Stanford



Oussama Khatib

Weichai Professor and Professor, by courtesy, of Electrical Engineering

Computer Science

CONTACT INFORMATION

- **Administrator**

  Maria L. David - Administrative Associate

  Email mdavid@cs.stanford.edu

  Tel (650) 723-1740

Bio

BIO

Robotics research on novel control architectures, algorithms, sensing, and human-friendly designs for advanced capabilities in complex environments. With a focus on enabling robots to interact cooperatively and safely with humans and the physical world, these studies bring understanding of human movements for therapy, athletic training, and performance enhancement. Our work on understanding human cognitive task representation and physical skills is enabling transfer for increased robot autonomy. With these core capabilities, we are exploring applications in healthcare and wellness, industry and service, farms and smart cities, and dangerous and unreachable settings -- deep in oceans, mines, and space.

ACADEMIC APPOINTMENTS

- Professor, Computer Science
- Member, Bio-X
- Faculty Affiliate, Institute for Human-Centered Artificial Intelligence (HAI)
- Member, Wu Tsai Human Performance Alliance
- Member, Wu Tsai Neurosciences Institute

PROGRAM AFFILIATIONS

- Stanford SystemX Alliance
- Symbolic Systems Program

PROFESSIONAL EDUCATION

- PhD, Sup-Aero, France (1980)

LINKS

- http://robotics.stanford.edu/~ok: http://robotics.stanford.edu/~ok

Teaching

COURSES

2026-27

- Advanced Robotic Manipulation: CS 327A, ME 323 (Spr)
- Experimental Robotics: CS 225A (Spr)
- Robots and Arts: Creative Applications and Projects: CS 334, TAPS 334R (Aut, Win)

2025-26

- Experimental Robotics: CS 225A (Spr)
- Robots and Arts: Creative Applications and Projects: CS 334, TAPS 334R (Win)

2024-25

- Introduction to Robotics: CS 223A, ME 320 (Win)

2023-24

- Experimental Robotics: CS 225A (Spr)
- Introduction to Robotics: CS 223A, ME 320 (Win)

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Yaojing Huang He

Postdoctoral Faculty Sponsor

Jing Liang

Doctoral Dissertation Advisor (AC)

William Chong, Wesley Guo, Boyeon Kim

Master's Program Advisor

An Doan, Mert Karabiyik, Aditesh Kumar, Bryan Kwan, Jennifer Lew, Jennifer Quach, He-Qian Shen, Karen Vo, Sally Wang, Jason Xiong, David Yuan

Publications

PUBLICATIONS

- **Constraint-consistent task-oriented whole-body robot formulation: Task, posture, constraints, multiple contacts, and balance** *INTERNATIONAL JOURNAL OF ROBOTICS RESEARCH*
  Khatib, O., Jorda, M., Park, J., Sentis, L., Chung, S.
  2022
- **Local Autonomy-Based Haptic-Robot Interaction With Dual-Proxy Model** *IEEE TRANSACTIONS ON ROBOTICS*
  Jorda, M., Vulliez, M., Khatib, O.
  2022
- **Editorial** *INTERNATIONAL JOURNAL OF SOCIAL ROBOTICS*
  Ge, S., Wykowska, A., Khatib, O.
  2021
- **Understanding and Segmenting Human Demonstrations into Reusable Compliant Primitives**
  Herrero, E., Ho, J., Khatib, O., IEEE
  IEEE.2021: 9437-9444

- **Editorial** *INTERNATIONAL JOURNAL OF SOCIAL ROBOTICS*
  Wykowska, A., Ge, S., Khatib, O.
  2020
- **EB-RRT: Optimal Motion Planning for Mobile Robots** *IEEE TRANSACTIONS ON AUTOMATION SCIENCE AND ENGINEERING*
  Wang, J., Meng, M., Khatib, O.
  2020; 17 (4): 2063–73
- **Contact-space resolution model for a physically consistent view of simultaneous collisions in articulated-body systems: theory and experimental results** *INTERNATIONAL JOURNAL OF ROBOTICS RESEARCH*
  Ganguly, S., Khatib, O.
  2020
- **ISER 2018 Editorial** *INTERNATIONAL JOURNAL OF ROBOTICS RESEARCH*
  Xiao, J., Kroeger, T., Khatib, O.
  2020; 39 (10-11): 1199–1200
- **Controlling Ocean One: Human-robot collaboration for deep-sea manipulation** *JOURNAL OF FIELD ROBOTICS*
  Brantner, G., Khatib, O.
  2020
- **Editorial** *INTERNATIONAL JOURNAL OF SOCIAL ROBOTICS*
  Ge, S., Wykowska, A., Khatib, O.
  2020
- **UniGrasp: Learning a Unified Model to Grasp With Multifingered Robotic Hands** *IEEE ROBOTICS AND AUTOMATION LETTERS*
  Shao, L., Ferreira, F., Jorda, M., Nambiar, V., Luo, J., Solowjow, E., Ojea, J., Khatib, O., Bohg, J.
  2020; 5 (2): 2286–93
- **Editorial** *INTERNATIONAL JOURNAL OF SOCIAL ROBOTICS*
  Ge, S., Wykowska, A., Khatib, O.
  2020
- **Editorial (vol 12, pg 1, 2020)** *INTERNATIONAL JOURNAL OF SOCIAL ROBOTICS*
  Wykowska, A., Ge, S., Khatib, O.
  2020; 12 (1): 297
- **Human-Robot Collaboration in Construction: Opportunities and Challenges**
  Brosque, C., Galbally, E., Khatib, O., Fischer, M., IEEE
  IEEE.2020: 338-345
- **Controlling Muscle-Actuated Articulated Bodies in Operational Space**
  Menon, S., Migimatsu, T., Khatib, O.
  edited by Amato, N. M., Hager, G., Thomas, S., TorresTorriti, M.
  SPRINGER INTERNATIONAL PUBLISHING AG.2020: 1037–53
- **Editorial** *INTERNATIONAL JOURNAL OF SOCIAL ROBOTICS*
  Ge, S., Wykowska, A., Khatib, O.
  2019; 11 (5): 691–92
- **Editorial** *INTERNATIONAL JOURNAL OF SOCIAL ROBOTICS*
  Wykowska, A., Ge, S., Khatib, O.
  2019; 11 (4): 539–40
- **Editorial** *INTERNATIONAL JOURNAL OF SOCIAL ROBOTICS*
  Ge, S., Wykowska, A., Khatib, O.
  2019; 11 (3): 371–72
- **Editorial** *INTERNATIONAL JOURNAL OF SOCIAL ROBOTICS*
  Ge, S., Wykowska, A., Khatib, O.

2019; 11 (2): 209–10

- **Editorial** *INTERNATIONAL JOURNAL OF SOCIAL ROBOTICS*
  Ge, S., Wykowska, A., Khatib, O.
  2019; 11 (1): 1–3
- **Contact-Driven Posture Behavior for Safe and Interactive Robot Operation**
  Jorda, M., Herrero, E., Khatib, O., IEEE
  edited by Howard, A., Althoefer, K., Arai, F., Arrichiello, F., Caputo, B., Castellanos, J., Hauser, K., Isler, Kim, J., Liu, H., Oh, P., Santos, Scaramuzza, D., Ude, A., Voyles, R., Yamane, K., Okamura, A.
  IEEE.2019: 9243–49
- **Journal of Field Robotics special issue on MBZIRC 2017 Challenges in Autonomous Field Robotics** *JOURNAL OF FIELD ROBOTICS*
  Dias, J., Lima, P. U., Seneviratne, L., Khatib, O., Tadokoro, S., Dario, P.
  2019; 36 (1): 3–5
- **A hierarchically patterned, bioinspired e-skin able to detect the direction of applied pressure for robotics** *SCIENCE ROBOTICS*
  Boutry, C. M., Negre, M., Jorda, M., Vardoulis, O., Chortos, A., Khatib, O., Bao, Z.
  2018; 3 (24)
- **A hierarchically patterned, bioinspired e-skin able to detect the direction of applied pressure for robotics.** *Science robotics*
  Boutry, C. M., Negre, M., Jorda, M., Vardoulis, O., Chortos, A., Khatib, O., Bao, Z.
  2018; 3 (24)
- **Editorial** *INTERNATIONAL JOURNAL OF SOCIAL ROBOTICS*
  Ge, S., Khatib, O.
  2018; 10 (5): 553–54
- **Design strategy and issues of the Delthaptic, a new 6-DOF parallel haptic device** *MECHANISM AND MACHINE THEORY*
  Vulliez, M., Zeghloul, S., Khatib, O.
  2018; 128: 395–411
- **Editorial** *INTERNATIONAL JOURNAL OF SOCIAL ROBOTICS*
  Ge, S., Khatib, O.
  2018; 10 (4): 385–86
- **Progress and prospects of the human-robot collaboration** *AUTONOMOUS ROBOTS*
  Ajoudani, A., Zanchettin, A., Ivaldi, S., Albu-Schaeffer, A., Kosuge, K., Khatib, O.
  2018; 42 (5): 957–75
- **KABouM: Knowledge-Level Action and Bounding Geometry Motion Planner** *JOURNAL OF ARTIFICIAL INTELLIGENCE RESEARCH*
  Gaschler, A., Petrick, R. P. A., Khatib, O., Knoll, A.
  2018; 61: 323–62
- **Kinematic Analysis of the Delthaptic, a New 6-DOF Haptic Device** *ADVANCES IN ROBOT KINEMATICS 2016*
  Vulliez, M., Zeghloul, S., Khatib, O.
  edited by Lenarcic, J., Merlet, J. P.
  2018; 4: 181–89
- **Editorial** *INTERNATIONAL JOURNAL OF SOCIAL ROBOTICS*
  Ge, S., Khatib, O.
  2018; 10 (1): 1–3
- **Design Optimization of Hybrid Actuation Combining Macro-Mini Actuators** *INTERNATIONAL JOURNAL OF PRECISION ENGINEERING AND MANUFACTURING*
  Kim, N., Kim, J., Khatib, O., Shin, D.
  2017; 18 (4): 519-527
- **The Ocean One hands: An adaptive design for robust marine manipulation** *INTERNATIONAL JOURNAL OF ROBOTICS RESEARCH*
  Stuart, H., Wang, S., Khatib, O., Cutkosky, M. R.

2017; 36 (2): 150-166

- **Learning potential functions from human demonstrations with encapsulated dynamic and compliant behaviors** *AUTONOMOUS ROBOTS*
  Khansari-Zadeh, S. M., Khatib, O.
  2017; 41 (1): 45-69

- **Haptic fMRI : Reliability and Performance of Electromagnetic Haptic Interfaces For Motion and Force Neuroimaging Experiments**
  Menon, S., Zhu, J., Goyal, D., Khatib, O., IEEE
  IEEE.2017: 3930–35

- **New Passivity Observers for Improved Robot Force Control**
  Jorda, M., Balachandran, R., Ryu, J., Khatib, O.
  edited by Bicchi, A., Okamura, A.
  IEEE.2017: 2177–84

- **Haptic fMRI : A Novel Five DOF Haptic Interface for Multi-Axis Motor Neuroscience Experiments**
  Menon, S., Soviche, A., Mithrakumar, J., Subbarao, A., Ganti, H., Khatib, O., Gerling, G.
  edited by Otaduy, M. A., Ryu, J. H.
  IEEE.2017: 13–18

- **Experimental Analysis of Human Control Strategies in Contact Manipulation Tasks**
  Klingbeil, E., Menon, S., Khatib, O.
  edited by Kulic, D., Nakamura, Y., Khatib, O., Venture, G.
  SPRINGER INTERNATIONAL PUBLISHING AG.2017: 275–86

- **A Novel Haptic fMRI Interface for Five-Axis Force and Motion Neuroimaging Experiments**
  Menon, S., Soviche, A., Mithrakumar, J., Subbarao, A., Khatib, O.
  edited by Bicchi, A., Okamura, A.
  IEEE.2017: 899–905

- **Ocean One A Robotic Avatar for Oceanic Discovery** *IEEE ROBOTICS & AUTOMATION MAGAZINE*
  Khatib, O., Yeh, X., Brantner, G., Soe, B., Kim, B., Ganguly, S., Stuart, H., Wang, S., Cutkosky, M., Edsinger, A., Mullins, P., Barham, M., Voolstra, et al
  2016; 23 (4): 20-29

- **A Centrifugal Force-Based Configuration-Independent High-Torque-Density Passive Brake for Human-Friendly Robots** *IEEE-ASME TRANSACTIONS ON MECHATRONICS*
  Shin, D., Tanaka, A., Kim, N., Khatib, O.
  2016; 21 (6): 2827-2835

- **Adaptive human-inspired compliant contact primitives to perform surface-surface contact under uncertainty** *INTERNATIONAL JOURNAL OF ROBOTICS RESEARCH*
  Khansari, M., Klingbeil, E., Khatib, O.
  2016; 35 (13): 1651-1675

- **A Depth Space Approach for Evaluating Distance to Objects with Application to Human-Robot Collision Avoidance** *JOURNAL OF INTELLIGENT & ROBOTIC SYSTEMS*
  Flacco, F., Kroeger, T., De Luca, A., Khatib, O.
  2015; 80: S7-S22

- **Control of Redundant Robots Under Hard Joint Constraints: Saturation in the Null Space** *IEEE TRANSACTIONS ON ROBOTICS*
  Flacco, F., De Luca, A., Khatib, O.
  2015; 31 (3): 637-654

- **Distributed Operational Space Formulation of Serial Manipulators** *JOURNAL OF COMPUTATIONAL AND NONLINEAR DYNAMICS*
  Bhalerao, K. D., Critchley, J., Oetomo, D., Featherstone, R., Khatib, O.
  2014; 9 (2)

- **A new hybrid actuation scheme with artificial pneumatic muscles and a magnetic particle brake for safe human-robot collaboration** *INTERNATIONAL JOURNAL OF ROBOTICS RESEARCH*
  Shin, D., Yeh, X., Khatib, O.

2014; 33 (4): 507-518

- **Haptic fMRI : Accurately Estimating Neural Responses in Motor, Pre-Motor, and Somatosensory Cortex During Complex Motor Tasks** *36th Annual International Conference of the IEEE-Engineering-in-Medicine-and-Biology-Society (EMBC)*
  Menon, S., Yu, M., Kay, K., Khatib, O.
  IEEE.2014: 2040–2045

- **Mapping stiffness perception in the brain with an fMRI-compatible particle-jamming haptic interface.** *Conference proceedings : ... Annual International Conference of the IEEE Engineering in Medicine and Biology Society. IEEE Engineering in Medicine and Biology Society. Annual Conference*
  Menon, S., Stanley, A. A., Zhu, J., Okamura, A. M., Khatib, O.
  2014; 2014: 2051-2056

- **Haptic fMRI : Using Classification to Quantify Task-Correlated Noise during Goal-Directed Reaching Motions** *36th Annual International Conference of the IEEE-Engineering-in-Medicine-and-Biology-Society (EMBC)*
  Menon, S., Quigley, P., Yu, M., Khatib, O.
  IEEE.2014: 2046–2050

- **Circular Pulley Versus Variable Radius Pulley: Optimal Design Methodologies and Dynamic Characteristics Analysis** *IEEE TRANSACTIONS ON ROBOTICS*
  Shin, D., Yeh, X., Khatib, O.
  2013; 29 (3): 766-774

- **Experimental Robotics: The 12th International Symposium on Experimental Robotics**
  edited by Khatib, O., Kumar, V., Sukhatme, G.
  2013

- **Haptic fMRI : Combining Functional Neuroimaging with Haptics for Studying the Brain's Motor Control Representation** *35th Annual International Conference of the IEEE-Engineering-in-Medicine-and-Biology-Society (EMBC)*
  Menon, S., Brantner, G., Aholt, C., Kay, K., Khatib, O.
  IEEE.2013: 4137–4142

- **Adaptive Collision Checking for Continuous Robot Motions within Motion Constraints** *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*
  Kwon, J., Khatib, O.
  IEEE.2013: 5365–5372

- **Virtual Whiskers - Highly Responsive Robot Collision Avoidance** *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*
  Schlegl, T., Kroeger, T., Gaschler, A., Khatib, O., Zangl, H.
  IEEE.2013: 5373–5379

- **Towards Online Trajectory Generation Considering Robot Dynamics and Torque Limits** *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*
  Katzschmann, R., Kroeger, T., Asfour, T., Khatib, O.
  IEEE.2013: 5644–5651

- **Romansy 19 - Robot Design Dynamics, and Contol, Springer.**
  edited by Padois, V., Bidaud, P., Khatib, O.
  CISM 544, Springer.2013

- **Special Issue on The Fifteenth International Symposium on Robotics Research, 2011** *INTERNATIONAL JOURNAL OF ROBOTICS RESEARCH*
  Chatila, R., Christensen, H., Khatib, O.
  2012; 31 (11): 1217-1218

- **Special Issue on the Twelfth International Symposium on Experimental Robotics, 2010** *INTERNATIONAL JOURNAL OF ROBOTICS RESEARCH*
  Khatib, O., Kumar, V., Sukhatme, G. S.
  2012; 31 (5): 571-572

- **Elastic Strips: Implementation on a Physical Humanoid Robot** *25th IEEE\RSJ International Conference on Intelligent Robots and Systems (IROS)*
  Kwon, J., Yoshikawa, T., Khatib, O.
  IEEE.2012: 3369–3376
- **Constraint-Consistent Analysis of Muscle Force Contributions to Human Gait.** *Advances in Robot Kinematics.*
  Demircan, E., Khatib, O.
  edited by Lenarcic, J., Husty, M.
  Springer, Berlin, Heidelberg, Germany.2012: 301–308
- **Special Issue of the Twelfth International Symposium on Experimental Robotics**
  Khatib, O., Kumar, V., Sukhatme, G., S.
  2012
- **JediBot - Experiments in Human-Robot Sword-Fighting.**
  Krger, T., Oslund, K., Jenkins, T., Torczynski, D., Hippenmeyer, N., Rusu, R., B., Khatib, O.
  2012
- **Motor vs. Brake: Comparative Studies on Performance and Safety in Hybrid Actuations.** *In Experimental Robotics.*
  Shin, D., Yeh, X., Narita, T., Khatib, O.
  Springer Tracts in Advanced Robotics, Springer, Berlin, Heidelberg, Germany.2012: 1
- **Motion Control of Redundant Robots under Joint Constraints: Saturation in the Null Space** *IEEE International Conference on Robotics and Automation (ICRA)*
  Flacco, F., De Luca, A., Khatib, O.
  IEEE.2012: 285–292
- **Muscle Force Transmission to Operational Space Accelerations During Elite Golf Swings** *IEEE International Conference on Robotics and Automation (ICRA)*
  Demircan, E., Besier, T. F., Khatib, O.
  IEEE.2012: 1464–1469
- **A Depth Space Approach to Human-Robot Collision Avoidance** *IEEE International Conference on Robotics and Automation (ICRA)*
  Flacco, F., Kroeger, T., De Luca, A., Khatib, O.
  IEEE.2012: 338–345
- **Prioritized Multi-Task Motion Control of Redundant Robots under Hard Joint Constraints** *25th IEEE\RSJ International Conference on Intelligent Robots and Systems (IROS)*
  Flacco, F., De Luca, A., Khatib, O.
  IEEE.2012: 3970–3977
- **Global Localization of Objects via Touch** *IEEE TRANSACTIONS ON ROBOTICS*
  Petrovskaya, A., Khatib, O.
  2011; 27 (3): 569-585
- **Variable Radius Pulley Design Methodology for Pneumatic Artificial Muscle-based Antagonistic Actuation Systems** *IEEE/RSJ International Conference on Intelligent Robots and Systems*
  Shin, D., Yeh, X., Khatib, O.
  IEEE.2011
- **Capacitive Skin Sensors for Robot Impact Monitoring.**
  Phan, S., Quek, Z., F., Shah, P., Shin, D., Ahmed, Z., Khatib, O.
  2011
- **Task-Level Reconstruction and Analysis of Dynamic Motions in Human Musculoskeletal Systems.**
  Demircan, E., Khatib, O.
  2011
- **Controlling Biomechanical Models To Move Like Humans Do.**
  Menon, S., Khatib, O.

2011

- **Grasping with Application to an Autonomous Checkout Robot.**
  Klingbeil, E., Rao, D., Carpenter, B., Ganapathi, V., Ng, A., Y., Khatib, O.
  2011
- **Collision Avoidance in Depth Space.**
  Flacco, F., Kroger, T., Luca, A., De, Khatib, O.
  2011
- **A Depth Space Approach to Human-Robot Collision Avoidance.**
  Flacco, F., Kroger, T., Luca, A., De, Khatib, O.
  2011
- **Grasping with Application to an Autonomous Checkout Robot** *IEEE International Conference on Robotics and Automation (ICRA)*
  Klingbeil, E., Rao, D., Carpenter, B., Ganapathi, V., Ng, A. Y., Khatib, O.
  IEEE.2011
- **Instantaneous Stiffness Effects on Impact Forces in Human-Friendly Robots** *IEEE/RSJ International Conference on Intelligent Robots and Systems*
  Shin, D., Quek, Z. F., Phan, S., Cutkosky, M., Khatib, O.
  IEEE.2011: 2998–3003
- **An Open Source Extensible Software Package to Create Whole-Body Compliant Skills in Personal Mobile Manipulators** *IEEE/RSJ International Conference on Intelligent Robots and Systems*
  Philippsen, R., Sentis, L., Khatib, O.
  IEEE.2011: 1036–1041
- **Compliant Control of Multicontact and Center-of-Mass Behaviors in Humanoid Robots** *IEEE TRANSACTIONS ON ROBOTICS*
  Sentis, L., Park, J., Khatib, O.
  2010; 26 (3): 483-501
- **Special Issue on The Eleventh International Symposium on Experimental Robotics** *INTERNATIONAL JOURNAL OF ROBOTICS RESEARCH*
  Khatib, O., Kumar, V., Pappas, G.
  2010; 29 (5): 483-484
- **Design and Control of a Bio-inspired Human-friendly Robot** *11th International Symposium on Experimental Robotics (ISER)*
  Shin, D., Sardellitti, I., Park, Y., Khatib, O., Cutkosky, M.
  SAGE PUBLICATIONS LTD.2010: 571–84
- **The Robotics Community** *IEEE ROBOTICS & AUTOMATION MAGAZINE*
  Khatib, O., Christensen, H.
  2010; 17 (1): 11-12
- **Analysis of Torque Capacities in Hybrid Actuation for Human-Friendly Robot Design** *IEEE International Conference on Robotics and Automation (ICRA)*
  Shin, D., Seitz, F., Khatib, O., Cutkosky, M.
  IEEE.2010: 799–804
- **Robots and the Human.**
  Khatib, O.
  2010
- **Towards Dependable Perception: Guaranteed Inference for Global Localization.**
  Petrovskaya, A., Thrun, S., Koller, D., Khatib, O.
  2010
- **Towards Dependable Perception: Guaranteed Inference for Global Localization.**
  Petrovskaya, A., Thrun, S., Koller, D., Khatib, O.
  2010

- **Robots and the Human** *2nd International Conference on Simulation, Modeling, and Programming for Autonomous Robots (SIMPAR)*
  Khatib, O.
  SPRINGER-VERLAG BERLIN.2010: 3–4
- **Compliant Control of Multi-Contact and Center of Mass Behaviors in Humanoid Robots.** *IEEE Trans. on Robotics.*
  Sentis, L., Park, J., Khatib, O.
  2010; 26 (3): 483-501
- **Robotics-Based Human Dynamic Performance Analysis.**
  Demircan, E., Khatib, O.
  2010
- **Human Motion Reconstruction and Synthesis of Human Skills** *12th International Symposium on Advances in Robot Kinematics (ARK 2010)*
  Demircan, E., Besier, T., Menon, S., Khatib, O.
  SPRINGER-VERLAG BERLIN.2010: 283–292
- **A New Actuation Approach for Haptic Interface Design** *10th International Symposium on Experimental Robotics (ISER)*
  Conti, F., Khatib, O.
  SAGE PUBLICATIONS LTD.2009: 834–48
- **Special Issue on the Tenth International Symposium on Experimental Robotics** *INTERNATIONAL JOURNAL OF ROBOTICS RESEARCH*
  Khatib, O., Kumar, V., Rus, D.
  2009; 28 (6): 683-684
- **A Unified Approach to Integrate Unilateral Constraints in the Stack of Tasks** *IEEE TRANSACTIONS ON ROBOTICS*
  Mansard, N., Khatib, O., Kheddar, A.
  2009; 25 (3): 670-685
- **Robotics-based synthesis of human motion** *JOURNAL OF PHYSIOLOGY-PARIS*
  Khatib, O., Demircan, E., De Sapio, V., Sentis, L., Besier, T., Delp, S.
  2009; 103 (3-5): 211-219
- **Reconstruction and EMG-Informed Control, Simulation and Analysis of Human Movement for Athletics: Performance Improvement and Injury Prevention** *Annual International Conference of the IEEE-Engineering-in-Medicine-and-Biology-Society*
  Demircan, E., Khatib, O., Wheeler, J., Delp, S.
  IEEE.2009: 6534–6537
- **A Unified Framework for Whole-Body Humanoid Robot Control with Multiple Constraints and Contacts.** *Springer Tracts in Advanced Robotics*
  Khatib, O., Sentis, L., Park, J.
  edited by Bruyninckx, H., Preucil, L., Kulich, M.
  Springer, Berlin, Heidelberg, Germany.2009: 303–312
- **Design and Control of a Bio-inspired Human-Friendly Robot** *11th International Symposium on Experimental Robotics (ISER)*
  Shin, D., Sardellitti, I., Park, Y., Khatib, O., Cutkosky, M.
  SPRINGER-VERLAG BERLIN.2009: 43–52
- **Design Methodologies of a Hybrid Actuation Approach for a Human-Friendly Robot** *IEEE International Conference on Robotics and Automation*
  Shin, D., Khatib, O., Cutkosky, M.
  IEEE.2009: 3568–3573
- **Large Scale Multi-Robot Coordination Under Network and Geographical Constraints** *IEEE International Symposium on Industrial Electronics (ISIE 2009)*
  Sentis, L., Mintz, M., Ayyagari, A., Battles, C., Ying, S., Khatib, O.
  IEEE.2009: 1035–1042
- **Compliant Humanoid Robot Control by the Torque Transformer** *IEEE RSJ International Conference on Intelligent Robots and Systems*
  Yoshikawa, T., Khatib, O.
  IEEE.2009: 3011–3018

- **Design and Control of a Bio-inspired Human-Friendly Robot** *11th International Symposium on Experimental Robotics (ISER)*
  Shin, D., Sardellitti, I., Park, Y., Khatib, O., Cutkosky, M.
  SPRINGER-VERLAG BERLIN.2009: 43–52
- **Design Methodologies of a Hybrid Actuation Approach for a Human-Friendly Robot** *IEEE International Conference on Robotics and Automation*
  Shin, D., Khatib, O., Cutkosky, M.
  IEEE.2009: 3568–3573
- **Large Scale Multi-Robot Coordination Under Network and Geographical Constraints** *IEEE International Symposium on Industrial Electronics (ISIE 2009)*
  Sentis, L., Mintz, M., Ayyagari, A., Battles, C., Ying, S., Khatib, O.
  IEEE.2009: 1035–1042
- **Compliant Humanoid Robot Control by the Torque Transformer** *IEEE RSJ International Conference on Intelligent Robots and Systems*
  Yoshikawa, T., Khatib, O.
  IEEE.2009: 3011–3018
- **Robot multiple contact control** *ROBOTICA*
  Park, J., Khatib, O.
  2008; 26: 667-677
- **Dynamic performance and modular design of redundant macro-/minimanipulators** *JOURNAL OF MECHANICAL DESIGN*
  Bowling, A. P., Khatib, O.
  2008; 130 (9)
- **Least action principles and their application to constrained and task-level problems in robotics and biomechanics** *MULTIBODY SYSTEM DYNAMICS*
  De Sapio, V., Khatib, O., Delp, S.
  2008; 19 (3): 303-322
- **Human Motion Reconstruction by Direct Control of Marker Trajectories** *11th International Symposium on Advances in Robot Kinematics*
  Demircan, E., Sentis, L., De Sapio, V., Khatib, O.
  SPRINGER.2008: 263–272
- **Design and Control of a Bioinspired Human-Friendly Robot.**
  Shin, D., Sardellitti, I., Park, Y., L., Khatib, O., Cutkosky, M., R.
  2008
- **The Handbook of Robotics**
  Siciliano, B., Khatib, O.
  edited by Siciliano, B., Khatib, O.
  Springer.2008
- **A Unified Framework for Whole-Body Humanoid Robot Control With Multiple Constraints and Contacts**
  Khatib, O., Sentis, L., Park, J.
  2008
- **Compliant motion control for a humanoid robot in contact with the environment and humans.**
  Yoshikawa, T., Khatib, O.
  2008
- **Experimental Robotics**
  Khatib, O., Kumar, V., Rus, D.
  2008
- **Dynamic performance in the modular design of redundant macro/mini manipulators.** *ASME Journal of Mechanical Design*
  Bowling, A., Khatib, O.
  2008; 130 (9): 092301(1-11)

- **Large workspace haptic devices - A new actuation approach** *16th Symposium on Haptics Interfaces for Virtual Environment and Teleoperator Systems*
  Zinn, M., Khatib, O., Roth, B., Salisbury, J. K.
  IEEE COMPUTER SOC.2008: 185–192
- **Results of coring from a low mass rover** *2008 IEEE Aerospace Conference*
  Backes, P., Helmick, D., Bajracharya, M., Khatib, O., Padois, V., Warren, J.
  IEEE.2008: 53–59
- **A new actuation approach for haptic interface design** *10th International Symposium on Experimental Robotics (ISER)*
  Conti, F., Khatib, O.
  SPRINGER-VERLAG BERLIN.2008: 441–450
- **A hybrid actuation approach for human-friendly robot design** *IEEE International Conference on Robotics and Automation*
  Shin, D., Sardellitti, I., Khatib, O.
  IEEE.2008: 1747–1752
- **Torque-position transformer for task control of position controlled robots** *IEEE International Conference on Robotics and Automation*
  Khatib, O., Thaulad, P., Yoshikawa, T., Park, J.
  IEEE.2008: 1729–1734
- **Identifying physical properties of deformable objects by using particle filters** *IEEE International Conference on Robotics and Automation*
  Burion, S., Conti, F., Petrovskaya, A., Baur, C., Khatib, O.
  IEEE.2008: 1112–1117
- **Continuous control law from unilateral constraints** *IEEE International Conference on Robotics and Automation*
  Mansard, N., Khatib, O.
  IEEE.2008: 3359–3364
- **A unified framework for whole-body humanoid robot control with multiple constraints and contacts** *2nd European Robotics Symposium*
  Khatib, O., Sentis, L., Park, J.
  SPRINGER-VERLAG BERLIN.2008: 303–312
- **Special issue on the first IEEE/RAS-EMBS International Conference on Biomedical Robotics and Biomechatronics (BioRob 2006)** *INTERNATIONAL JOURNAL OF ROBOTICS RESEARCH*
  Dario, P., Meldrum, D., Khatib, O.
  2007; 26 (11--12): 1157-1158
- **A hybrid actuation approach for haptic devices** *2nd Joint EuroHaptics Conference and Symposium on Haptic Interfaces for Virtual Environment and Teleoperator Systems*
  Conti, F., Khatib, O., Baur, C.
  IEEE COMPUTER SOC.2007: 367–372
- **A Hybrid Actuation Approach for Haptic Interfaces.**
  Conti, F., Khatib, O., Baur, C.
  2007
- **Special Issue on BioRobotics.** *I. J. Robotic Res.*
  Dario, P., Meldrum, D., R., Khatib, O.
  2007; 11-12 (26)
- **Probabilistic estimation of whole body contacts for multi-contact robot control** *IEEE International Conference on Robotics and Automation*
  Petrovskaya, A., Park, J., Khatib, O.
  IEEE.2007: 568–573
- **Human-centered robotics** *11th International Conference on Intelligent Engineering Systems*
  Khatib, O.
  IEEE.2007: 11–11
- **Air muscle controller design in the Distributed Macro-Mini (DM2) Actuation approach** *IEEE/RSJ International Conference on Intelligent Robots and Systems*

Sardellitti, I., Park, J., Shin, D., Khatib, O.
IEEE.2007: 1828–1833

- **Real-time adaptive control for haptic telemanipulation with Kalman active observers** *IEEE TRANSACTIONS ON ROBOTICS*
  Cortesao, R., Park, J., Khatib, O.
  2006; 22 (5): 987-999
- **Task-level approaches for the control of constrained multibody systems** *MULTIBODY SYSTEM DYNAMICS*
  De Sapio, V., Khatib, O., Delp, S.
  2006; 16 (1): 73-102
- **A haptic teleoperation approach based on contact force control** *9th International Symposium on Experimental Robotics (ISER)*
  Park, J., Khatib, O.
  SAGE PUBLICATIONS LTD.2006: 575–91
- **Bayesian estimation for autonomous object manipulation based on tactile sensors** *IEEE International Conference on Robotics and Automation (ICRA)*
  Petrovskaya, A., Khatib, O., Thrun, S., Ng, A. Y.
  IEEE.2006: 707–714
- **Experimental Robotics IX**
  Ang Jr, M., H., Khatib, O.
  2006
- **A new actuation approach for haptic interface design.**
  Conti, F., Khatib, O.
  2006
- **A Whole-Body Control Framework for Humanoid Operating in Human Environments**
  Sentis, L., Khatib, O.
  2006
- **Special Issue on the 9th International Symposium on Robotics Research.**
  Ang, M., Khatib, O.
  2006
- **Real-Time Adaptive Control for Haptic Tele-Manipulation with Kalman Active Observers.** *IEEE Transactions on Robotics*
  Cortesao, R., Park, J., Khatib, O.
  2006; 22 (5): 987-999
- **The control of kinematically constrained shoulder complexes: Physiological and humanoid examples** *IEEE International Conference on Robotics and Automation (ICRA)*
  De Sapio, V., Holzbaur, K., Khatib, O.
  IEEE.2006: 2952–2959
- **Robust haptic teleoperation of a mobile manipulation platform** *9th International Symposium on Experimental Robotics (ISER)*
  Park, J., Khatib, O.
  SPRINGER-VERLAG BERLIN.2006: 543–554
- **Predicting reaching postures using a kinematically constrained shoulder model** *10th International Symposium on Advances in Robot Kinematics*
  De Sapio, V., Warren, J., Khatib, O.
  SPRINGER.2006: 209–218
- **Contact consistent control framework for humanoid robots** *IEEE International Conference on Robotics and Automation (ICRA)*
  Park, J., Khatib, O.
  IEEE.2006: 1963–1969
- **The human frontier: Robotics new quest and challenge** *16th Symposium on Theory and Practice of Robots and Manipulators*
  Khatib, O.
  SPRINGER-VERLAG WIEN.2006: 5–6

- **A whole-body control framework for humanoids operating in human environments** *IEEE International Conference on Robotics and Automation (ICRA)*
  Sentis, L., Khatib, O.
  IEEE.2006: 2641–2648
- **Concept for coring from a low-mass rover** *2006 IEEE Aerospace Conference*
  Backes, P., Khatib, O., Diaz-Calderon, A., Warren, J., Collins, C., Chang, Z.
  IEEE.2006: 80–89
- **The actuation efficiency, a measure of acceleration capability for nonredundant robotic manipulators** *JOURNAL OF ROBOTIC SYSTEMS*
  Bowling, A. P., Khatib, O.
  2005; 22 (12): 759-766
- **Editorial - Special Issue on the 11th International Symposium on Robotics Research** *INTERNATIONAL JOURNAL OF ROBOTICS RESEARCH*
  Chatila, R., DARIO, P., Khatib, O.
  2005; 24 (9): 689-689
- **Simulating the task-level control of human motion: a methodology and framework for implementation** *VISUAL COMPUTER*
  De Sapio, V., Warren, J., Khatib, O., Delp, S.
  2005; 21 (5): 289-302
- **The dynamic capability equations: A new tool for analyzing robotic manipulator performance** *IEEE TRANSACTIONS ON ROBOTICS*
  Bowling, A., Khatib, O.
  2005; 21 (1): 115-123
- **Compliant motion using a mobile manipulator: an operational space formulation approach to aircraft canopy polishing** *ADVANCED ROBOTICS*
  Jamisola, R. S., Oetomo, D. N., Ang, M. H., Khatib, O., Lim, T. M., Lim, S. Y.
  2005; 19 (5): 613-634
- **The Actuation Efficiency, a Measure of Acceleration Capability for Non-Redundant Robotic Manipulators.**
  Bowling, A., Khatib, O.
  2005
- **The dynamic capability equations: A new tool for analyzing manipulator dynamic performance** *IEEE Transactions on Robotics*
  Bowling, A., Khatib, O.
  2005; 1 (21): 115 - 123
- **Synthesis of whole-body behaviors through hierarchical control of behavioral primitives** *International Journal of Humanoid Robotics*
  Sentis, L., Khatib, O.
  2005; 4 (2): 505-518
- **Special Issue on the 11th International Symposium on Robotics Research.** *I. J. Robotic Res.*
  Chatila, R., Dario, P., Khatib, O.
  2005; 9 (24)
- **Telepresence and stability analysis for haptic tele-manipulation with short time delay** *IEEE/RSJ International Conference on Intelligent Robots and Systems*
  Cortesao, R., Park, J., Khatib, O.
  IEEE.2005: 3146–3151
- **Operational space control of multibody systems with explicit holonomic constraints** *IEEE International Conference on Robotics and Automation (ICRA)*
  De Sapio, V., Khatib, O.
  IEEE.2005: 2950–2956
- **Control of free-floating humanoid robots through task prioritization** *IEEE International Conference on Robotics and Automation (ICRA)*
  Sentis, L., Khatib, O.
  IEEE.2005: 1718–1723

- **Spanning large workspaces using small haptic devices** *1st Joint Eurohaptics Conference/Symposium on Haptic Interfaces for Virtual Environment and Teleoperator Systems*
  Conti, F., Khatib, O.
  IEEE COMPUTER SOC.2005: 183–188
- **Feedforward global/inertial sensor fusion algorithm for accurate global positioning of a mobile robot** *IEEE/ASME International Conference on Advanced Intelligent Mechatronics*
  Lee, K., Park, J., Khatib, O., Kwon, D. S.
  IEEE.2005: 504–509
- **Multi-link multi-contact force control for manipulators** *IEEE International Conference on Robotics and Automation (ICRA)*
  Park, J., Khatib, O.
  IEEE.2005: 3613–3618
- **Playing it safe** *IEEE ROBOTICS & AUTOMATION MAGAZINE*
  Zinn, M., Khatib, O., Roth, B., Salisbury, J. K.
  2004; 11 (2): 12-21
- **A new actuation approach for human friendly robot design** *8th International Symposium on Experimental Robotics (ISER 02)*
  Zinn, M., Roth, B., Khatib, O., Salisbury, J. K.
  SAGE PUBLICATIONS LTD.2004: 379–98
- **Human-centered robotics and interactive haptic simulation** *10th International Symposium on Robotics Research (ISRR 2001)*
  Khatib, O., Brock, O.
  SAGE PUBLICATIONS LTD.2004: 167–78
- **Human-like motion from physiologically-based potential field** *18th World Computer Congress*
  Khatib, O., Warren, J., De Sapio, V., Sentis, L.
  SPRINGER.2004: 747–748
- **Task-Oriented Control of Humanoid Robots Through Prioritization**
  Sentis, L., Khatib, O.
  2004
- **A New Actuation Approach for Humanfriendly Robot Design** *International Journal of Robotics Research*
  Zinn, M., Khatib, O., Roth, B., Salisbury, K.
  2004; 1/5 (23): 379-398
- **Towards a Human-centered Intrinsically-Safe Robotic Manipulator** *IEEE Robotics and Automation Magazine*
  Zinn, M., Khatib, O., Roth, B., Salisbury, K.
  2004; 2 (11): 12-21
- **A New Actuation Approach for Human-friendly Robot Design**
  Zinn, M., Khatib, O., Roth, B.
  2004
- **Whole Body Dynamic Behavior and Control of Human-Like Robots** *International Journal of Humanoid Robotics*
  Khatib, O., Sentis, L., Park, J., Warren, J.
  2004; 1 (1): 29-44
- **Multi-contact compliant motion control for robotic manipulators** *IEEE International Conference on Robotics and Automation*
  Park, J., Cortesao, R., Khatib, O.
  IEEE.2004: 4789–4794
- **Robots for the human and interactive simulations** *11th World Congress in Mechanism and Machine Science*
  Khatib, O., Brock, O., Chang, K. C., Ruspini, D., Sentis, L., Viji, S.
  CHINA MACHINE PRESS.2004: 1572–1576
- **Human-like motion from physiologically-based potential energies** *9th International Symposium on Advances in Robot Kinematics*
  Khatib, O., Warren, J., De Sapio, V., Sentis, L.

SPRINGER.2004: 145–154

- **A new actuation approach for human friendly robot design** *IEEE International Conference on Robotics and Automation*
  Zinn, M., Khatib, O., Roth, B.
  IEEE.2004: 249–254
- **Prioritized multi-objective dynamics and control of robots in human environments** *4th IEEE/RAS International Conference on Humanoid Robots*
  Sentis, L., Khatib, O.
  IEEE.2004: 764–780
- **Dynamic loading criteria in actuator selection for desired dynamic performance** *ADVANCED ROBOTICS*
  Bowling, A., Khatib, O.
  2003; 17 (7): 641-656
- **Teleoperation for Compliant Motion Task**
  Park, J., Cortesao, R., Khatib, O.
  2003
- **Interactive rendering of deformable objects based on a filling sphere modeling approach**
  Conti, F., Khatib, O., Baur, C.
  2003
- **Actuations Method for Human-Centered Robotics and Associated Control Challenges** *Control Problems in Robotics*
  Zinn, M., Khatib, O., Roth, B., Salisbury, K.
  edited by Bicchi, A., Christensen, H., Prattichizzo, D.
  STAR, Springer.2003: 105–120
- **A new actuation approach for human friendly robot design** *8th International Symposium on Experimental Robotics (ISER 02)*
  Zinn, M., Khatib, O., Roth, B., Salisbury, J. K.
  SPRINGER-VERLAG BERLIN.2003: 113–122
- **Actuation methods for human-centered robotics and associated control challenges** *2nd International Workshop on Control Problems in Robotics and Automation*
  Zinn, M., Khatib, O., Roth, B., Salisbury, J. K.
  SPRINGER-VERLAG BERLIN.2003: 105–119
- **Non-redundant robotic manipulator acceleration capability and the actuation efficiency measure** *IEEE/RSJ International Conference on Intelligent Robots and Systems*
  Bowling, A., Khatib, O.
  IEEE.2003: 3325–3330
- **Robust and adaptive teleoperation for compliant motion tasks** *11th International Conference on Advanced Robotics (ICAR 2003)*
  Park, J., Cortesao, R., Khatib, O.
  UNIV COIMBRA, FAC CIENCIAS & TECHNOL.2003: 513–519
- **Real-time adaptive control for haptic manipulation with active observers** *IEEE/RSJ International Conference on Intelligent Robots and Systems*
  Cortesao, R., Park, J., Khatib, O.
  IEEE.2003: 2938–2943
- **Interactive rendering of deformable objects base on a filling sphere modeling approach** *20th IEEE International Conference on Robotics and Automation (ICRA)*
  Conti, F., Khatib, O., Baur, C.
  IEEE.2003: 3716–3721
- **Human-centered robotics and interactive haptic simulation** *10th International Symposium on Robotics Research (ISRR 2001)*
  Khatib, O., Brock, O., Chang, K. C., Ruspini, D., Sentis, L., Viji, S.
  SPRINGER-VERLAG BERLIN.2003: 239–253
- **Elastic strips: A framework for motion generation in human environments** *INTERNATIONAL JOURNAL OF ROBOTICS RESEARCH*
  Brock, O., Khatib, O.

2002; 21 (12): 1031-1052

- **Robotics and interactive simulation** *COMMUNICATIONS OF THE ACM*
  Khatib, O., Brock, O., Chang, K. S., Conti, F., Ruspini, D., Sentis, L.
  2002; 45 (3): 46-51

- **Task-consistent obstacle avoidance and motion behavior for mobile manipulation** *19th IEEE International Conference on Robotics and Automation (ICRA)*
  Brock, O., Khatib, O., Viji, S.
  IEEE.2002: 388–393

- **The Operational Space Formulation implementation to aircraft canopy polishing using a mobile manipulator** *2002 IEEE INTERNATIONAL CONFERENCE ON ROBOTICS AND AUTOMATION, VOLS I-IV, PROCEEDINGS*
  Jamisola, R., Ang, M. H., Oetomo, D., Khatib, O., Lim, T. M., Lim, S. Y.
  2002: 400-405

- **Integration of torque controlled arm with velocity controlled base for mobile manipulation** *ROMANSY 14 - THEORY AND PRACTICE OF ROBOTS AND MANIPULATORS*
  Oetomo, D., Ang, M. H., Jamisola, R., Khatib, O.
  2002: 189-199

- **Towards A Human-Centered Intrinsically- Safe Robotic Manipulator**
  Zinn, M., Khatib, O., Roth, B., Salisbury, J., K.
  2002

- **Potential Fields and Neural Networks** *The Handbook of Brain, Theory and Neural Networks*
  Liu, J., Khatib, O.
  edited by Arbib, Michael, A.
  MIT Press.2002; 2nd: 1

- **Efficient algorithms for robots with human-like structures and interactive haptic simulation** *Advances in Robot Kinematics: Theory and Applications*
  Khatib, O., Brock, O., Chang, K., S., Conti, F., Ruspini, D., Sentis, L.
  edited by Lenarcic, J., Thomas, F.
  Kluwer Academic Publishers.2002: 89–98

- **Task-Consistent Obstacle Avoidance for Mobile Manipulation**
  Brock, O., Khatib, O., Viji, S.
  2002

- **Human-Centered Robotics and Interactive Haptic Simulation.**
  Khatib, O., Brock, O., Chang, K., S., Ruspini, D., Sentis, L., Viji, S.
  edited by Jarvis, R., A., Zelinsky, A.
  2002

- **Integration of Torque Controlled Arm with Velocity Controlled Base for Mobile Manipulation**
  Oetomo, D., Ang Jr, M., H., Jamisola, R., Khatib, O.
  2002

- **A New Actuation Approach for Human Friendly Robot Design**
  Zinn, M., Khatib, O., Roth, B., Salisbury, J., K.
  edited by Siciliano, B., Dario, P.
  2002

- **Reactive Collision Avoidance for Navigation with Dynamic Constraints**
  Minguez, J., Montano, L., Khatib, O.
  2002

- **Human-centered robotics and haptic interaction: From assistance to surgery, the emerging applications** *3rd International Workshop on Robot Motion and Control*
  Khatib, O.

POZNAN UNIV TECHNOLOGY.2002: 137–139

- **Actuator selection for desired dynamic performance** *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2002)*
  Bowling, A., Khatib, O.
  IEEE.2002: 1966–1973
- **Actuator selection for desired dynamic performance** *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2002)*
  Bowling, A., Khatib, O.
  IEEE.2002: 1966–1973
- **Haptic display for human interaction with virtual dynamic environments** *JOURNAL OF ROBOTIC SYSTEMS*
  Ruspini, D., Khatib, O.
  2001; 18 (12): 769-783
- **Efficient recursive algorithm for the operational space inertia matrix of branching mechanisms** *ADVANCED ROBOTICS*
  Chang, K. S., Khatib, O.
  2001; 14 (8): 703-715
- **Simulation with Contact for Haptic Interaction** *Touch in Virtual Environments*
  Ruspini, D., Khatib, O.
  edited by McLaughlin, M., Hespanha, J., P., Sukhatme, G., S.
  Prentice-Hall.2001: 32–46
- **Haptically Augmented Teleoperation**
  Turro, N., Khatib, O., Coste-Maniere, E.
  2001
- **Robots in Human Environments** *Archives of Control Sciences, special issue on Recent Developments in Robotics, Part I*
  Khatib, O., Yokoi, K., Brock, O., Chang, K., Casal, A.
  2001; 11 (XLVII) (3/4): 123-138
- **Haptically augmented teleoperation** *7th International Symposium on Experimental Robotics*
  Turro, N., Khatib, O.
  SPRINGER-VERLAG BERLIN.2001: 1–10
- **Human-centered robotics and haptic interactions** *2nd International Workshop on Robot Motion and Control*
  Khatib, O.
  WYDAWNICTWO POLITECHNIKI POZNANSKIEJ.2001: 11–12
- **Development and control of a holonomic mobile robot for mobile manipulation tasks** *INTERNATIONAL JOURNAL OF ROBOTICS RESEARCH*
  Holmberg, R., Khatib, O.
  2000; 19 (11): 1066-1074
- **Elastic strips: A framework for integrated planning and execution** *6th International Symposium on Experimental Robotics*
  Brock, O., Khatib, O.
  SPRINGER-VERLAG LONDON LTD.2000: 329–338
- **A Powered-Caster Holonomic Robotic Vehicle forMobile Manipulation Tasks**
  Holmberg, R., Khatib, O.
  2000
- **High-Speed Navigation Using the Global Dynamic Window Approach**
  Brock, O., Khatib, O.
  2000
- **Robot Acceleration Capability: The Actuation Efficiency Measure**
  Bowling, A., Khatib, O.
  2000

- **Operational Space Dynamics: Efficient Algorithms for Modeling and Control of Branching Mechanisms**
  Chang, K., S., Khatib, O.
  2000
- **The Augmented Object Model: Cooperative Manipulation and Parallel Mechanism Dynamics**
  Chang, K., S., Holmberg, R., Khatib, O.
  2000
- **Real-Time Replanning in High-Dimensional Configuration Spaces Using Sets of Homotopic Paths**
  Brock, O., Khatib, O.
  2000
- **'Gauss' Principle and the Dynamics of Redundant and Constrained Manipulators**
  Bruyninckx, H., Khatib, O.
  2000
- **Robots in Human Environments**
  Khatib, O.
  2000
- **Integrated Planning and Execution: Elastic Strips**
  Brock, O., Khatib, O.
  2000
- **Collision/contact models for dynamic simulation and haptic interaction** *9th International Symposium of Robotics Research (ISRR 99)*
  RUSPINI, D. C., Khatib, O.
  SPRINGER-VERLAG LONDON LTD.2000: 185–194
- **A powered-caster holonomic robotic vehicle for mobile manipulation tasks** *13th CISM IFoMM Romansy Symposium*
  Holmberg, R., Khatib, O.
  SPRINGER-VERLAG WIEN.2000: 157–67
- **A framework for multi-contact multi-body dynamic simulation and haptic display** *7th International Symposium on Advances in Robot Kinematics*
  Ruspini, D., Khatib, O.
  SPRINGER.2000: 175–186
- **A framework for multi-contact multi-body dynamic simulation and haptic display** *IEEE/Robotics-Society-of-Japan International Conference on Intelligent Robots and Systems (IROS 2000)*
  Ruspini, D., Khatib, O.
  IEEE.2000: 1322–1327
- **A portable programming framework** *6th International Symposium on Experimental Robotics*
  Coste-Maniere, E., Turro, N., Khatib, O.
  SPRINGER-VERLAG LONDON LTD.2000: 379–389
- **Robots in human environments: Basic autonomous capabilities** *INTERNATIONAL JOURNAL OF ROBOTICS RESEARCH*
  Khatib, O., Yokoi, K., Brock, O., Chang, K., Casal, A.
  1999; 18 (7): 684-696
- **Mobile manipulation: The robotic assistant** *ROBOTICS AND AUTONOMOUS SYSTEMS*
  Khatib, O.
  1999; 26 (2-3): 175-183
- **A general contact model for dynamically-decoupled force/motion control** *International Conference on Robotics and Automation (ICRA '99)*
  Featherstone, R., Thiebaut, S. S., Khatib, O.
  IEEE.1999: 3281–3286
- **The Stanford Robotics Platforms**
  Khatib, O.

1999

- **Robots in Human Environments:Basic Autonomous Capabilities** *International Journal of Robotics Research*
  Khatib, O., Yokoi, K., Brock, O., Chang, K., Casal, A.
  1999; 18 (7): 684-696
- **Real-Time Obstacle Avoidance and Motion Coordination in a Multi-Robot Workcell**
  Brock, O., Khatib, O.
  1999
- **Dancing with Juliet**
  Khatib, O., Brock, O., Yokoi, K., Holmberg, R.
  1999
- **Haptics for Virtual Prototyping**
  Ruspini, D., Khatib, O.
  1999
- **Practical connection between potential fields and neural networks**
  Liu, J., Khatib, O.
  1999
- **Dynamics Identification and Control of an Industrial Robot.**
  Jamisola, R., Ang Jr, M., Lim, T, M., Khatib, O., Lim, S., Y.
  1999
- **A general Contact Model for Dynamically- Decoupled Force/Motion Control**
  Featherstone, R., Sonck, S., Khatib, O.
  1999
- **ProVAR Assistive Robot System Architecture**
  der Loos, M., Van, Wagner, J., J., Smaby, N., Chang, K., Madrigal, O., Leifer, L., J., Khatib, O.
  1999
- **Robots in Human Environments**
  Khatib, O., Yokoi, K., Brock, O., Chang, K., Casal, A.
  1999
- **Development of a Holonomic Mobile Robot for Mobile Manipulation Tasks**
  Holmberg, R., Khatib, O.
  1999
- **Efficient Algorithm for Extended Operational Space Inertia Matrix**
  Chang, K., C., Khatib, O.
  1999
- **Robots in Human Environment**
  Khatib, O., Yokoi, K., Brock, O., Chang, K., S., Casal, A.
  1999
- **Collision/Contact Models for Dynamic Simulation and Haptic Interaction**
  Ruspini, D., Khatib, O.
  1999
- **Haptics for Virtual Prototyping** *Recent Advances in Mechatronics*
  Ruspini, D., Khatib, O.
  edited by Kaynak, O., Tosunoglu, S., Ang Jr, M.
  Springer.1999: 294–303
- **High-speed navigation using the global dynamic window approach** *International Conference on Robotics and Automation (ICRA '99)*
  Brock, O., Khatib, O.

IEEE.1999: 341–346

- **Modeling and learning robot manipulation strategies** *5th Intenational Symposium pm Experimental Robotics (ISER)*
  Liu, J. M., Tang, Y. Y., Khatib, O.
  SPRINGER-VERLAG LONDON LTD.1998: 687–700
- **Autonomous Robotic Systems**
  de Almeida, A., T.
  Springer-Verlag.1998
- **A general contact model for dynamically-decoupled force/motion control** *5th Intenational Symposium pm Experimental Robotics (ISER)*
  Featherstone, R., Sonck, S., Khatib, O.
  SPRINGER-VERLAG LONDON LTD.1998: 128–139
- **Dynamic models for haptic rendering systems** *6th International Symposium on Advances in Robot Kinematics*
  Ruspini, D., Khatib, O.
  SPRINGER.1998: 523–532
- **Executing motion plans for robots with many degrees of freedom in dynamic environments** *IEEE International Conference on Robotics and Automation*
  Brock, O., Khatib, O.
  IEEE.1998: 1–6
- **The motion isotropy hypersurface: A characterization of acceleration capability** *IEEE/RSJ International Conference on Intelligent Robots and Systems*
  Bowling, A., Khatib, O.
  IEEE.1998: 965–971
- **Cooperative tasks in mobile manipulation systems** *IFAC Workshop on Intelligent Components for Vehicles*
  Khatib, O., Yokoi, K., Casal, A.
  PERGAMON PRESS LTD.1998: 245–250
- **Haptics for Multi-Scale Virtual Prototyping**
  Ruspini, D., Khatib, O.
  1998
- **Mobile Manipulator System** *Autonomous Robotic Systems*
  Khatib, O.
  edited by de Almeida, A., T., Khatib, O.
  Springer-Verlag.1998: 141–148
- **Autonomous Robotic Systems**
  de Almeida, A., T.
  Springer-Verlag.1998
- **A general contact model for dynamically-decoupled force/motion control** *5th Intenational Symposium pm Experimental Robotics (ISER)*
  Featherstone, R., Sonck, S., Khatib, O.
  SPRINGER-VERLAG LONDON LTD.1998: 128–139
- **Dynamic models for haptic rendering systems** *6th International Symposium on Advances in Robot Kinematics*
  Ruspini, D., Khatib, O.
  SPRINGER.1998: 523–532
- **Executing motion plans for robots with many degrees of freedom in dynamic environments** *IEEE International Conference on Robotics and Automation*
  Brock, O., Khatib, O.
  IEEE.1998: 1–6
- **The motion isotropy hypersurface: A characterization of acceleration capability** *IEEE/RSJ International Conference on Intelligent Robots and Systems*
  Bowling, A., Khatib, O.

IEEE.1998: 965–971

- **Cooperative tasks in mobile manipulation systems** *IFAC Workshop on Intelligent Components for Vehicles*
  Khatib, O., Yokoi, K., Casal, A.
  PERGAMON PRESS LTD.1998: 245–250
- **Robot planning and control** *ROBOTICS AND AUTONOMOUS SYSTEMS*
  Khatib, O., Quinlan, S., Williams, D.
  1997; 21 (3): 249-261
- **Load independence of the dynamically consistent inverse of the Jacobian matrix** *INTERNATIONAL JOURNAL OF ROBOTICS RESEARCH*
  Featherstone, R., Khatib, O.
  1997; 16 (2): 168-170
- **Design of macro/mini manipulators for optimal dynamic performance** *1997 IEEE International Conference on Robotics and Automation (ICRA97) - Teaming to Make an Impact*
  Bowling, A., Khatib, O.
  IEEE.1997: 449–454
- **Elastic Strips: Real-Time Path Modification for Mobile Manipulation**
  Brock, O., Khatib, O.
  1997
- **The Stanford Robotic Platforms**
  Khatib, O., Yokoi, K., Chang, K., Casal, A.
  1997
- **Mobile Robotic Manipulation**
  Khatib, O.
  1997
- **Robot learning and planning based on discrete-event systems models**
  Liu, J., Khatib, O., Tang, Y.
  1997
- **The Haptic Display of Complex Graphical Environments**
  Ruspini, D., Kolarov, K., Khatib, O.
  1997
- **Mobile Manipulators: Expending the Frontiers of Robot Applications**
  Khatib, O.
  1997
- **Experimental Robotics IV**
  Khatib, O., Salisbury Jr., J., K.
  1997
- **Load-Independence of the Dynamically-Consistent Inverse of the Jacobian Matrix** *International Journal of Robotics Research*
  Featherstone, R., Khatib, O.
  1997; 16 (2): 168–170
- **Design of non-redundant manipulators for optimal dynamic performance** *8th International Conference on Advanced Robotics (ICAR 97)*
  Bowling, A., Khatib, O.
  IEEE.1997: 865–872
- **Coordination and decentralized cooperation of multiple mobile manipulators** *2nd World Automation Congress (WAC 96)*
  Khatib, O., Yokoi, K., Chang, K., Ruspini, D., Holmberg, R., Casal, A.
  JOHN WILEY & SONS INC.1996: 755–64
- **The impact of redundancy on the dynamic performance of robots** *LABORATORY ROBOTICS AND AUTOMATION*
  Khatib, O.

1996; 8 (1): 37-48

- **The Robust Haptic Display of Graphical Environments**
  Ruspini, D., Kolarov, K., Khatib, O.
  1996
- **Design of Digital Adaptive Algorithm for Torque-Controlled Robotic Joints**
  Abdel-Magid, Y., Khatib, O.
  1996
- **Force Strategies for Cooperative Tasks in Multiple Mobile Manipulation Systems**
  Khatib, O., Yokoi, K., Chang, K., Ruspini, D., Holmberg, R., Casal, A.
  edited by Giralt, G., Hirzinger, G.
  1996
- **An Operational Space Formulation for Free-Flying, Multi-Arm Space Robot**
  Russakow, J., Rock, S., Khatib, O.
  1996
- **The Robotic Assistant**
  Khatib, O., Yokoi, K., Chang, K., Ruspini, D., Holmberg, R., Casal, A.
  1996
- **Wrist Force Sensor Feedback for Improved Actuation Performance in Conventional Arms**
  Williams, D., Khatib, O.
  1996
- **Manipulator Design for Dynamic Performance**
  Khatib, O., Bowling, A.
  1996
- **Cooperative Tasks in Multiple Mobile Manipulation Systems**
  Khatib, O., Yokoi, K., Chang, K., Ruspini, D., Holmberg, R., Casal, A.
  1996
- **Mobile Manipulator Systems**
  Khatib, O.
  1996
- **Decentralized Cooperation of Multiple Mobile Manipulators**
  Khatib, O., Yokoi, K., Chang, K., Ruspini, D., Holmberg, R., Casal, A.
  1996
- **Modular decomposition for optimal dynamic design of redundant macro/mini manipulators** *5th International Symposium on Advances in Robot Kinematics*
  Bowling, A., Khatib, O.
  KLUWER ACADEMIC PUBL.1996: 29–38
- **Haptic interaction in virtual environments** *1997 IEEE/RSJ International Conference on Intelligent Robot and Systems - Innovative Robotics for Real-World Applications (IROS 97)*
  RUSPINI, D. C., Kolarov, K., Khatib, O.
  IEEE.1996: 128–133
- **Vehicle/arm coordination and multiple mobile manipulator decentralized cooperation** *1996 IEEE/RSJ International Conference on Intelligent Robots and Systems - Robotic Intelligence Interacting with Dynamic Worlds (IROS 96)*
  Khatib, O., Yokoi, K., Chang, K., Ruspini, D., Holmberg, R., Casal, A.
  IEEE.1996: 546–553
- **Decentralized cooperation between multiple manipulators** *5th IEEE International Workshop on Robot and Human Communication (RO-MAN 96)*
  Khatib, O., Yokoi, K., Chang, K., Ruspini, D., Holmberg, R., Casal, A.
  I E E E.1996: 183–188

- **Design of a digital adaptive algorithm for torque-controlled robotic joints** *6th Cairo-University International MDP Conference - Current Advances in Mechanical Design and Production VI (MDP-6)*
  ABDELMAGID, Y., Khatib, O.
  PERGAMON PRESS LTD.1996: 461–468
- **Optimization of the inertial and acceleration characteristics of manipulators** *IEEE International Conference on Robotics and Automation*
  Khatib, O., Bowling, A.
  IEEE.1996: 2883–2889
- **DESIGN AND DEVELOPMENT OF HIGH-PERFORMANCE TORQUE-CONTROLLED JOINTS** *IEEE TRANSACTIONS ON ROBOTICS AND AUTOMATION*
  VISCHER, D., Khatib, O.
  1995; 11 (4): 537-544
- **INERTIAL PROPERTIES IN ROBOTIC MANIPULATION - AN OBJECT-LEVEL FRAMEWORK** *INTERNATIONAL JOURNAL OF ROBOTICS RESEARCH*
  Khatib, O.
  1995; 14 (1): 19-36
- **Extended operational space formulation for serial-to-parallel chain (branching) manipulators** *1995 IEEE International Conference on Robotics and Automation*
  RUSSAKOW, J., Khatib, O., Rock, S. M.
  I E E E.1995: 1056–1061
- **Analysis of the Acceleration Characteristics of Manipulators.**
  Bowling, A., Khatib, O.
  edited by Morecki, A., Bianchi, G., Jaworek, K.
  1995
- **Extended Operational Space Formulation for Serialto-parallel Chain (Branching) Manipulators**
  Russakow, J., Khatib, O., Rock, S.
  1995
- **Improved Force Control for Conventional Arms Using Wrist- Based Torque Feedback**
  Williams, D., Khatib, O.
  1995
- **An Operational Space Formulation for Free-Flying, Multi-Arm Space Robot**
  Russakow, J., Rock, S., Khatib, O.
  1995
- **Design and Development of High Performance Torque Controlled Joints** *IEEE Transactions on Robotics and Automation*
  Vischer, D., Khatib, O.
  1995; 11 (4): 537-544
- **Mobile robotic manipulation** *26th International Symposium on Industrial Robots - Competitive Automation: New Frontiers, New Opportunities*
  Khatib, O.
  MECHANICAL ENGINEERING PUBL.1995: 7–12
- **Analysis of the acceleration characteristics of non-redundant manipulators** *1995 IEEE/RSJ International Conference on Intelligent Robots and Systems - Human Robot Interaction and Cooperative Robots*
  Bowling, A., Khatib, O.
  I E E E, COMPUTER SOC PRESS.1995: 323–328
- **Optimization of the inertial and acceleration characteristics of non-redundant manipulators** *3rd Conference on Mechatronics and Robotics - From Design Methods to Industrial Applications*
  Khatib, O., Bowling, A. B.
  B G TEUBNER VERLAGS GESELL.1995: 500–510
- **Manipulator control at kinematic singularities: A dynamically consistent strategy** *1995 IEEE/RSJ International Conference on Intelligent Robots and Systems - Human Robot Interaction and Cooperative Robots*

Chang, K. S., Khatib, O.
I E E E, COMPUTER SOC PRESS.1995: 84–88

- **Improved Force Control for Conventional Arms Using Wrist- Based Torque Feedback**
  Williams, D., Khatib, O.
  1995
- **An Operational Space Formulation for Free-Flying, Multi-Arm Space Robot**
  Russakow, J., Rock, S., Khatib, O.
  1995
- **Design and Development of High Performance Torque Controlled Joints** *IEEE Transactions on Robotics and Automation*
  Vischer, D., Khatib, O.
  1995; 11 (4): 537-544
- **Mobile robotic manipulation** *26th International Symposium on Industrial Robots - Competitive Automation: New Frontiers, New Opportunities*
  Khatib, O.
  MECHANICAL ENGINEERING PUBL.1995: 7–12
- **Analysis of the acceleration characteristics of non-redundant manipulators** *1995 IEEE/RSJ International Conference on Intelligent Robots and Systems - Human Robot Interaction and Cooperative Robots*
  Bowling, A., Khatib, O.
  I E E E, COMPUTER SOC PRESS.1995: 323–328
- **Optimization of the inertial and acceleration characteristics of non-redundant manipulators** *3rd Conference on Mechatronics and Robotics - From Design Methods to Industrial Applications*
  Khatib, O., Bowling, A. B.
  B G TEUBNER VERLAGS GESELL.1995: 500–510
- **Manipulator control at kinematic singularities: A dynamically consistent strategy** *1995 IEEE/RSJ International Conference on Intelligent Robots and Systems - Human Robot Interaction and Cooperative Robots*
  Chang, K. S., Khatib, O.
  I E E E, COMPUTER SOC PRESS.1995: 84–88
- **DYNAMIC SIMULATION OF INTERACTIVE ROBOTIC ENVIRONMENT** *1994 IEEE International Conference on Robotics and Automation*
  Lee, P. U., RUSPINI, D. C., Khatib, O.
  IEEE COMPUTER SOC.1994: 1147–1152
- **Real-Time Motion Vision for Robot Control in Unstructured Environment.**
  Woodfill, J., Zabih, R., Khatib, O.
  edited by Demsetz, L., Klarer, P.
  1994
- **Dynamically Consistent Strategy for Manipulator Control at Singularities.**
  Chang, K., S., Khatib, O.
  1994
- **Towards Integrated Planning and Control**
  Khatib, O.
  1994
- **Experiments in Multi-Grasp Manipulation.**
  Williams, D., Khatib, O.
  edited by Hayward, V.
  1994
- **Experiments with Dynamic Skills.**
  Arai, H., Khatib, O.
  1994

- **Experiments in Multi-Grasp Manipulation.**
  Williams, D., Khatib, O.
  edited by Yoshikawa, T.
  1994
- **A Framework for Task-Level Robotics Manipulation**
  Khatib, O.
  edited by Kanade, T., Paul, R.
  1994
- **Robotic Manipulation**
  Khatib, O., Williams, D., Quinlan, S., Ruspini, D., Holmberg, R., Chang, K.
  1994
- **Cooperative Mobile Robotic Manipulation**
  Khatib, O.
  1994
- **Modeling and Control of Internal Force Dynamics in Multi-Grasp Manipulation.**
  Williams, D., Khatib, O.
  edited by Jamshidl, M., Nauyen, C., Lumia, R.
  1994
- **Sensor-Based Robotic Manipulation**
  Khatib, O.
  1994
- **A DYNAMICALLY CONSISTENT STRATEGY FOR MANIPULATOR CONTROL AT SINGULARITIES** *4th Workshop on Advances in Robot Kinematics/1st Workshop on Computational Geometry in Kinematics*
  Chang, K. S., Khatib, O.
  SPRINGER.1994: 221–228
- **THE OPERATIONAL SPACE FRAMEWORK** *JSME INTERNATIONAL JOURNAL SERIES C-MECHANICAL SYSTEMS MACHINE ELEMENTS AND MANUFACTURING*
  Khatib, O.
  1993; 36 (3): 277-287
- **Towards Real-Time Execution of Motion Tasks**
  Quinlan, S., Khatib, O.
  edited by Chatila, R., Hirzinger, G.
  1993
- **ELASTIC BANDS - CONNECTING PATH PLANNING AND CONTROL** *1993 IEEE INTERNATIONAL CONF ON ROBOTICS AND AUTOMATION*
  Quinlan, S., Khatib, O.
  I E E E, COMPUTER SOC PRESS.1993: B802–B807
- **A New Actuation System for High-Performance Torque-Controlled Manipulators**
  Holmberg, R., Dickert, S., Khatib, O.
  edited by Morecki, A., Bianchi, G., Jaworek, K.
  1993
- **A Task-Level Framework for Robotics Manipulation.**
  Khatib, O.
  1993
- **missing title**
  edited by Khatib, O., Hayward, V., Chatila, R.
  1993

- **Mobile Robotic Manipulation.**
  Khatib, O.
  1993
- **Towards Real-Time Execution of Motion Tasks**
  Quinlan, S., Khatib, O.
  edited by Hayward, V., Chatila, R.
  1993
- **The Virtual Linkage: A Model for Internal Forces in Multi-Grasp Manipulation.**
  Williams, D., Khatib, O.
  1993
- **A Unified Approach to Motion and Force Control of Robot Manipulators: The Operational Space Formulation** *Robot Control: Dynamics, tionPlanning and Analysis*
  Khatib, O.
  edited by Spong, M., W., Lewis, F., L., Abdallah, C., T.
  IEEE Press.1993: 277–287
- **Design and Development of Torque-Controlled Joints**
  Vischer, D., Khatib, O.
  edited by Khatib, O., Hayward, V., Chatila, R.
  1993
- **A Framework for Task-Level Robotics Manipulation**
  Khatib, O.
  edited by Kanade, T., Paul, R.
  1993
- **Elastic Bands: Connecting Path Planning and Robot Control.**
  Quinlan, S., Khatib, O.
  1993
- **Robotics Review 2**
  Khatib, O., Craig, J., Lozano-Perez, T.
  MIT Press.1992
- **Inertial Properties in Robotics Manipulation** *Department of Computer Science*
  Khatib, O.
  1992
- **A New Control Structure for Free-Flying Space Robots.**
  Russakow, J., Khatib, O.
  1992
- **Characterization of Internal Forces in Multi-Grasp Manipulation.**
  Williams, D., Khatib, O.
  1992
- **Towards a New Generation of Force-Controlled Robot Manipulators**
  Khatib, O.
  1991
- **The Design of a High-Performance Force-Controlled Manipulator**
  Khatib, O., Roth, B., Waldron, K.
  1991
- **New Robot Mechanisms for New Robot Capabilities**
  Khatib, O., Roth, B.

1991

- **Real-Time Obstacle Avoidance for Manipulators and Mobile Robots** *Autonomous Mobile Robots: Perception, Mapping, and Navigation*
  Khatib, O.
  edited by Iyengar, S., S., Elfes, A.
  IEEE Computer Society Press.1991: 428–436
- **Performance Evaluation of Force/Torque Feedback Control Methodologies**
  Vischer, D., Khatib, O.
  1990
- **Motion/Force Redundancy of Manipulators**
  Khatib, O.
  1990
- **Object Level Manipulation**
  Khatib, O.
  1990
- **Design and Construction of Torque-Controlled Joints**
  Vischer, D., Khatib, O.
  edited by Hayward, V., Khatib, O.
  1990
- **Experimental Robotics I**
  Hayward, V., Khatib, O.
  1990
- **Real-Time Obstacle Avoidance for Manipulators and Mobile Robots** *Autonomous Robot Vehicles*
  Khatib, O.
  edited by Cox, I., Wilfong, G.
  Springer-Verlag Berlin Heidelberg.1990: 389–404
- **Reduced Effective Inertia in Macro-/Mini-Manipulator Systems**
  Khatib, O.
  1990
- **JOINT TORQUE SENSORY FEEDBACK IN THE CONTROL OF A PUMA MANIPULATOR** *IEEE TRANSACTIONS ON ROBOTICS AND AUTOMATION*
  PFEFFER, L. E., Khatib, O., Hake, J.
  1989; 5 (4): 418-425
- **The Robotics Review 1**
  Khatib, O., Craig, J., Lozano-Perez, T.
  MIT Press.1989
- **Dynamic Control of Multi-Structure Robot Systems at the Manipulated Object Level**
  Khatib, O.
  edited by Kabil, Y., Said, M.
  1989
- **Isotropic and Uniform Inertial and Acceleration Characteristics: Issues in the Design of Manipulators**
  Khatib, O., Agrawal, S.
  edited by Schweitzer, G., Mansour, M.
  1989
- **OBJECT LOCALIZATION WITH MULTIPLE SENSORS** *INTERNATIONAL JOURNAL OF ROBOTICS RESEARCH*
  Shekhar, S., Khatib, O., Shimojo, M.
  1988; 7 (6): 34-44

- **Kinematic Structure for a Force Controlled Redundant Manipulator**
  Roth, B., Raghavan, M., Khatib, O., Waldron, K.
  1988
- **The Augmented Object and Reduced Effective Inertia in Robot Systems**
  Khatib, O.
  1988
- **Force-Based Motion Control of Robot Manipulators**
  Khatib, O.
  1988
- **Robust Operational Space Control for Goal Positioned Manipulator Tasks** *International Journal of Robotics and Automation*
  Slotine, J., J., Khatib, O., Ruth, D.
  1988; 3 (1): 28-34
- **Inertial Characteristics and Dextrous Dynamic Coordination of Macro/Micro-Manipulator Systems**
  Khatib, O.
  1988
- **Object Manipulation in a Multi-Effector Robot System**
  Khatib, O.
  1988
- **A UNIFIED APPROACH FOR MOTION AND FORCE CONTROL OF ROBOT MANIPULATORS - THE OPERATIONAL SPACE FORMULATION** *IEEE JOURNAL OF ROBOTICS AND AUTOMATION*
  Khatib, O.
  1987; 3 (1): 43-53
- **A Unified Approach to Motion and Force Control of Robot Manipulators: The Operational Space Formulation** *IEEE Journal on Robotics and Automation*
  Khatib, O.
  1987; 3 (1): 43-53
- **Redundant Manipulators and Kinematic Singularities: The Operational Space Approach**
  Khatib, O.
  edited by Morecki, A., Binachi, G., Kedzior, K.
  1987
- **Sensor-Based Robot Control**
  Burdick, J., Fearing, R., Khatib, O., Pfeffer, L., Shekhar, S.
  1987
- **Optimization of Dynamics in Manipulator Design: The Operational Space Formulation** *International Journal of Robotics and Automation*
  Khatib, O., Burdick, J.
  1987; 2 (2): 90-98
- **Force Control of Robot Manipulators**
  Khatib, O., Burdick, J.
  1987
- **Robust Operational Space Control for Goal Positioned Manipulator Tasks**
  Slotine, J., J., Khatib, O., Ruth, D.
  1987
- **Force Strategies in Real-Time Fine Motion Assembly**
  Shekhar, S., Khatib, O.
  1987
- **REAL-TIME OBSTACLE AVOIDANCE FOR MANIPULATORS AND MOBILE ROBOTS** *INTERNATIONAL JOURNAL OF ROBOTICS RESEARCH*

Khatib, O.
1986; 5 (1): 90-98

- **Joint Torque Sensory Feedback in the Control of a PUMA Manipulator**
  Pfeffer, L., Khatib, O., Hake, J.
  1986
- **Robot Manipulator Control in Operational Space**
  Khatib, O.
  1986
- **Active Force Control**
  Khatib, O., Burdick, J.
  1986
- **Sensor Fusion and Object Localization**
  Shekhar, S., Khatib, O., Shimojo, M.
  1986
- **The Explicit Dynamic Model and Inertial Parameters of the PUMA 560 Arm**
  Armstrong, B., Khatib, O., Burdick, J.
  1986
- **Constrained Motion and Redundancy in Robot Manipulator Control**
  Khatib, O.
  1986
- **The Operational Space Formulation in the Analysis, Design, and Control of Manipulators**
  Khatib, O.
  1986
- **The Potential Field Approach and Operational Space Formulation in Robot Control** *Adaptive and Learning Systems: Theory and Applications*
  Khatib, O.
  edited by Narendra, K., S.
  Plenum Press.1986: 367–377
- **Motion and Force Control of Robot Manipulators**
  Khatib, O., Burdick, J.
  1986
- **Force Control Research at Stanford** *Intelligent Task Automation Interim Report, Honeywell Inc., Technology Strategy Center*
  Burdick, J., Khatib, O.
  1985: 6/33-6/42
- **The Operational Space Formulation in Robot Manipulator Control**
  Khatib, O.
  1985
- **Dynamic Optimization in Manipulator Design: The Operational Space Formulation**
  Khatib, O., Burdick, J.
  edited by Donath, M., Leu, M.
  1985
- **Real-Time Obstacle Avoidance for Manipulators and Mobile Robots**
  Khatib, O.
  1985
- **Robotics in Three Acts - Part II**
  Khatib, O., Burdick, J., Armstrong, B.
  1985

- **The Potential Field Approach and Operational Space Formulation in Robot Control**
  Khatib, O.
  1985
- **COSMOS Control System** *Intelligent Task Automation Interim Report, Honeywell Inc., Technology Strategy Center*
  Burdick, J., Khatib, O.
  1984: 6/10-18
- **Real-Time Control of Manipulators in Operational Space**
  Khatib, O.
  1984
- **Force Control Implementation in COSMOS** *Intelligent Task Automation Interim Report, Honeywell Inc., Technology Strategy Center*
  Burdick, J., Khatib, O.
  1984: 6/9-6/13
- **Robotics in Three Acts**
  Burdick, J., Craig, J., Fearing, R., Khatib, O., Salisbury, K.
  1984
- **Dynamic Control of Manipulators in Operational Space**
  Khatib, O.
  1983
- **Cartesian Path Planning and Estimation** *Intelligent Task Automation Interim Report, Honeywell Inc., Technology Strategy Center*
  Burdick, J., Khatib, O.
  1983: 5/59-5/83
- **Stanford's Contribution to Active Force Control for ITA** *Intelligent Task Automation Interim Report, Honeywell Inc., Technology Strategy Center*
  Craig, J., Khatib, O., Burdick, J.
  1983: 5/50-5/59
- **Dynamic Control of Manipulators Operating in a Complex Environment**
  Khatib, O., Maitre, J., F. Le
  1978
- **Fonction D´ecision-Commande d'un Robot Industriel** *Rapport Principal, DERA-CERT*
  Gallaire, H., Khatib, O., Lasserre, C., Llibre, M., Mampey, R.
  1978
- **Fonction D´ecision-Commande d'un Robot Manipulateur** *Rapport Scientifique, DERA-CERT*
  Khatib, O., Llibre, M., Mampey, R.
  1978
- **Circular Pulley vs. Variable Radius Pulley: Optimal Design Methodologies and Dynamic Characteristics Analysis.** *IEEE Transactions on Robotics, TRO 12-0331 (in print).*
  Shin, D., J., Yeh, X., Khatib, O.