time.
- The algorithm can generalize for changes in illumination, background and tool shape.
- Evaluations on a public dataset imply that the method outperforms state-of-the-art.