

Curriculum Vitae

Personal Details:

Name: Yasuo Kuniyoshi (Male, Born in 1962).

Titles: Bachelor of Engineering
Department of Applied Physics,
School of Engineering, The University of Tokyo

Master of Engineering
Department of Information Technology,
School of Engineering, The University of Tokyo

Doctor of Engineering
Department of Information Technology,
School of Engineering, The University of Tokyo

Title of current Appointment and Department: Professor.
Department of Mechano-Informatics,
School of Information Science and Technology,
The University of Tokyo

Joint Appointment: Director
BTCC (RIKEN BSI-Toyota Collaboration Center)
RIKEN
And
Visiting Professor
National Institute of Informatics

Contact Address: Department of Mechano-Informatics,
School of Information Science and Technology,
The University of Tokyo
7-3-1 Hongo, Bunkyo-ku, Tokyo 113-8656, Japan

Languages: Japanese (mother tongue), English (fluent)

Education:

1985 Bachelor of Engineering, Department of Applied Physics, School of Engineering,
The University of Tokyo

1988 Master of Engineering, Department of Information Technology, School of Engineering,
The University of Tokyo

1991 Doctor of Engineering, Department of Information Technology, School of Engineering,
The University of Tokyo

Career History:

- 1991 Research Scientist at Intelligent Systems Division, Electrotechnical Laboratory, AIST
- 1995 Visiting Researcher (invited) at Academia Sinica, Taiwan (The Republic of China)
- 1995 Senior Research Scientist at Intelligent Systems Division, Electrotechnical Laboratory, AIST
- 1996 Visiting Scientist at Dept. of Computer Science, University of Wollongong and Dept. of Computer Science, Monash University, Australia
- 1996~1997 Visiting Scholar at MIT Artificial Intelligence Laboratory
- 2001 Associate Professor, The University of Tokyo
- 2005 Professor, The University of Tokyo
- 2008 Associate Member of Science Council of Japan

Awards:

- 1993 International Joint Conference on Artificial Intelligence (IJCAI) Outstanding Paper Award.
- 1996 Robotics Society of Japan, Outstanding Paper Award.
- 2007 Okawa Publications Prize.
- 2007 T.-J. Tam Best Paper Award in Robotics.
- 2008 SAB Best Philosophy Paper Award.
- 2009 Gold Medal, Tokyo Techno Forum 21.
- And 12 other.

Publications:

56 Refereed journal papers, 163 Refereed conference papers, 43 Review articles, 16 Books (co-authored or edited), 28 Invited talks at international conferences, 14 Patents (incl. pending).

Important papers:

- [1] Y. Kuniyoshi and H. Inoue: Qualitative Recognition of Ongoing Human Action Sequences, Proceedings of International Joint Conference on Artificial Intelligence, pp.1600--1609, 1993. (Outstanding Paper Award).
- [2] Y. Kuniyoshi, S. Rougeaux, M. Ishii, N. Kita, S. Sakane, and M. Kakikura: Cooperation by Observation --- The Framework and Basic Task Patterns ---, Proceedings of IEEE International Conference on Robotics and Automation, pp. 767-774, 1994.
- [3] Y. Kuniyoshi, M. Inaba and H. Inoue: Learning by Watching: Extracting Reusable Task Knowledge from Visual Observation of Human Performance, IEEE Transactions on Robotics and Automation, vol.10, no. 6, pp.799-822, Dec., 1994.
- [4] Y. Kuniyoshi, N. Kita, K. Sugimoto, S. Nakamura, and T. Suehiro: A Foveated Wide Angle Lens for Active Vision, Proceedings of IEEE International Conference on Robotics and Automation, pp.2982-2988, 1995.
- [5] A. Zelinsky and Y. Kuniyoshi: Learning to Coordinate Behaviours for Robot Navigation, Advanced Robotics, vol.10, No. 2, pp.143-159, 1996.
- [6] Y. Kuniyoshi and L. Berthouze: Neural Learning of Embodied Interaction Dynamics, Neural Networks, Vol. 11, No.7-8, pp.1259-1276, Oct.,1998.
- [7] Yasuo Kuniyoshi, Gordon Cheng and Akihiko Nagakubo, ETL-Humanoid: A Research Vehicle for Open-ended Action Imitation, Proc. of International Symposium on Robotics Research, pp. 42-49, 2001. (Also in: Raymond A. Jarvis and Alexander Zelinky (eds), Robotics Research: The Tenth International Symposium, Springer Tracts in Advanced Robotics, vol. 6, ISSN: 1610-7438, pp. 67-82, 2003.)
- [8] Yasuo Kuniyoshi, Yasuaki Yorozu, Masayuki Inaba and Hirochika Inoue, From Visuo-Motor Self Learning to Early Imitation -- A Neural Architecture for Humanoid Learning, Proc. IEEE Int. Conf. on Robotics and Automation, pp.3132-3139, 2003.
- [9] Yasuo Kuniyoshi and Shinsuke Suzuki, Dynamic Emergence and Adaptation of Behavior Through Embodiment as Coupled Chaotic Field, Proc. IEEE Int. Conf. on Intelligent Robots and Systems, pp.2042-2049, 2004.

- [10] Yasuo Kuniyoshi, Yoshiyuki Ohmura, Koji Terada, Akihiko Nagakubo, Shin'ichiro Eitoku, Tomoyuki Yamamoto: Embodied Basis of Invariant Features in Execution and Perception of Whole Body Dynamic Actions --- Knacks and Focuses of Roll-and-Rise Motion, *Robotics and Autonomous Systems*, vol.48, no.4, pp.189-201, Oct., 2004.
- [11] Yasuo Kuniyoshi, Ryo Fukano, Takuya Otani, Takumi Kobayashi, Nobuyuki Otsu: Haptic Detection of Object Affordances by a Multi-Fingered Robot Hand, *International Journal of Humanoid Robotics*, vol.2, no. 4, pp.415-436, Dec., 2005.
- [12] A. Pitti, M. Lungarella, and Y. Kuniyoshi, "Quantification of Emergent Behaviors Induced by Feedback Resonance of Chaos", *Recent Advances in Artificial Life: Advances in Natural Computation*, 3(15):199-213, 2005.
- [13] Cota Nabeshima, Yasuo Kuniyoshi, and Max Lungarella, "Adaptive Body Schema for Robotic Tool Use", *Advanced Robotics*, vol. 20, no. 10, pp. 1105—1126, 2006.
- [14] Yasuo Kuniyoshi and Shinji Sangawa, Early Motor Development from Partially Ordered Neural-Body Dynamics -- Experiments with A Cortico-Spinal-Musculo-Skeletal Model, *Biological Cybernetics*, vol. 95, no. 6, pp. 589-605, Dec., 2006.
- [15] M. Lungarella, K. Ishiguro, Y. Kuniyoshi, and N. Otsu, Methods for quantifying the causal structure of bivariate time series, *Journal of Bifurcation and Chaos*, Vol. 17, No. 3, pp. 1-19, 2007.
- [16] Kazuhito Takenaka, Yasuo Nagasaka, Sayaka Hihara, Hiroyuki Nakahara, Atsushi Iriki, Yasuo Kuniyoshi, and Naotaka Fujii: Linear Discrimination Analysis of Monkey Behavior in an Alternative Free Choice Task, *Journal of Robotics and Mechatronics*, Vol.19, No.4, pp.416-422, Aug, 2007
- [17] Y. Kuniyoshi, Y. Yorozu, S. Suzuki, S. Sangawa, Y. Ohmura, K. Terada and A. Nagakubo: Emergence and Development of Embodied Cognition: A Constructivist Approach Using Robots, *Progress in Brain Research*, vol.164, p.425-445, ISSN 0079-6123, 2007.
- [18] Max Lungarella, Alex Pitti, and Yasuo Kuniyoshi: Information transfer at multiple scales, *Physical Review E*, Vol.76, 056117, 27th November 2007.
- [19] Katsuhiko Ishiguro, Nobuyuki Otsu, Max Lungarella, and Yasuo Kuniyoshi: Detecting direction of causal interactions between dynamically coupled signals, *Physical Review E*, Vol.77, 026216, February, 2008.
- [20] Katsuhiko Ishiguro, Nobuyuki Otsu, Max Lungarella, and Yasuo Kuniyoshi: Comparison of nonlinear Granger causality extensions for low-dimensional systems, *Physical Review E*, Vol.77, 036217, 25th March, 2008.
- [21] Alex Pitti, Hassan Alirezaei, Yasuo Kuniyoshi: Cross-modal and scale-free action representations through enaction, *Neural Networks*, Vol. 22, Issue 2, p.144-154, March, 2009
- [22] Alex Pitti, Hiroki Mori, Shingo Kouzuma and Yasuo Kuniyoshi: Contingency Perception and Agency Measure in Visuo-Motor Spiking Neural Networks, *IEEE Transactions on Autonomous Mental Development*, Vol.1, No. 1, pp.86-97, May, 2009.
- [23] Alexandre Pitti, Ryuma Niiyama, Yasuo Kuniyoshi: Creating and modulating rhythms by controlling the physics of the body, *Autonomous Robots*, Volume 28, no.3, pp. 317-329, April, 2010.
- [24] Tatsuya Harada, Hideki Nakayama, Yasuo Kuniyoshi and Nobuyuki Otsu: Image Annotation and Retrieval for Weakly Labeled Images Using Conceptual Learning, *New Generation Computing*, Vol.28, No.3, pp.277-298, 2010.
- [25] Takashi Shibuya, Tatsuya Harada and Yasuo Kuniyoshi: Reliable index for measuring information flow, *PHYSICAL REVIEW E*, Vol.84, Issue 6, pp.061109-1 - 061109-7, December, 2011.
- [26] Ryuma Niiyama, Satoshi Nishikawa and Yasuo Kuniyoshi: A Biomechanical Approach for Openloop Bipedal Running with a Musculoskeletal Athlete Robot, *Advanced Robotics "Cutting Edge of Robotics in Japan 2012"*, Vol.26, No.1, 2012, in print.