



Oussama Khatib

Weichai Professor and Professor, by courtesy, of Electrical Engineering
Computer Science

CONTACT INFORMATION

- **Administrator**

Maria L. David - Administrative Associate

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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
- Professor (By courtesy), Electrical Engineering
- Member, Bio-X
- Faculty Affiliate, Institute for Human-Centered Artificial Intelligence (HAI)
- 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

2021-22

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

2020-21

- Advanced Robotic Manipulation: CS 327A (Spr)
- Experimental Robotics: CS 225A (Aut, Spr)
- Introduction to Robotics: CS 223A (Win)

2019-20

- Advanced Robotic Manipulation: CS 327A (Spr)
- Experimental Robotics: CS 225A (Spr)
- Introduction to Robotics: CS 223A, ME 320 (Win)

2018-19

- Advanced Robotic Manipulation: CS 327A (Spr)
- Experimental Robotics: CS 225A (Spr)
- Introduction to Robotics: CS 223A, ME 320 (Win)

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Cynthia Brosque, Rui Liu

Doctoral Dissertation Advisor (AC)

William Chong, Elena Galbally Herrero, Wesley Guo, Bo Kim, Adrian Piedra

Master's Program Advisor

D M Raisul Ahsan, Ruta Joshi, Eric Kam, Tassica Lim, Sam Lowe, Mandy Lu, Jian Vora, Yuchen Wang, Melanie Zhang

Publications

PUBLICATIONS

- **Editorial** *INTERNATIONAL JOURNAL OF SOCIAL ROBOTICS*
Ge, S., Wykowska, A., Khatib, O.
2021
- **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
- **Controlling Muscle-Actuated Articulated Bodies in Operational Space**
Menon, S., Migimatsu, T., Khatib, O., 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, Howard, A., Althoefer, K., Arai, F., Arrichiello, F., Caputo, B., Castellanos, J., Hauser, K., Isler, Kim, J., Liu, et al
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)

- **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. A., Khatib, O., Knoll, A.
2018; 61: 323–62
- **A hierarchically patterned, bioinspired e-skin able to detect the direction of applied pressure for robotics.** *Science robotics*
Boutry, C. M., Negre, M. n., Jorda, M. n., Vardoulis, O. n., Chortos, A. n., Khatib, O. n., Bao, Z. n.
2018; 3 (24)
- **Kinematic Analysis of the Delthaptic, a New 6-DOF Haptic Device** *ADVANCES IN ROBOT KINEMATICS 2016*
Vulliez, M., Zeghloul, S., Khatib, O., Lenarcic, J., Merlet, J. P.
2018; 4: 181–89
- **Editorial** *INTERNATIONAL JOURNAL OF SOCIAL ROBOTICS*
Ge, S., Khatib, O.
2018; 10 (1): 1–3
- **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.
- **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., 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., 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., 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., 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-Related 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 Control, 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.**
Kriger, 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*
Philippesen, 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 (SIMPAN)*
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
- **Modeling and Control of Multi-Contact Centers of Pressure and Internal Forces in Humanoid Robots.**
Sentis, L., Park, J., Khatib, O.
2009
- **Reconstruction and EMG-Informed Control**
Demircan, E., Khatib, O., Wheeler, J., Delp, S.
2009
- **Experimental Robotics: The Eleventh International Symposium**
edited by Khatib, V., Kumar
2009
- **Large Scale Multi-Robot Coordination Under Network and Geographical Constraints**
Sentis, L., Mintz, M., Ayyagari, A., Battles, C., Ying, S., Khatib, O.
2009
- **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
- **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*
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