**UNIVERSITY OF PATRAS - SCHOOL OF ENGINEERING**
DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING


Division: Systems and Automatic Control

## Thesis

of the student of the Department of Electrical and Computer Engineering of the School of Engineering of the University of Patras

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Subject

# Robotic surgical tool manipulator - Recognition, control and manipulation of laparoscopic tools

Supervisor

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# ΠΙΣΤΟΠΟΙΗΣΗ

Πιστοποιείται ότι η διπλωματική εργασία με θέμα

**Robotic surgical tool manipulator - Recognition, control and manipulation of laparoscopic tools**

του φοιτητή του Τμήματος Ηλεκτρολόγων Μηχανικών και Τεχνολογίας Υπολογιστών

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παρουσιάτηκε δημόσια και εξετάστηκε στο τμήμα Ηλεκτρολόγων Μηχανικών και Τεχνολογίας Υπολογιστών στις

__/__/___

Ο Επιβλέπων

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Ο Διευθυντής του Τομέα

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# Nomenclature

| | |
|---|---|
| ${}^{i-1}\mathbf{p}_{iO}$ | Position vector from the origin of the coordinate frame $\{i\}$ to the origin of the coordinate frame $\{i-1\}$ |
| ${}^{i-1}M_i$ | Transformation matrix from coordinate frame $\{i\}$ to coordinate frame $\{i-1\}$ |
| ${}^{i-1}R_i$ | Rotation matrix from coordinate frame $\{i\}$ to coordinate frame $\{i-1\}$ |
| $c_i$ | Shorthand notation for $cos\theta_i$ |
| $s_i$ | Shorthand notation for $sin\theta_i$ |

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# Bibliography


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