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

- Professor Emeritus, 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.
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- **Design and Control of Roller Grasper V3 for In-Hand Manipulation** *IEEE TRANSACTIONS ON ROBOTICS*
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- **Designing Underactuated Graspers with Dynamically Variable Geometry Using Potential Energy Map Based Analysis**
  Yako, C. L., Yuan, S., Salisbury, J., IEEE
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- **Towards Human Haptic Gesture Interpretation for Robotic Systems**
  Bianchini, B., Verma, P., Salisbury, J., IEEE
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- **Design and Control of Roller Grasper V2 for In-Hand Manipulation**
  Yuan, S., Shao, L., Yako, C. L., Gruebele, A., Salisbury, J., IEEE
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- **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
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- **Mechatronic design of an integrated robotic hand** *INTERNATIONAL JOURNAL OF ROBOTICS RESEARCH*
  Quigley, M., Salisbury, C., Ng, A. Y., Salisbury, J. K.
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  Monfared, A., Mitteramskogler, G., Gruber, S., Salisbury, J. K., Stampfl, J., Blevins, N. H.
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- **What You Can't Feel Won't Hurt You: Evaluating Haptic Hardware Using a Haptic Contrast Sensitivity Function** *IEEE TRANSACTIONS ON HAPTICS*
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- **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)*
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- **Reconstruction and exploration of virtual middle-ear models derived from Micro-CT datasets.** *Hearing Res.*
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- **Intelligent Road Sign Detection Using 3D Scene Geometry**
  Schlosser, J., Montemerlo, M., Salisbury, K.
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- **Using Near-Field Stereo Vision for Robotic Grasping in Cluttered Environments**
  Leeper, A., Hsiao, K., Chu, E., Salisbury, K.
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- **Laser Cutting Speeds Robotics Prototyping** *Product Design and Development*

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2010

- **Telerobotic System Concept for Real-Time Soft-Tissue Imaging During Radiotherapy Beam Delivery** *Med. Phys.*
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- **Multi-DOF Equalization of Haptic Devices for Accurate Rendering at High Frequencies** *IEEE/RSJ International Conference on Intelligent Robots and Systems*
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- **Effects of Haptic Device Attributes on Vibration Detection Thresholds** *3rd Joint EuroHaptics Conference Symposium on Haptic Interfaces for Virtual Environment and Teleoperator Systems*
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- **Towards a personal robotics development platform: Rationale and design of an intrinsically safe personal robot** *IEEE International Conference on Robotics and Automation*
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- **A Microsurgery-Specific Haptic Device for Telerobotic Medical Treatment**
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- **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.
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- **Real-Time Image Mosaicing with a Dual-Axes Confocal Microscope**
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- **Automatic Preparation, Calibration, and Simulation of Deformable Objects** *Computer Methods in Biomechanics and Biomedical Engineering (Taylor & Francis Publishing)*

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  Walker, S., Loewke, K., Fischer, M., Liu, C., Salisbury, J. K.
  IEEE.2007: 473–478

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- **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.
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2005

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- **A Collaborative Virtual Environment for the Simulation of Temporal Bone Surgery**
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- **Simulating Human Fingers: a Soft Finger Proxy Model and Algorithm**
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- **New Actuation Approach for Human-friendly Robot Design** *International Journal of Robotics Research*
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- **Toward Virtual Manipulation: From One Point of Contact to Four** *Sensor Review (special issue on Haptic Devices)*
  Barbagli, F., Devengenzo, R., Salisbury, K.
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  Barbagli, F., Prattichizzo, D., Salisbury, K.
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  Balaniuk, R., Salisbury, K.
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- **Haptic Interaction to Simulate Complex Surgical Procedures**
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- **Phantom-X**
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1999

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  Green, D., Salisbury, K.
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