Teleoperation 1
Chairs: Antal Bejczy, R. Fournier

Machine-Assisted Teleoperation of Arm Manipulators in a Complex Environment
I. Ivanisevic and V. Lumelsky
University of Wisconsin, Madison

A Telerobot Control System for Accident Response
Robert J. Anderson, David L. Shirey and William D. Morse
Sandia National Laboratory

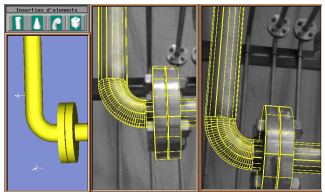
- Paper describes the control system implemented on a remotely controlled teleoperation platform used for accident response
- Systems utilizes SMART (Sandia's Modular Architecture for Robotics and Teleoperation) to implement telerobotic behaviors.
- Implemented behaviors include: dual arm coordinated control, .camera frame based operation, automatic tool pick-ups, and straight-line motion.
- The final system is faster, safer, more flexible and less fatiguing for the operator.

Effective Vehicle Teleoperation on the World Wide Web
Sebastian Grange[1], Terrence Fong[2] and Charles Baur[1]
[1]Ecole Polytechnique Federale de Lausanne and [2]Carnegie Mellon University

- Existing vehicle teleoperation interfaces are cumbersome and require extensive training to use.
- Web-based tools offer an attractive alternative, yet they raise numerous research issues and impose new constraints on system design.
- Our system, the WebDriver, enables safe and efficient vehicle teleoperation via an active user interface and safeguarded autonomy.
- The WebDriver allows a wide range of users to remotely drive in dynamic, unknown, and unstructured environments.

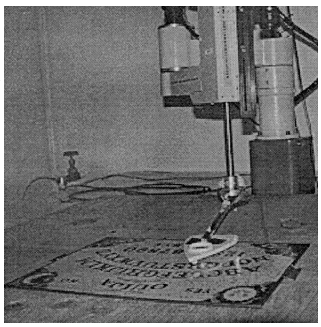
Using Structural Knowledge for Interactive 3-D Modeling of Piping Environments
P. Even, R. Fournier and R. Gelin
French Atomic Energy Commission

- Integration of structural knowledge through specialized workshops
- Goal : speed up an interactive modeling tool
- Design and test of a piping workshop on realistic sites
- Elbow automatic insertion and interactive edition



Collaborative Teleoperation on the Internet
K. Goldberg, S. Bui, B. Chen, B. Farzin, J. Heitler, D. Poon, R. Solomon and G. Smith
University of California, Berkeley

- This paper describes a systems that allows a distributed user group to teleoperate an industrial robot arm via the Internet
- We experiment with a control model where motion commands from multiple simultaneous users are aggregates in real time using java
- http://ouija.berkeley.edu



Internet Based Operations for the Mars Polar Lander Mission
P. Backes[1], K. Tso[2], J. Norris[1], G. Tharp[2], J. Slostad[1], R. Bonitz[1] and K. Ali[1]
[1]Jet Propulsion Laboratory, California Institute of Technology and [2]IA Tech Inc.

- Internet-based operations for the MPL mission using the Web Interface for Telescience (WITS)
- Java2, Java3D, Java Cryptography, NASA Public Key Infrastructure
- Successful field test in Death Valley, California, using the MPL mockup
- With WITS, the MPL mission was the first planetary mission to utilize Internet-based ground operations.