

Stanford



J Kenneth Salisbury, Jr.

Professor (Research) of Computer Science and of Surgery (Anatomy),
Emeritus

CONTACT INFORMATION

- **Alternate Contact**

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Bio

BIO

Salisbury worked on the development of the Stanford-JPL Robot Hand, the JPL Force Reflecting Hand Controller, the MIT-WAM arm, the PR-2 personal robot and the da Vinci Surgical Robot. His work with haptic interface technology led to the founding of SensAble Technology, producers of the PHANTOM haptic interface and software. He also worked on developing telerobotic systems for dexterity enhancement in the operating room. His current research focuses on minimalist force controllable robots, human-machine interaction, cooperative haptics, medical robotics, and surgical simulation.

ACADEMIC APPOINTMENTS

- Emeritus Faculty, Acad Council, Computer Science
- Member, Bio-X

PROFESSIONAL EDUCATION

- PhD, Stanford University , Mechanical Engineering (1982)
- MS, Stanford University , Mechanical Engineering (1977)
- BS, Stanford University , Electrical Engineering (1975)

Publications

PUBLICATIONS

- **Tactile-Reactive Roller Grasper** *IEEE TRANSACTIONS ON ROBOTICS*
Yuan, S., Wang, S., Patel, R., Tippur, M., Yako, C. L., Cutkosky, M. R., Adelson, E., Salisbury, J.
2025; 41: 1938-1955
- **Design and Control of Roller Grasper V3 for In-Hand Manipulation** *IEEE TRANSACTIONS ON ROBOTICS*
Yuan, S., Shao, L., Feng, Y., Sun, J., Xue, T., Yako, C. L., Bohg, J., Salisbury, J.
2024; 40: 4222-4234
- **Designing Underactuated Graspers with Dynamically Variable Geometry Using Potential Energy Map Based Analysis**
Yako, C. L., Yuan, S., Salisbury, J., IEEE
IEEE.2022: 4638-4645

- **Towards Human Haptic Gesture Interpretation for Robotic Systems**
Bianchini, B., Verma, P., Salisbury, J., IEEE
IEEE.2021: 7334-7341
- **Design and Control of Roller Grasper V2 for In-Hand Manipulation**
Yuan, S., Shao, L., Yako, C. L., Gruebele, A., Salisbury, J., IEEE
IEEE.2020: 9151-9158
- **Design of a Roller-Based Dexterous Hand for Object Grasping and Within-Hand Manipulation**
Yuan, S., Epps, A. D., Nowak, J. B., Salisbury, J., IEEE
IEEE.2020: 8870-8876
- **Mechatronic design of an integrated robotic hand** *INTERNATIONAL JOURNAL OF ROBOTICS RESEARCH*
Quigley, M., Salisbury, C., Ng, A. Y., Salisbury, J. K.
2014; 33 (5): 706-720
- **High-Fidelity, Inexpensive Surgical Middle Ear Simulator** *OTOLOGY & NEUROTOLOGY*
Monfared, A., Mitteramskogler, G., Gruber, S., Salisbury, J. K., Stampfl, J., Blevins, N. H.
2012; 33 (9): 1573-1577
- **What You Can't Feel Won't Hurt You: Evaluating Haptic Hardware Using a Haptic Contrast Sensitivity Function** *IEEE TRANSACTIONS ON HAPTICS*
Salisbury, C. M., Gillespie, R. B., Tan, H. Z., Barbagli, F., Salisbury, J. K.
2011; 4 (2): 134-146
- **A Friction Differential and Cable Transmission Design for a 3-DOF Haptic Device with Spherical Kinematics** *IEEE/RSJ International Conference on Intelligent Robots and Systems*
Brewer, R., Leeper, A., Salisbury, J. K.
IEEE.2011
- **Demonstrating the Benefits of Variable Impedance to Telerobotic Task Execution** *IEEE International Conference on Robotics and Automation (ICRA)*
Walker, D. S., Salisbury, J. K., Niemeyer, G.
IEEE.2011: 1348-1353
- **A virtual surgical environment for rehearsal of tympanomastoidectomy.** *Studies in health technology and informatics*
Chan, S., Li, P., Lee, D. H., Salisbury, J. K., Blevins, N. H.
2011; 163: 112-118
- **In Vivo Micro-Image Mosaicing** *IEEE TRANSACTIONS ON BIOMEDICAL ENGINEERING*
Loewke, K. E., Camarillo, D. B., Piyawattanametha, W., Mandella, M. J., Contag, C. H., Thrun, S., Salisbury, J. K.
2011; 58 (1): 159-171
- **Visual Vein-Finding for Robotic IV Insertion** *IEEE International Conference on Robotics and Automation (ICRA)*
Brewer, R. D., Salisbury, J. K.
IEEE.2010: 4597-4602
- **Reconstruction and exploration of virtual middle-ear models derived from Micro-CT datasets.** *Hearing Res.*
Lee, D. H., Chan, S., Salisbury, C., Kim, N., Salisbury, K., Puria, S.
2010; 1-2 (263): 198-203
- **Intelligent Road Sign Detection Using 3D Scene Geometry**
Schlosser, J., Montemerlo, M., Salisbury, K.
2010
- **Using Near-Field Stereo Vision for Robotic Grasping in Cluttered Environments**
Leeper, A., Hsiao, K., Chu, E., Salisbury, K.
2010
- **Laser Cutting Speeds Robotics Prototyping** *Product Design and Development*

Salisbury, K., Lee, S.
2010

- **Telerobotic System Concept for Real-Time Soft-Tissue Imaging During Radiotherapy Beam Delivery** *Med. Phys.*
Schlosser, J., Salisbury, K., Hristov, D.
2010; 37: 6357
- **Multi-DOF Equalization of Haptic Devices for Accurate Rendering at High Frequencies** *IEEE/RSJ International Conference on Intelligent Robots and Systems*
Wilson, R. P., Chan, S., Salisbury, J. K., Niemeyer, G.
IEEE.2010
- **Configuration Tracking for Continuum Manipulators With Coupled Tendon Drive** *IEEE TRANSACTIONS ON ROBOTICS*
Camarillo, D. B., Carlson, C. R., Salisbury, J. K.
2009; 25 (4): 798-808
- **Task-Space Control of Continuum Manipulators with Coupled Tendon Drive** *11th International Symposium on Experimental Robotics (ISER)*
Camarillo, D. B., Carlson, C. R., Salisbury, J. K.
SPRINGER-VERLAG BERLIN.2009: 271–280
- **Integration of Patient- Specific Paranasal Sinus Computed Tomographic Data Into a Virtual Surgical Environment** *American Journal of Rhinology & Allergy*
Parikh, Sachin, S., Chan, S., Agrawal, Sumit, K., Hwang, Peter, H., Salisbury, Curt, M., Rafii, Benjamin, Y.
OceanSide Publications, Inc..2009: 442–447
- **Effects of Haptic Device Attributes on Psychophysical Detection Thresholds of Sinusoidal Vibrations**
Salisbury, C., Gillespie, R., B., Tan, H., Barbagli, F., Kenneth, Salisbury, J.
2009
- **Effects of Haptic Device Attributes on Vibration Detection Thresholds** *3rd Joint EuroHaptics Conference Symposium on Haptic Interfaces for Virtual Environment and Teleoperator Systems*
Salisbury, C., Gillespie, R. B., Tan, H., Barbagli, F., Salisbury, J. K.
IEEE.2009: 115–120
- **Mechanics Modeling of Tendon-Driven Continuum Manipulators** *IEEE TRANSACTIONS ON ROBOTICS*
Camarillo, D. B., Milne, C. F., Carlson, C. R., Zinn, M. R., Salisbury, J. K.
2008; 24 (6): 1262-1273
- **Towards a personal robotics development platform: Rationale and design of an intrinsically safe personal robot** *IEEE International Conference on Robotics and Automation*
Wyrobek, K. A., Berger, E. H., Van der Loos, H. F., Salisbury, J. K.
IEEE.2008: 2165–2170
- **A Microsurgery-Specific Haptic Device for Telerobotic Medical Treatment**
Salisbury, C., Salisbury, K., Blevins, N., Gillespie, R.
2008
- **Voxel-Based Haptic Rendering Using Implicit Sphere Trees**
Ruffaldi, E., Morris, J., Barbagli, F., Salisbury, K., Bergamasco, M.
2008
- **Providing Metrics and Performance Feedback in a Surgical Simulator** *Computer Aided Surgery (2008)*
Sewell, C., Morris, D., Blevins, N., Dutta, S., Agrawal, S., Barbagli, F., Salisbury, J. K.
2008; 13 (2): 63–81
- **Real-Time Image Mosaicing with a Dual-Axes Confocal Microscope**
Loewke, K., Camarillo, D., Piyawattanametha, W., Salisbury, J., K.
2008
- **Automatic Preparation, Calibration, and Simulation of Deformable Objects** *Computer Methods in Biomechanics and Biomedical Engineering (Taylor & Francis Publishing)*

- Morris, D., Salisbury, J. K.
2008; 11 (4): 263–279
- **Force Control of a Permanent Magnet for Minimally-Invasive Procedures** *2nd Biennial IEEE RAS-EMBS International Conference on Biomedical Robotics and Biomechatronics (BioRob 2008)*
Brewer, R. D., Loewke, K. E., Duval, E. F., Salisbury, J. K.
IEEE.2008: 580–586
 - **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
 - **Vision based 3-D shape sensing of flexible manipulators** *IEEE International Conference on Robotics and Automation*
Camarillo, D. B., Loewke, K. E., Carlson, C. R., Salisbury, J. K.
IEEE.2008: 2940–2947
 - **Pushing using learned manipulation maps** *IEEE International Conference on Robotics and Automation*
Walker, S., Salisbury, J. K.
IEEE.2008: 3808–3813
 - **Difference-based Estimation of Support Friction** *IEEE/RSJ International Conference on Intelligent Robots and Systems*
Walker, S., Salisbury, J. K.
IEEE.2008: 59–64
 - **Real-Time Image Mosaicing for Medical Applications** *15th Conference on Medicine Meets Virtual Reality*
Loewke, K. E., Camarillo, D. B., Jobst, C. A., Salisbury, J. K.
I O S PRESS.2007: 304–309
 - **The Probabilistic Robotics Studio: Interactive Robot Programming**
Walker, S., Salisbury, K., J.
2007
 - **Haptic Feedback Enhances Force Skill Learning**
Morris, D., Tan, H., Barbagli, F., Chang, T., Salisbury, J. K.
2007
 - **Deformable Image Mosaicing for Optical Biopsy**
Loewke, K., Camarillo, D., Salisbury, J., K., Thrun, S.
2007
 - **An Optical Fiber Proximity Sensor for Haptic Exploration** *Robotics and Automation, 2007 IEEE International Conference on Robotics and Automation*
Walker, S., Loewke, K., Fischer, M., Liu, C., Salisbury, J., K.
2007: 473–478
 - **Validating Metrics for a Mastoidectomy Simulator** *15th Conference on Medicine Meets Virtual Reality*
Sewell, C., Morris, D., Blevins, N. H., Agrawal, S., Dutta, S., Barbagli, F., Salisbury, K.
I O S PRESS.2007: 421–426
 - **The Effect of Virtual Haptic Training on Real Surgical Drilling Proficiency**
Sewell, C., Blevins, N., H., Peddamatham, S., Tan, H., Z., Morris, D., Salisbury, K.
2007
 - **Evaluating Drilling and Suctioning Technique in a Mastoidectomy Simulator** *15th Conference on Medicine Meets Virtual Reality*
Sewell, C., Morris, D., Blevins, N. H., Barbagli, F., Salisbury, K.
I O S PRESS.2007: 427–432
 - **An optical fiber proximity sensor for haptic exploration** *IEEE International Conference on Robotics and Automation*
Walker, S., Loewke, K., Fischer, M., Liu, C., Salisbury, J. K.
IEEE.2007: 473–478

- **Stability of haptic rendering: Discretization, quantization, time delay, and Coulomb effects** *IEEE International Conference on Robotics and Automation (ICRA)*
Diolaiti, N., Niemeyer, G., Barbagli, F., Salisbury, J. K.
IEEE-INST ELECTRICAL ELECTRONICS ENGINEERS INC.2006: 256–68
- **Visuohaptic Simulation of Bone Surgery for Training and Evaluation** *IEEE Computer Graphics and Applications*
Morris, D., Sewell, C., Barbagli, F., Blevins, N., Girod, S., Salisbury, K.
2006; 26 (4): 48–57
- **A Limit-Curve Based Soft Finger god-object Algorithm**
Frisoli, A., Barbagli, F., Ruffaldi, E., Salisbury, K., Bergamasco, M.
2006
- **Virtual 3D Planning and Guidance of Mandibular Distraction Osteogenesis** *Computer Aided Surgery*
Meehan, M., Morris, D., Maurer, C., R., Antony, A., K., Barbagli, F., Salisbury, K.
2006; 2 (11): 51-62
- **Haptic Discrimination of Force Direction and the Influence of Visual Information** *ACM Transactions on Applied Perception*
Barbagli, F., Salisbury, K., Ho, C., Spence, C., Tan, H.
2006; 3 (2): 125–135
- **Isotropy and Visual Modulation of Haptic Force Direction Discrimination on the Human Finger**
Ho, C., Tan, H., Z., Barbagli, F., Salisbury, K., Spence, C.
2006
- **Haptically Annotated Movies: Reaching Out and Touching the Silver Screen**
Gaw, D., Morris, D., Salisbury, K.
2006
- **A Limit-Curve Based Soft Finger god-object Algorithm**
Frisoli, A., Barbagli, F., Ruffaldi, E., Salisbury, K., Bergamasco, M.
2006
- **Virtual 3D Planning and Guidance of Mandibular Distraction Osteogenesis** *Computer Aided Surgery*
Meehan, M., Morris, D., Maurer, C., R., Antony, A., K., Barbagli, F., Salisbury, K.
2006; 2 (11): 51-62
- **The effect of quantization and Coulomb friction on the stability of haptic rendering** *1st Joint Eurohaptics Conference/Symposium on Haptic Interfaces for Virtual Environment and Teleoperator Systems*
Diolaiti, N., Niemeyer, G., Barbagli, F., Salisbury, J. K., Melchiorri, C.
IEEE COMPUTER SOC.2005: 237–246
- **A Multirate Approach to Haptic Interaction with Deformable Objects Single and Multipoint Contacts**
Barbagli, F., Prattichizzo, D., Salisbury, K.
2005
- **Multi-Point Interaction in Robotics and Virtual-Reality, Springer-Verlag in their STAR (Springer Tracts on Advanced Robotics) series**
edited by Barbagli, F., Salisbury, K., Prattichizzo, D.
Springer Verlag.2005
- **Multi-point Interaction with Real and Virtual Objects** *Springer Tracts in Advanced Robotics*
edited by Barbagli, F., Prattichizzo, D., Salisbury, K.
2005; 18
- **An Interactive Simulation Environment for Craniofacial Surgical Procedures**
Morris, D., Girod, S., Barbagli, F., Salisbury, K.
2005
- **Force-feedback in Craniofacial Surgery Simulation**
Morris, D., Girod, S., Barbagli, F., Salisbury, K.

2005

- **Quantifying Risky Behavior in Surgical Simulation** *13th Conference on Medicine Meets Virtual Reality*
Sewell, C., Morris, D., Blevins, N., Barbagli, F., Salisbury, K.
I O S PRESS.2005: 451–457
- **A criterion for the passivity of haptic devices** *IEEE International Conference on Robotics and Automation (ICRA)*
Diolaiti, N., Niemeyer, G., Barbagli, F., Salisbury, J. K.
IEEE.2005: 2452–2457
- **Robotic technology in surgery: past, present, and future** *AMERICAN JOURNAL OF SURGERY*
Camarillo, D. B., Krummel, T. M., Salisbury, J. K.
2004; 188 (4A): 2S-15S
- **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
- **An event-driven framework for the simulation of complex surgical procedures** *7th International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI 2004)*
Sewell, C., Morris, D., Blevins, N., Barbagli, F., Salisbury, K.
SPRINGER-VERLAG BERLIN.2004: 346–354
- **Haptic Rendering: Beyond Visual Computing**
edited by Lin, Srinivasan
2004
- **Evaluating Haptics and Haptic Virtual Environments and their Applications (HAVE 2004), Ottawa**
Chun, K., Verplank, B., Barbagli, F., Salisbury, K.
2004
- **A Collaborative Virtual Environment for the Simulation of Temporal Bone Surgery**
Morris, D., Sewell, C., Blevins, N., Barbagli, F., Salisbury, K.
2004
- **Simulating Human Fingers: a Soft Finger Proxy Model and Algorithm**
Barbagli, F., Frisoli, A., Salisbury, K., Bergamasco, M.
2004
- **New Actuation Approach for Human-friendly Robot Design** *International Journal of Robotics Research*
Zinn, M., Khatib, O., Roth, B., Salisbury, J. K.
2004; 4/5 (23): 379–398
- **Haptic Rendering: Introductory Concepts** *in Haptic Rendering: Beyond Visual Computing, Special Issue of IEEE Computer Graphics and Applications*
Salisbury, K. J., Conti, F., Barbagli, F.
2004; 24 (2): 24–32
- **Training the Cognitive and Stylistic Aspects of Surgery Through Simulation**
Sewell, C., Morris, D., Blevins, N., Barbagli, F., Salisbury, K.
2004
- **Toward Virtual Manipulation: From One Point of Contact to Four** *Sensor Review (special issue on Haptic Devices)*
Barbagli, F., Devengenzo, R., Salisbury, K.
2004; 24 (1): 51–59

- **A collaborative virtual environment for the simulation of temporal bone surgery** *7th International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI 2004)*
Morris, D., Sewell, C., Blevins, N., Barbagli, F., Salisbury, K.
SPRINGER-VERLAG BERLIN.2004: 319–327
- **A Collaborative Virtual Environment for the Simulation of Temporal Bone Surgery**
Morris, D., Sewell, C., Blevins, N., Barbagli, F., Salisbury, K.
2004
- **An Event-Driven Framework for the Simulation of Complex Surgical Procedures**
Sewell, C., Morris, D., Blevins, N., Barbagli, F., Salisbury, K.
2004
- **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
- **Enabling Multi-finger, Multi-hand Virtualized Grasping**
Barbagli, F., Salisbury, K., Devengenzo, R.
2003
- **Toward Virtual Manipulation: From One Point of Contact to Four**
Barbagli, F., Devengenzo, R., Salisbury, K.
2003
- **The CHAI Libraries**
Conti, F., Barbagli, F., Balaniuk, R., Halg, M., Lu, C., L., D., Morris, Salisbury, J. K.
2003
- **Dynamic Local Models for Stable Multi-Contact Haptic Interaction with Deformable Objects**
Barbagli, F., Prattichizzo, D., Salisbury, K.
2003
- **Soft-Tissue Simulation Using the Radial Elements Method**
Balaniuk, R., Salisbury, K.
edited by Ayache, N., Delingette, H.
2003
- **Haptic Interaction to Simulate Complex Surgical Procedures**
Sewell, C., Salisbury, K., Barbagli, F., Krummel, T., Latombe, J., C.
2003
- **Phantom-X**
Gretarsdottir, U., Barbagli, F., Salisbury, K.
2003
- **The Effect of Sensor/Actuator Asymmetries in Haptic Interfaces**
Barbagli, F., Salisbury, K.
2003
- **Large Haptic Topographic Maps: MarsView and the Proxy Graph Algorithm**
Walker, S. P., Salisbury, K., J.
2003
- **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
- **Dynamic Simulation of Deformable Objects Using the Long Elements Method**

- Balaniuk, R., Salisbury, K.
2002
- **Multirate analysis of Haptic Interaction Stability with Deformable Objects**
Barbagli, F., Prattichizzo, D., Salisbury, K.
2002
 - **LEM - An Approach for Real Time Physically Based Soft Tissue Simulation.**
Costa, I., Balaniuk, R., Balaniuk, R.
2001
 - **Comparison of three high-end endoscopic visualization systems on telesurgical performance** *3rd International Conference on Medical Image Computing and Computer-Assisted Intervention*
Mintz, D., Falk, V., Salisbury, J. K.
SPRINGER-VERLAG BERLIN.2000: 385–394
 - **Optimized Port Placement for the Totally Endoscopic Coronary Artery Bypass Grafting using the da Vinci Robotic System**
Coste-Manire, E., Adhami, L., Severac-Bastide, R., Lobontiu, A., Salisbury, K., Boissonnat, J.
2000
 - **The Intuitive Telesurgery System: Overview and Application**
Guthart, G., S., Salisbury, K., J.
2000
 - **Telerobotically Enhanced Surgical Dexterity**
Salisbury, K., J.
2000
 - **In vivo mechanical tissue property measurement for improved simulations**
Ottensmeyer, M., P., Salisbury, K., J.
edited by Suresh, R., Pien, H., H.
2000
 - **Input and Output for Surgical Simulation: Devices to Measure Tissue Properties in vivo and a Haptic Interface for Laparoscopy Simulators**
Ottensmeyer, Mark, P., Ela, B., Salisbury, K., J.
2000
 - **Development of a 5-DOF force feedback laparoscopic interface for simulation and telesurgery**
Ben-Ur, E., Salisbury, K., J.
edited by Suresh, R., Pien, H., H.
2000
 - **Macro-micro control to improve bilateral force-reflecting teleoperation** *6th International Symposium on Experimental Robotics*
Madhani, A. J., Niemeyer, G., Salisbury, J. K.
SPRINGER-VERLAG LONDON LTD.2000: 413–422
 - **Making Graphics Physically Tangible** *Making Graphics Physically Tangible*
Salisbury, K., J
1999; 42 (8): 75–81
 - **Dexterity Enhancement in Endoscopic Surgery by a Computer Controlled Mechanical Wrist** *Min Inv Therapy & Allied Technology*
Falk, V., McLoughlin, J., Guthart, G., Salisbury, K., Walther, T., Gummert, J.
1999; 4 (8): 235–242
 - **Proceedings of the Fourth PHANTOM Users Group Workshop**
edited by Salisbury, Srinivasan, J. K.
1999
 - **Touching and Being Touched: Robot Hands, Arms and Haptic Interfaces**
Salisbury, K., J.

1999

- **Obstacle Negotiation in Robotic Excavation**

Hong, W., J., Salisbury, K., J.

1999

- **Design and Clinical Experience with Teleoperated Minimally Invasive Surgical Robots**

Madhani, Akhil, J., Niemeyer, G., Salisbury, K., J.

1999

- **The Black Falcon: A teleoperated surgical instrument for minimally invasive surgery** *IEEE/RSJ International Conference on Intelligent Robots and Systems*

Madhani, A. J., Niemeyer, G., Salisbury, J. K.

IEEE.1998: 936–944

- **Touching and Being Touched: Robot Hands, Arms and Haptic Interfaces**

Salisbury, K., J.

1998

- **Touching and Being Touched: Robot Hands, Arms and Haptic Interfaces**

Salisbury, K., J.

1998

- **The heart of microsurgery** *Mechanical Engineering Magazine*

Salisbury, K., J

1998; 12 (120): 47–51

- **Medical Miracles for the Next Millennium** *LIFE Magazine Special Issue, Fall 1998. Report on Telesurgical System that Salisbury helped develop*

Salisbury, K., J

1998

- **Parallel Coupled Micro-Macro Actuators** *International Journal of Robotics Research*

Morrell, J., B., Salisbury, J., K.

1998; 17 (7): 773–791

- **Proceedings of the Third PHANToM Users Group Workshop**

edited by Salisbury, Srinivasan, J. K.

1998

- **Scientific and Technical Report: Development of Haptic Interfaces** *Contract: N61339-96-K-0002, CDRL Number: A002 Naval Air Warfare Center Training Systems Division, ORLANDO, FL*

Salisbury, K., J., Srinivasan, M., A.

1997

- **Hot and Cold Running VR: Adding Thermal Stimuli to the Haptic Experience**

Ottensmeyer, M., Salisbury, K.

1997

- **Phantom-Based Haptic Interaction with Virtual Objects** *IEEE Computer Graphics and Applications*

Salisbury, J., K., Srinivasan, M., A.

1997; 17 (5): 6–10

- **Haptic Geology**

Salisbury, K., J.

1997

- **Look and Feel: Haptic Interaction for Biomedicine** *Progress Report for the period October 1, 1996 through September 30, 1997, ARPA Contract Number DAMD17-94-C-4123*

Salisbury, K., J., Madhani, A.

1997

- **Toward Dexterous Gaits and Hands**
Leveroni, S., Shah, V., Salisbury, K.
1997
- **Experimental Robotics IV: The 4th International Symposium**
edited by Khatib, O., Salisbury, J., K.
Springer-Verlag.1997
- **From Force Control to Force Display**
Salisbury, K., J.
1997
- **Haptic Rendering of Implicit Surfaces**
Salisbury, K., J.
1997
- **Proceedings of the Second PHANToM Users Group Workshop**
edited by Salisbury, Srinivasan, J. K.
1997
- **Texture Sensing and Simulation Using the PHANToM: Towards Remote Sensing of Soil Properties**
Green, D., Salisbury, K.
1997
- **Haptic Rendering of Surfaces Defined by Implicit Functions**
Salisbury, K., J., Tarr, C.
1997
- **A Unified Approach to Haptic Rendering and Collision Detection**
Latimer, C., Salisbury, K.
1997
- **Proceedings of the First PHANToM Users Group Workshop**
edited by Salisbury, Srinivasan, J. K.
1996
- **Performance Measurements for Robotic Actuators**
Morrell, John, B., Salisbury, K., J.
1996
- **Autonomous Rock Acquisition**
Theobald, D., A., Hong, W., J., Madhani, A., Hoffman, B., Niemeyer, G., Cadapan, L., Salisbury, J. K.
1996
- **An Overview of Haptics Research at MIT's AI Lab.**
Salisbury, K., J.
edited by Salisbury, J., K., Srinivasan, M., A.
1996
- **Cooperative Control Of Multiple Robots to Manipulate Objects**
Leveroni, S., R., Salisbury, K., J.
1996
- **Look and Feel: Haptic Interaction for Biomedicine** *Progress Report for the period October 1, 1995 through September 30, 1996, ARPA Contract Number DAMD17-94-C-4123*
Salisbury, K., J., Madhani, A., Tarr, C., Ottensmeyer, M., Green, D., Lee, P.
1996
- **RECRUITMENT OF MATERNAL GAMMA-TUBULIN TO THE BOVINE SPERM CENTROSOME**

Navara, C. S., Zoran, S. S., Salisbury, J. L., Simerly, C., Stearns, T., Schatten, G.
AMER SOC CELL BIOLOGY.1995: 227–227

- **Haptic Rendering: Programming Touch Interaction with Virtual Objects**
Kenneth, S., Brock, D., Massie, T., Swarup, N., Zilles, C.
1995
- **Grasp Quality Analysis**
Prattichizzo, D., Salisbury, K., J., Bicci, A.
1995
- **In Pursuit of Dynamic Range: Using Parallel Coupled Actuators to Overcome Hardware Limitations**
Morrell, J., Salisbury, K., J.
1995
- **A Constraint-Based God Object Method for Haptic Display**
Zilles, C., Salisbury, K.
1995
- **Parallel Coupled Actuators for High Performance Force Control: A Micro-Macro Concept**
Morrell, J., Salisbury, K.
1995
- **Look and Feel: Haptic Interaction for Biomedicine** *Progress Report for the period October 1, 1994 through September 30, 1995, ARPA Contract Number DAMD17-94-C-4123*
Salisbury, K., J.
1995
- **Reorienting Objects with a Robot Hand Using Grasp Gaits**
Leveroni, S., Salisbury, K.
1995
- **Application of Change Detection to Dynamic Contact Sensing** *International Journal of Robotics Research*
Eberman, B., Salisbury, J., K.
1994; 12 (5): 369–394
- **The PHANToM Haptic Interface: A Device for Probing Virtual Objects**
Massie, Thomas, H., Salisbury, K.
1994
- **The PHANToM Haptic Interface**
Salisbury, K., J., Massie, T.
1994
- **Contact Sensing from Force Measurements** *International Journal of Robotics Research*
Bicchi, A., Salisbury, J., K., Brock, D., L.
1993; 12 (3): 249–262
- **Application of Change Detection to Dynamic Contact Sensing** *MIT AI Lab Memo No. 1421*
Salisbury, K., J.
1993
- **3 Grasps**
Salisbury, K., J.
1993
- **Segmentation and Interpretation of Temporal Contact Force Signals**
Eberman, B., Salisbury, K.
1993

- **Implementation of Behavioral Control on a Robot Hand/Arm System**
Brock, D., M., Salisbury, K., J.
1992
- **Dynamic Modeling, Simulation and Parameter Identification for the WAM Arm** *MIT AI Lab Memo No. 1387*
Eberman, B., S., Salisbury, Kenneth Jr., J
1992
- **Automatic Grasping and Whole Arm Manipulation**
Salisbury, K., J.
1992
- **Dynamic Modeling, Simulation and Parameter Identification for the WAM Arm** *MIT AI Lab Memo No. 1387*
Eberman, B., S., Salisbury, Kenneth Jr., J
1992
- **Automatic Grasping and Whole Arm Manipulation**
Salisbury, K., J.
1992
- **co-chair and speaker at MIT Industrial Liaison Program Telerobotics Symposium**
Salisbury, K., J.
1991
- **Line Kinematics for Whole-Arm Manipulation** *AI Memo No. 1255*
Salisbury, K., J., Eberman, B., Brock, D.
1991
- **Whole-Arm Control and Utilization in Hazardous Environments, The Application of Robotics to the Handling of Hazardous Wastes, Materials, and Equipment**
Salisbury, K., J.
1991
- **An Algorithm for the Control of a Hand-Arm Robotic Systems**
Melchiorri, C., Salisbury, K., J.
1991
- **Contact Sensing from Force Measurements** *MIT AI Lab Memo No. 1262*
Bicchi, A, Salisbury, K., J., Brock, D., L.
1990
- **Using an Articulated Hand to Manipulate Objects** *Artificial Intelligence at MIT: Expanding Frontiers*
Salisbury, J., K.
edited by Winston, P. H., Shellard, S. A.
MIT Press.1990: 211–227
- **Automatic Grasping and Whole Arm Manipulation**
Salisbury, K., J.
1990
- **Exploiting the Redundancy of an Hand-Arm Robotic System** *AI Memo No. 1261, Artificial Intelligence Laboratory, MIT, Cambridge MA*
Melchiorri, C., Salisbury, K.
1990
- **Exploiting the Redundancy of a Hand-Arm Robotic System** *AI Memo No. 1261*
Melchiorri, C., Salisbury, K., J.
1990
- **How Not To Make A Bad Situation Worse**
Salisbury, K., J.

1990

- **Criterion for the Optimal Design of Multiaxis Force Sensors** *MIT AI Lab Memo No. 1263*
Salisbury, K., J., Bicchi, A.
1990
- **Analysis and Implementation of Robust Grasping Behaviors** *NASA/JSC Progress Report*
Chammas, C., Z., Salisbury, K., J.
1990
- **Whole-Arm Manipulation and Sensing**
Salisbury, K., J.
1990
- **Determination of Manipulator Contact Information from Joint Torque Measurements**
Eberman, B., S., Salisbury, K., J.
edited by Hayward, V., Khatib, O.
1990
- **An Experimental Whole-Arm Manipulator** *Artificial Intelligence at MIT: Expanding Frontiers*
Salisbury, J., K.
edited by Winston, P. H., Shellard, S. A.
MIT Press.1990: 229–249
- **Overview of Hand and Arm Research at MIT**
Salisbury, K., J.
1990
- **Contact Sensing Palm for the Salisbury Hand** *Progress Report 2, Sandia Contract No. 75-2608*
Brock, David, L., Salisbury, K., J.
1990
- **Exploiting the Redundancy of a Hand/Arm Robotic System** *A.I. Memo No. 1261, Artificial Intelligence Laboratory, M.I.T., Cambridge, MA*
Melchiorri, C., Salisbury, K., J.
1990
- **Force Sensing Fingertip Investigation** *Progress Report 1, Sandia Contract No. 23-2299*
Brock, David, L., Salisbury, K., J.
1989
- **Whole Arm Manipulation: Mechanics and Control**
Salisbury, K., J.
1989
- **The Design and Control of an Experimental Whole-Arm Manipulator**
Salisbury, K., J., Eberman, B., S., Levin, M., D., Townsend, W., T.
1989
- **Hands: An Automatic Grasping Approach** *NASA*
Chammas, C., Z., Salisbury, K., J.
1989
- **Augmentation of Grasp Robustness Using Intrinsic Tactile Sensing**
Bicchi, A., Salisbury, K., J., Dario, P.
1989
- **Mechanical Bandwidth as a Guideline to High-Performance Manipulator Design**
Townsend, W., T., Salisbury, K., J.
1989

- **Experiments in Force Control of Robotic Manipulators** *The Robotics Review 1*
Salisbury, J., K., Maples, J., A., Becker, J.
edited by Khatib, O., Craig, J., J., Lozano-Pérez, T.
MIT Press.1989
- **Fundamentals of Dextrous Manipulation**
Salisbury, K., J.
1989
- **Design of an Actively Compliant Manipulator**
Salisbury, K., J.
1989
- **Using an Articulated Hand to Manipulate Objects** *Robotics Science*
Salisbury, J., K., Brock, D., O'Donnell, P.
edited by Michael, B.
MIT Press.1989: 540–562
- **Analysis and Construction of Contact and Tactile Sensors** *Contractor report SAND87-7120, Sandia National Laboratories*
Salisbury, J., K., Hollerbach, J., M., Brock, D., L., Siegel, D., M.
1989
- **Flight Qualification Issues for the JPL Force Reflecting Hand Controller**
Salisbury, K., J.
1988
- **Why Can't a Robot Be More Like a Man**
Salisbury, K., J.
1988
- **The Efficiency Limit of Belt and Cable Drives** *ASME Journal of Mechanisms, Transmissions, and Automation in Design*
Townsend, W., T., Salisbury, J., K.
1988; 110: 303–307
- **Remote Robot Hand and Arm Challenges**
Salisbury, K., J.
1988
- **Overview of Hand and Arm Research at MIT's AI Lab**
Salisbury, K., J.
1988
- **MIT WAM Arm**
Salisbury, K., J.
1988
- **Articulated Hands: Force Control and Kinematic Issues** *Natural Computation, Natural Computation*
Salisbury, J., K., Craig, J.
edited by Whitman, R.
MIT Press.1988: 4–17
- **System Design of WHOI/MIT Whole Arm Manipulator**
Salisbury, K., J.
1988
- **Overview of Hand Control**
Salisbury, K., J.
1988

- **Teleoperator Hand Calibration**
Salisbury, K., J.
1988
- **Control Architecture for Implementing Hand Reflex Control**
Salisbury, K., J.
1988
- **Issues in Human/Computer Control of Dextrous Remote Hands** *Transactions on Aerospace and Electronic Systems*
Salisbury, J., K.
1988: 591–596
- **Manipulation of Multiple Fingers**
Salisbury, K., J.
1988
- **Preliminary Design of a Whole-Arm Manipulation System (WAM)**
Salisbury, K., J., Townsend, W., T., Eberman, B., S., DiPietro, D., M.
1988
- **Issues in Human/Computer Control of Dextrous Remote Hands**
Salisbury, K., J.
1987
- **Integration of Hand and Arm Control for Space Applications**
Salisbury, K., J.
1987
- **Segment on Salisbury Hand**
Salisbury, K., J.
1987
- **The Effect of Coulomb Friction and Stiction on Force Control**
Townsend, W., T., Salisbury, K., J.
1987
- **Film of Salisbury Hand at Boston Museum of Science**
Salisbury, K., J.
1987
- **Design Proposal for Dextrous Underwater Manipulator**
Salisbury, K., J.
1987
- **Whole Arm Manipulation**
Salisbury, K., J.
1987
- **Integration of Touch Sensing with Articulated Hands**
Salisbury, K., J.
1987
- **Film of Salisbury Hand at Boston Computer Museum**
Salisbury, K., J.
1987
- **Integration of Hand and Arm Control for Space Applications**
Salisbury, K., J.
1987

- **Segment on Salisbury Hand**
Salisbury, K., J.
1987
- **The Effect of Coulomb Friction and Stiction on Force Control**
Townsend, W., T., Salisbury, K., J.
1987
- **Film of Salisbury Hand at Boston Museum of Science**
Salisbury, K., J.
1987
- **invited discussant Ro.Man.Sy 1986**
Salisbury, K., J.
1986
- **Nerves of Steel**
Salisbury, K., J.
1986
- **New Design Ideas for the JPL Force Reflecting Hand Controller**
Salisbury, K., J.
1986
- **Integrated Language, Sensing and Control for a Robot Hand**
Salisbury, K., J., Brock, D., L., Chiu, S., L.
1986
- **Autonomous and Human Controlled Robot Hands**
Salisbury, K., J.
1986
- **Force Reflecting Articulated Hand Masters**
Salisbury, K., J.
1986
- **An Experimentation Environment for Robot Hand Manipulation**
Salisbury, K., J.
1985
- **Design and Control of a Redundant Mechanism for Small Motion**
Salisbury, K., J., Abramowitz, J., D.
1985
- **Hand Grip Design for a Force Reflecting Master**
Salisbury, K., J.
1985
- **Kinematic and Force Analysis of Articulated Hands** *Recent Advances in Robotics*
Salisbury, J., K.
edited by Beni, G., Hackwood, S.
John Wiley and Sons.1985: 131–174
- **Taking the Biscuit**
Salisbury, K., J.
1985
- **An Experimentation Environment for Robot Hand Manipulation**
Salisbury, K., J.
1985

- **Potentials for Dextrous Remote Manipulation**
Salisbury, K., J.
1985
- **Dextrous Robot Hand** *MIT Industrial Liaison Office*
Salisbury, K., J.
1985
- **Miraculous Machines**
Salisbury, K., J.
1985
- **Design, Sensor, and Control Issues for Grasping and Manipulation with a Robot Hand**
Salisbury, K., J.
1985
- **Robot Hands and the Mechanics of Manipulation**
Mason, M., T., Salisbury, K., J.
M.I.T. Press, Cambridge.1985
- **An Experimentation Environment for Robot Hand Manipulation**
Salisbury, K., J.
1985
- **Articulated Hand Design and Control**
Salisbury, K., J.
1984
- **Articulated Hand Design and Control**
Salisbury, K., J.
1984
- **Robot Hand Kinematic Analysis**
Salisbury, K., J.
1984
- **Design and Control of an Articulated Hand**
Salisbury, K., J.
1984
- **Force and Position Control of a Robot Hand**
Salisbury, K., J.
1984
- **Robot Hand Control**
Salisbury, K., J.
1984
- **Interpretation of Contact Geometries from Force Measurements**
Salisbury, K., J.
1984
- **invited discussant**
Salisbury, K., J.
1984
- **Interpretation of Contact Geometries from Force Measurements**
Salisbury, K., J.
1984

- **KINEMATIC AND FORCE ANALYSIS OF ARTICULATED MECHANICAL HANDS** *JOURNAL OF MECHANISMS TRANSMISSIONS AND AUTOMATION IN DESIGN-TRANSACTIONS OF THE ASME*
Salisbury, J. K., Roth, B.
1983; 105 (1): 35-41
- **Controlling Remote Manipulators Through Kinesthetic Coupling** *ASME Computers in Mechanical Engineering*
Bejczy, A., K., Salisbury, J., K.
1983; 2 (1): 48-60
- **The Design of the Stanford/JPL Hand**
Salisbury, K., J.
1983
- **A Novel Contact Sensing Approach**
Salisbury, K., J.
1983
- **Articulated Hand Kinematic and Force Analysis**
Salisbury, K., J.
1983
- **The Design of the Stanford/JPL Hand**
Salisbury, K., J.
1983
- **A Robot Hand Design and Control Framework**
Salisbury, K., J.
1982
- **Articulated Hands: Force Control and Kinematic Issues** *International Journal of Robotics Research*
Salisbury, J., K., Craig, J., J.
MIT Press, Cambridge, MA, Spring.1982: 4-17
- **Design and Control of a Robot Hand**
Salisbury, K., J.
1982
- **Kinematic and Force Analysis of Articulated Mechanical Hands**
Salisbury, K., J., Roth, B.
1982
- **Dexterous Hand for a Robot**
Salisbury, K., J.
1982
- **The Design and Control of a Dexterous Mechanical Hand**
Salisbury, K., J., Rouff, C.
1981
- **Controlling Remote Manipulators Through Kinesthetic Coupling**
Bejczy, A., K., Salisbury, K., J.
1980
- **Study to Design and Develop Remote Manipulator Systems** *Stanford Research Institute Report, NAS2-8652, Quaterly Reports 7 & 8*
Hill, J., W
1977
- **Remote Manipulator Performance Measures and Display Design** *NASA/Ames Research Center Report*
Starr, G., Salisbury, J. K.
1975

- **An Interactive Simulation Environment for Craniofacial Surgical Procedures**
Salisbury, K., J.
- **Visuohaptic Simulation of Bone Surgery** *Stanford University Department of Computer Science Technical Report*
Morris, D., Sewell, C., Barbagli, F., Blevins, N., Girod, S., Salisbury, J., K.
2006-13
- **Multi-Contact Haptic Interaction with Deformable Objects: a Multi-rate Approach** *chapter in Robotics Research XI - STAR (Springer Tracts on Advanced Robotics)*
Barbagli, F., Prattichizzo, D., Salisbury, K.
Springer-Verlag.