

## Nobuharu MIMURA, Ph.D.

Professor

Program: Electrical and Information Engineering

Area: Human Sciences and Assistive Technology

Undergraduate: Dept. of Biocybernetics

<http://eng.niigata-u.ac.jp/~bio/en/study/study.html>

### Professional Expertise

His professional expertise encompasses articulated robot hand, parallel manipulator, robot helicopter, active sensing by robot and 6 D.O.F acceleration sensor,

He has developed “9 D.O.F articulated robot hand” for the utilization of dexterous manipulation and “6 D.O.F parallel manipulator” for vehicle simulator.

All kinds of robot technology associated with dexterous manipulation scattering phenomena are major topics in his laboratory.

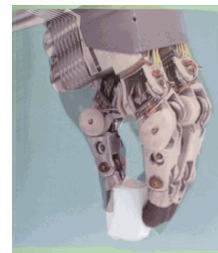
### Research Fields of Interest

#### Robot Hand

3 fingered robot hand

Stability analysis of grasp by multi-fingered robot hand

Application of 3 fingered robot hand

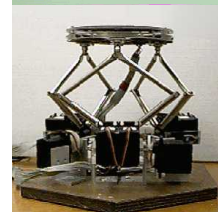


#### Parallel Manipulator

6 D.O.F finger-type parallel manipulator

Redundant parallel manipulator

Control algorithm of redundant parallel manipulator



#### Robot Helicopter

Stability control of robot helicopter

Attitude sensor for robot helicopter



### Education

1978: Bachelor Eng. degree, Graduated from Dept. of Mechanical Engineering, Osaka University, Japan

1980: Master Eng. degree, Graduate School, Osaka University, Japan

1992: Doctoral Eng. degree, Nagoya Institute of Technology, Japan

### Professional Societies and Activities

1. The Japan Society of Mechanical Engineers
2. The Robotics Society of Japan
3. The Japanese Society for Wellbeing Science and Assistive Technology

## Awards

CLAWAR Association Best Technical Paper Award, 16<sup>th</sup> International Conference on Climbing and Walking Robots and Technology, Sydney, Australia, 14-17 July, 2013.

## Major Publications

### Papers

- [1] "Identification of Contact Conditions by Active Force Sensing", Intelligent Systems for Knowledge Management, Vol.252(2011).
- [2] "Identification of Contact Conditions from Contact Force and Moment - Experimental Verification in Effective Sensing Strategy -", Journal of Robotics and Mechatronics Vol.21 No.2, 2010.
- [3] "Grasp stability analysis of two objects with any friction property in two dimensions", International Journal of Product Development, Vol. 10, Nos. 1/2/3, pp.273-289, 2010.
- [4] "An Error Analysis and Efficient Calibration Method for 6 DOF Acceleration Sensor Systems Using Multiple Dual-Axis Accelerometers", Transactions of the Japan Society of Mechanical Engineers, Series C, Vol.74, No.739, pp.134 – 140, 2008.
- [5] "A Stability of Six-Degrees-of-Freedom Acceleration Sensor System by Integration of Acceleration Signals", Transactions of The Japan Society of Mechanical Engineers, Vol.72-724, pp.95 – 103, 2006.
- [6] "Calibration Method for 6 DOF Acceleration Sensor Systems Using Multiple Accelerometers", Transactions of The Japan Society of Mechanical Engineers, Vol.72-72, pp.104 – 111, 2006.
- [7] "Grasp Stability Analysis of Two Objects in Two Dimensions", Transactions of The Japan Society of Mechanical Engineers, Vol.72-714, pp.478 – 487, 2006.
- [8] "Stability Analysis of a6 DOF acceleration Sensor System Using Multiple Accelerometers", N. Mimura, R. Onodera, Transactions of The Japan Society of Mechanical Engineers, Vol.71-707, pp.116 – 122, 2005.
- [9] "A Control Algorithm of Redundant Parallel Manipulator by an Internal Force Sensor", Transactions of The Japan Society of Mechanical Engineers, Vol.71-701, pp.185 – 192, 2005.
- [10] "Grasp Stability Analysis of Two Objects in Two Dimensions", Proceedings of 2005 IEEE International Conference on Robotics and Automation, Vol.1, pp.772 – 777, 2005.
- [11] "Six-Degrees-of- Freedom Motion Sensor System Using Multiple Accelerometers", 36th International Symposium on Robotics, Vol.1, pp.116 – 124, 2004.
- [2] "Articulated Hand", Nobuharu Mimura.
- [3] "High-speed Spindle", Nobuharu Mimura, Susumu Kawabata.
- [4] "Weft Yarn Storage Unit for Jet Looms", Nobuharu Mimura, Kazunori Yoshida, Susumu Kawabata, Junzo Hasegawa.
- [5] "Weft Yarn Storage Unit for Jet Looms", Nobuharu Mimura, Kazunori Yoshida, Susumu Kawabata, Junzo Hasegawa.

### Books

- [1] Intelligent Systems for Knowledge Management, Nobuharu, M., Vol.252, 2010.
- [2] Humanoid Robots, Nobuharu, M., InTech Book, 2010

### Patents

- [1] "Method for Measuring 6 Degrees of Freedom Motion and Device", Nobuharu Mimura.