Interactions between the human and robots play a key role for service robots such as medical and personal robots. The teleoperation with haptic interface can be classified as an example of the human-robot interaction and it is a very useful tool for medical robots as well as personal service robots. In the haptic interface, the stability of the system needs to be analyzed since the local slave system becomes unstable with the increase of the time delay. Also not only the haptic interface but also the visual feedback to the human from the robot are very critical for the successful tele-services over the communication channels such as Internet.

Firstly, there are also eighteen papers on medical and personal service robots including surgical navigation and safety issues in this chapter. They are listed as follows:

1. Design of Master Console Haptic Handle for Robot Assisted Laparoscopy
2. A New Concept for “Vaginal Hysterectomy” Robot
3. Mechanism of a Learning Robot Manipulator for Laparoscopic Surgical Training
4. Fusion of Inertial Measurements and Vision Feedback for Microsurgery
5. An Orbital Velocity-Based Obstacle Avoidance Algorithm for Surgical Robots
6. HOG-Based Person Following and Autonomous Returning Using Generated Map by Mobile Robot Equipped with Camera and Laser Range Finder
7. Fast Range Image Segmentation and Smoothing using Approximate Surface Reconstruction and Region Growing
8. Resilient Navigation through Probabilistic Modality Reconfiguration
9. Scaling Vector Field SLAM to Large Environments
10. Observation planning for object search by a mobile robot with uncertain recognition
11. Effects of a Frequency-Dependent Dissipative Element in Haptic Interaction
12. A Case Study of Safety in the Design of Surgical Robots : The ARAKNES platform
13. Classification of Modeling for Versatile Simulation Goals in Robotic Surgery
14. Role of Holographic Displays and Stereovision Displays in Patient Safety and Robotic Surgery
15. A methodological framework for the definition of patient safety measures in robotic surgery. The experience of SAFROS project
16. System concept for collision-free robot assisted surgery using real-time sensing
17. The Autonomous Photovoltaic MarXbot
The following four papers are handling haptic teleoperation issues for the robots and they are listed as follows:

19. Bilateral Tele-manipulation with a Humanoid Robot Hand/Arm between USA and Japan
20. Stable Rate-Mode Bilateral Teleoperation Based on Time Domain Passivity Approach
21. Backstepping Control of Quadrotor-Type UAVs and its Application to Tele-operation over the Internet
22. Experiments on Intercontinental Haptic Control of Multiple UAVs

There are eighteen papers discussing about various kinds of interactions between human and robots including measurement and recognition for the effective interactions and they are listed as follows:

23. Textual Affect Detection in Human Computer Interaction
24. Face Alignment Based on 3D Face Shape Model and Markov Random Field
25. Spontaneous Facial Expression Recognition by Fusing Visible and Thermal Infrared Images
27. Human-Robot Interaction-based Intention Sharing of Assistant Robot for Elderly People
28. Human Tracking Using Improved SJPDAF
29. Research on the Personalized Interaction Model Driven by User Behavior
30. A Novel Closed-loop Feedback Frame for Data Processing
31. Facial Expression Recognition from Infrared Thermal Videos
32. Motion Planning of a Dual Manipulator System for Table Tennis
33. Integrated Balance Control on Uneven Terrain
34. Towards Meta-reasoning for Human-Robot Interaction
35. Learning probabilistic decision making by a service robot with generalization of user demonstrations and interactive refinement
36. A topic recognition system for real world human-robot conversations
37. Semi-Autonomous Car Control Using Brain Computer Interfaces
38. Perceptual Social Dimensions of Human-Humanoid Robot Interaction
39. Complex Emotional Regulation Process in Active Field State Space
40. A Development of Art Robot System for Representation of Brightness of Image

Through this chapter, it is noticed that the service robotics are coming near to our daily lives and the technologies are ready to be used for the service robots. However, the safety and reliability must be checked seriously with some standards to make the robots affordable, sustainable, dependable and also compatible to other peripheral devices. Keywords of this chapter are listed as follows:

Medical Robotics and Surgical Navigation
Medical robotics
Personal/Domestic Service Robots, and
Safety and Standards in Robotic Surgery
Haptic Teleoperation
Human-Robot Interaction.