

Curriculum Vitae

Rawichote Chalodhorn

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Research Interests

- Humanoid motion recognition and reproduction.
- Learning of sensory coordination of a humanoid robot.
- Learning of high level behaviors of a humanoid robot.
- Biologically inspired robotics and cognitive science.

Education

- Ph.D. Candidate in Humanoid Robotics, Osaka University, Japan. Expected Apr 2007
- M. Eng. in Mechanical Engineering, King Mongkut's University of Technology Thonburi, Thailand. Oct 1998
- B. Eng. in Mechanical Engineering, King Mongkut's University of Technology Thonburi, Thailand. May 1995

Awards and Honors

- RoboCup 2004, Lisbon, Portugal, Humanoid league: Jul 2004
 - First place, H-80 Class, penalty kick competition.
 - Second place, best humanoid award.
- RoboCup 2003, Padua, Italy, Humanoid league: Jul 2003
 - First place, H-80 Class, Penalty kick competition.
 - Highest score, free style performance.
 - Second place, best humanoid award.
- RoboCup 2002, Fukuoka, Japan, Humanoid league: Jul 2002
 - Second place, H-80 Class, Penalty kick competition.
- Matsuda Yosahichi memorial foreign student scholarship. Apr 2003 – Sep 2004
- Ninety-nine Asian foundation foreign student scholarship. Apr 2002 – Mar 2003

Employment History

- Research scientist, University of Washington, USA Nov 2004 – present
- Research assistant, Osaka University, Japan. Apr 2002 – Oct 2004
- Software engineer, Filonet Korea incorporated, Korea. Aug 2000 – Sep 2001
- Instructor, Sirindhorn International Institute of Technology, Thailand. Apr 1999 – Mar 2000
- Research assistant, King Mongkut's University of Technology Thonburi, Thailand. Aug 1996 – Mar 1999

Courses Taught

- Robotics technology and manufacturing automation.
- Engineering drawing.
- Computer aided design for mechanical engineering.
- Mechanical engineering laboratory.
- Mechanical engineering dynamics.

Practical Robotics System Experience

- Humanoid robotics system (HOAP-1 and HOAP-2 robots): Apr 2002 – present
 - Onboard vision system development.
 - Onboard power supply system development.
 - High performance onboard computer development.
 - Primitive level and high level robot behaviors development.
- Direct drive manipulator: Aug 1996 – Mar 1999
 - Kinematics and dynamics analysis.
 - Real-time nonlinear controller development.
- Redundant robotics manipulator (snake robot): Jan 1997 – May 1997
 - Onboard servo controller and power amplifier development.
- Omni-directional mobile base robot: Sep 1996 – Nov 1996
 - Kinematics analysis.
 - Onboard computer development.
 - Overall system integration.
- Industrial robotics manipulator for education: Jul 1994 – May 1995
 - Kinematics analysis.
 - Servo controller and power amplifier development.
 - Graphic user interface development.

Computer Skills

- Computer languages: C++, C and Java.
- Analytical tools: MATLAB and Mathematica.

Intensive Programming Experience

- Applications development on real-time Linux (RTLinux)
- Network programming (Java).
- Graphic user interface (Java Swing)
- Security Programming; Secure socket layer (SSL), symmetric key (DES key), asymmetric key (RSA key).

Publication List

Book Chapters

1. **An algorithm that recognizes and reproduces distinct types of humanoid motions based on periodically-constrained nonlinear PCA**, Chalodhorn, R., MacDorman, K. F. and Asada M., In D. Nardi, M. Riedmiller, C. Sammut, & J. Santos-Victor, RoboCup 2004: Robot Soccer World Cup VIII (Lecture Notes in Artificial Intelligence, Vol. 3276), pages 370-380. Berlin: Springer.

Conference Articles

1. **Dynamic Imitation in a Humanoid Robot through Nonparametric Probabilistic Inference**, Grimes, D. B., Chalodhorn, R., Rao, R. P. N. In Proc. of Robotics: Science and Systems (RSS), 2006.
2. **Learning Humanoid Motion Dynamics through Sensory-Motor Mapping in Reduced Dimensional Spaces**, Chalodhorn, R., Grimes, D. B., Maganis, G., Rao, R. P. N. and Asada M., In Proc. of IEEE International Conference on Robotics and Automation (ICRA), 2006.
3. **Learning Dynamic Humanoid Motion using Predictive Control in Low Dimensional Subspaces**, Chalodhorn, R., Grimes, D. B., Maganis, G. and Rao, R. P. N., In Proc. Of IEEE-RAS/RSJ International Conference on Humanoid Robots, 2005.
4. **Learning to recognize and reproduce abstract actions from proprioception**, MacDorman, K. F., Chalodhorn, R. & Ishiguro, H., Third International Conference on Development and Learning: Developing Social Brains, 2004.
5. **Automatic extraction of abstract actions from humanoid motion data**, Chalodhorn, R., MacDorman, K. F. and Asada M., In Proc. of IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), pages 2781-2786, 2004.
6. **Photosymbols that integrate recognition and response**, MacDorman, K. F., Chalodhorn, R., Ishiguro, H. and Asada M., In Proc. of the Fourth International Workshop on Epigenetic Robotics , Genoa, 2004.
7. **An algorithm that recognizes and reproduces distinct types of humanoid motions based on periodically-constrained nonlinear PCA**, Chalodhorn, R., MacDorman, K. and Asada M., In Proc. of the Eighth RoboCup International Symposium, 2004.
8. **Periodic principal neural networks for humanoid motion segmentation, generalization and generation**, MacDorman, K., Chalodhorn, R., and Asada M., In Proc. of the Seventeenth International Conference on Pattern Recognition (ICPR), 2004.