

MOSHE SHOHAM**PUBLICATIONS:****Journal publications:**

1. Shoham, M., Fainman, Y., Lenz, E.: "An Optical Sensor for Real-Time Positioning, Tracking, and Teaching of Industrial Robots," *IEEE Transactions of Industrial Electronics*, Vol. 31, No. 2, pp. 159 - 163, 1984.
2. Koren, Y., Shoham, M.: "End Effector Guidance of Robot Arms", *Annals of the CIRP*, Vol. 36/1, pp. 289-292, 1987.
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4. Shoham, M., Srivatsan, R.: "Automation of Surface Finishing Processes," *Robotics and Computer Integrated Manufacturing*, Vol. 9, No. 3, pp. 219-226, 1992.
5. Shoham, M., Li, C., Hacham, Y., Kreindler, E.: "Neural Network Control of Robot Arms," *Annals of the CIRP*, Vol. 41/1, pp. 407-410, 1992.
6. Zussman, E., Shoham, M., Lenz, E.: "Automatic Assembly Planning - A Kinematic Approach by Means of Screw Theory," *ASME - Manufacturing Review*, Vol. 5, No. 4, pp. 293-304, 1992.
7. Brook, N., Shoham, M., Dayan, Y.: "Grasping and Walking Finger Manipulation of Objects using a Four-Fingered Hand," *Annals of the CIRP*, 42/1, pp. 5-8, 1993.
8. Shoham, M., Brodsky, V.: "Analysis of Mechanisms by the Dual Inertia Operator," *Computational Kinematics*, Kluwer Academy Publishers, 1993.
9. Shoham, M., Jen, F.H.: "On Rotations and Translations with Application to Robot Manipulators," *Advanced Robotics*, Vol. 8, No. 2, pp. 203-229, 1994.
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11. Brodsky, V., Shoham, M.: "Dual Inertia Operator and its Application to Robot Dynamics," *ASME Transactions, Journal of Mechanical Design*, Vol. 116, No. 4, pp. 1089-1095, 1994.
12. Brook, N., Mizrahi, J., Shoham, M., Dayan, Y.: " A Bio-Mechanical Model of Index Finger Dynamics," *Medical Engineering Physics*, Vol. 17, No. 1, pp. 54-63, 1995.
13. Salomonski, N., Shoham, M., Grossman, G.: "Light Robot Arm based on Inflatable Structure," *Annals of the CIRP*, Vol. 44/1, pp. 87-90, 1995.
14. Brodsky, V., Shoham, M.: "On Modeling of Grasps with a Multi-Fingered Hand," *Computational Kinematics*, Kluwer Academy Publishers (Eds. J.-P. Merlet and B. Ravani), 1995.
15. Jen, F.H., Shoham, M., Longman, R.W.: "Liapunov Stability of Force-Controlled Grasps with a Multi-Fingered Hand," *The International Journal of Robotics Research*, Vol. 15, No. 2, pp. 137-154, 1996.

16. Rybski, M., Shoham, M., Grossman G.: "Robotic Manipulators based on Inflatable Structures," *Robotics and Computer Integrated Manufacturing*, Vol. 12, No. 1, pp. 111-120, 1996.
17. Meltser, M., Shoham, M., Manevitz, L.: "Approximating Functions by Neural Networks: A Constructive Solution in the Uniform Norm," *Neural Networks*, Vol. 9, No. 6, pp. 965-978, 1996.
18. Shoham, M., Roth, B.: "Connectivity in Open and Closed Loop Robotic Mechanisms," *Journal of Mechanisms and Machine Theory*, Vol. 32, No. 3, pp. 279-294, 1997.
19. Goldberger, S., Shoham, M., Ben-Porat, O.: "Robots in Surgery - Reality or Vision," *Ob/Gyn Update*, Vol. 22, pp. 4-8, 1997.
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21. Brook, N., Shoham, M., Dayan, J.: "Controllability of Grasps and Manipulations in Multi-Fingered Hands," *IEEE Transactions on Robotics and Automation*, Vol. 14, No. 1, pp. 185-192, 1998.
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27. Ben-Porat, O., Shoham, M., Meyer, J.: "Control Design and Task Performance in Endoscopic Tele-Operation," *Presence, MIT Press*, Vol. 9, Issue 3, pp. 256-267, 2000.
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29. Glozman, D., Shoham, M., Fischer A. : "A Surface-Matching Technique for Robot-Assisted Registration," *Journal of Computer Aided Surgery*, Vol. 6, No. 5, pp. 259-269, 2001.
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33. Simaan, N., Shoham, M.: "Stiffness Synthesis of a Variable Geometry Six Degrees-of-Freedom Parallel Robot," *The International Journal of Robotics Research*, Vol. 22, No. 9, pp. 757-775, 2003.
34. Shoham, M., Burman, M., Zehavi, E., Joskowicz, L., Batkilin, E., Kunicher Y.: "Bone-Mounted Miniature Robot for Surgical Procedures: Concept and Clinical Applications," *IEEE Transactions on Robotics and Automation*, Vol. 19, No. 5, pp. 893-901, 2003.
35. Wolf, A., Otaviano, E., Shoham, M., Ceccarelli, M.,: "Application of Line Geometry and Linear Complex Approximation to Singularity Analysis of the 3-DOF CaPaMan Parallel Manipulator," *Mechanisms and Machine Theory*, Vol. 39, No. 1, pp. 75-95, 2003.
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39. Berris, M., Shoham, M. : "Febotics – a Marriage of Fetal Surgery and Robotics," *Journal of Computer Aided Surgery*, Vol. 11, No. 4, pp. 175-180, 2006.
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43. Shoal, S., Shoham, M. : "Motion Analysis of a Parallel Mobile Robot," *Field and Service Robotics*, STAR 24, Springer-Verlag, pp. 323-331, 2006.
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49. Kosa, G., Shoham, M., Zaaroor, M. : "Propulsion Method for Swimming Micro-Robots," *IEEE Transactions on Robotics*, Vol. 2, No. 1, pp. 137-150, 2007.
50. Bamberger, H., Shoham, M.: "A Novel Six Degrees-of-Freedom Parallel Robot for MEMS Fabrication," *IEEE Transactions on Robotics*, Vol., 23, No. 2, pp. 189-195, 2007.
51. Wolf, A., Shoham, M.: "Task Based synthesis of Parallel Robots using Line Geometry Tools," accepted for publication in *IEEE Transactions on Robotics*.
52. Shoham, M., Lieberman, I. H., Benzel, E. C., Togawa, D., Zehavi, E., Zilberstein, B., Fridlander, A., Joskowicz, L., Brink-Danan, S., Knoller, N. : "Robotic Assisted Spinal Surgery - From Concept to Clinical Practice," *Journal of Computer Aided Surgery*, Vol. 12, No. 2, pp. 105-115, 2007.
53. Glozman, D., Shoham, M.: "Image-guided Robotic Flexible Needle Steering," *IEEE Transactions on Robotics*, Vol. 23, No. 3, pp. 459-467, 2007.
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55. Barac, D.Y., Reisner, Y., Silberman, M., Zeevi Levin, N., Danon, A., Salomon, O., Shoham, M., Shilkrut, M., Kostin, S., Schaper, J., Binah, O.: " Mechanical load induced by glass microspheres releases angiogenic factors from neonatal rat ventricular myocytes cultures and causes arrhythmias," *Journal of Cellular and Molecular Medicine*, December, 2008.
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65. Neubach, Z., Shoham, M. : "Ultrasound-Guided Robot for Flexible Needle Steering," *IEEE Transactions on Bio-Medical Engineering*, Vol. 57, No. 4, pp. 799-805, 2010.
66. Glozman, D., Hassidov, N., Senesh, M., Shoham, M. : "A Self-Propelled Inflatable Earthworm-Like Endoscope Actuated by Single Supply Line," *IEEE Transactions on Bio-Medical Engineering*, Vol. 57, No. 6, pp. 1264-1272, 2010.
67. Devito, D.P. et al., Shoham, M. : "Clinical acceptance and accuracy assessment of spinal implants guided with SpineAssist surgical robot – retrospective study," *SPINE*, Vol. 25, No. 24, 2010.
68. Kosa, G., Shoham, M., Haber, S. : "The action of waving cylindrical tails with noncircular cross-section in propelling microrobots," *Physics of Fluids*, Vol. 22, No. 8, 2010.
69. Zarrouk, D., Sharf, I., Shoham, M.: "Analysis of Earthworm-like Robotic Locomotion on Compliant Surfaces," *IEEE Transactions on Bio-Medical Engineering*, Vol. 58, No. 2, pp. 301-309, 2011.
70. Zarrouk, D., Shoham, M.: "A note on Screw Triangle," *ASME Journal of Mechanical Design*, Vol. 3, 2011.
71. Lorenzo, D., De Momi, E., Dyagilev, I., Manganelli, R., Formaglio, A., Prattichizzo, D., Shoham, M., Ferrigno, G.: "Force feedback in a piezoelectric linear actuator for neurosurgery," *International Journal of Medical Robotics and Computer Assisted Surgery*, 2011.

Books:

1. Author of the books (Technician level): *Fundamentals of Robotics and Robot Structure*, Volume 1 and 2.
First published by Eshed Robotec, Tel-Aviv, Israel, 1984.

Second published by Kogan Page Ltd., London, Great Britain, 1986.

These books were translated into three other languages.

2. Bamberger, H., Wolf, A., Shoham, M.: Kinematics of Micro Parallel Robots: Research on MEMS Kinematics, VDM Verlag, 2009.

Book Chapters:

1. Co-Author of chapters 4 and 5 in the book: Koren, Y.: Robotics for Engineers, Mc-Graw Hill, 1985.
2. Wolf, A., Shoham, M., " Medical Automation and Robotics ", Springer Handbook of Automation, Nof, Shimon Y. (Ed.), Springer, pp 1397-1407, 2009.
3. Shoham, M., "Robotic Surgery – Enabling Technology?", Robotic Surgery, Rosen, J., Hanaford, B. Satava R.M. (Eds.), Springer, 2010.

PRIZES AND AWARDS:

- Hershel Rich Innovation Award, 2011
- Technology Award – the Society for Medical Innovation and Technology (SMIT), 2008
- Fellow - The American Society of Mechanical Engineers (ASME), 2008
- Outstanding Israeli project - ROBOCAST: ROBOt and sensors integration for Computer Assisted Surgery and Therapy, European Union 7th Framework Programme for Research and Technological Development. Awarded by the European Commission to the State of Israel, 2007
- Best Project Award, Israel Technological Incubators, Israel Ministry of Trade and Commerce, 2003
- Kaplan Prize for Creative Management of High Technology, 2002
- Juludan Award, 1999
- Hershel Rich Innovation Award, 1998
- Mitchell Entrepreneurial Award, 1996
- Haifa City (J. Dory) Award for Science and Technology, 1993
- Ullmann Academic Lecturer, years 1991-1993