

Learning Patient Transfer Skill by Using a Robot Patient

Nowadays experienced nurses play a vital role at hospitals to take care of seniors and patients. However, many statistics reveal that the learning at schools are inadequate, because the students have few accessibilities to obtain the practical experience from actual patients. With the progress of robotic technology, many robot patients were proposed for educational purposes. Most systems can only reproduce single type of patient which cause inefficiency to learn variability of patient. In Ref [1], we develop a robot patient simulating two types of patient for the nursing student to learn patient transfer skill, and also evaluate the learning effectiveness. Patient transfer is adopted because of its difficulty in interaction between nurse and patient. Two types of patients - injured arm with painful sensation and expression, and hemiplegia - were selected as target patients. One is related to the painful sensation from the injuries; and the other is related to the behavioral problems. A robot patient system was developed to observe the learning effectiveness on the nursing students. An evaluation method of checklist is proposed by nursing teachers. An experiment comprised by pre-test, practice, and post-test was conducted by nursing students. The experimental trails at pre- and post- tests are evaluated and the effectiveness of the proposed system is shown. In Ref. [2], we propose a method to evaluate the nurse's transfer skill from the sensor information embedded in the patient, which can be used for designing a new robotic patient.

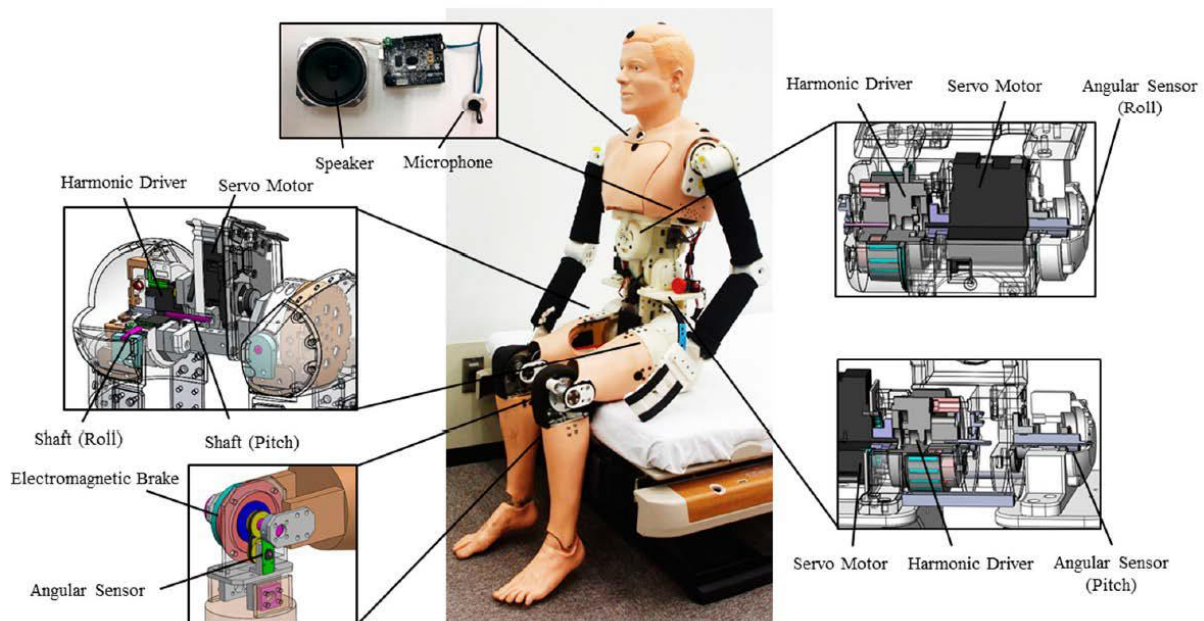


Figure 1. Configuration and mechanism of the robot patient

Keywords: robot patient, nursing education, mechanical design

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- [1] Lin, Chingszu, Huang, Zhifeng, Kanai-Pak, Masako, Maeda, Jukai, Kitajima, Yasuko, Nakamura, Mitsuihiro, Kuwahara, Noriaki, Ogata, Taiki, & Ota, Jun. (2019). Effect of practice on similar and dissimilar skills in patient transfer through training with a robot patient. *Advanced Robotics*, 33(6), 278-292. doi: 10.1080/01691864.2019.1578689.
- [2] Lin, Chingszu, Ogata, Taiki, Kanai-Pak, Masako, Maeda, Jukai, Kitajima, Yasuko, Nakamura, Mitsuihiro, Kuwahara, Noriaki & Ota, Jun. (2018). Translational acceleration, rotational speed, and joint angle of patients related to correct/incorrect methods of transfer skills by nurses. *Sensors*, 18(9), 2975, 1-28. doi:10.3390/s18092975.