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Education

BE in Precision Machinery Engineering, The University of Tokyo, 1996.

ME in Precision Machinery Engineering, The University of Tokyo, 1998.

PhD in Precision Machinery Engineering, The University of Tokyo, 2001.

Professional Career

1998-2001: Junior Research Associate in the RIKEN (Institute of Physical and Chemical Research)

2001-now: Assistant Professor in Department of Mechanical Engineering, Shizuoka University

2005-2006: Lecturer in Shizuoka Institute of Science and Technology (Robotics)

2006-now: Visiting Associate in Department of Mechanical Engineering, California Institute of Technology

Research Interests

Motion Planning of Mobile Robot, Omni-directional Mobile Robot, 3-D Sensing, Image Processing (Image Restoration, Image Composition, Document Image Processing)

Awards

- 1) Young Investigation Excellence Award, Robotics Society of Japan, Japan, in 2006.
- 2) Best Paper Presentation Award, Institute of Electrical Engineers of Japan, Japan, in 2006.
- 3) Best Presentation Award in ROBOMECH2004 (JSME Annual Conference on Robotics and Mechatronics), Japan, in 2005.
- 4) Young Researcher Award by the Institute of Image Information and Television Engineers, Japan, in 2004.
- 5) Best Presentation Award in Rescue Robotics Session, 3rd Annual Conference of System Integration Division, Society of Instrument and Control Engineers, Japan, in 2002.
- 6) Ishi-Gakujyutu-Shorei Award by Sogo-Kenkyu-Shoreikai, Japan, in 2001 (Awarded for outstanding PhD thesis in Faculty of Engineering, The University of Tokyo).
- 7) Hatakeyama Award by Japan Society of Mechanical Engineers in 1996 (Given to the Best Student of Department of Precision Machinery Engineering, The University of Tokyo).

Reviewed Papers

- 1) A. Yamashita, M. Kuramoto and T. Kaneko: "Removal of Adherent Noises in Images by Using Multiple Cameras", *The Transactions of The Institute of Electrical Engineers of Japan*, Vol.127-C, No.4, pp.480-488,

April 2007, (in Japanese).

- 2) A. Yamashita, H. Agata and K. Kaneko: "Stripe Chromakey Using Active Contour Models", *The Journal of The Institute of Image Information and Television Engineers*, Vol.61, No.2, pp.189-197, February 2007, (in Japanese).
- 3) A. Yamashita, T. Harada and T. Kaneko: "Three-Dimensional Environment Modeling from Images Acquired with an Omni-Directional Camera Mounted on a Mobile Robot by Structure from Motion", *Transactions of the Japan Society of Mechanical Engineers (Series C)*, Vol.73, No.726, pp.512-519, February 2007, (in Japanese).
- 4) A. Yamashita, H. Higuchi and T. Kaneko: "3-D Measurement of Objects in Water Using the Light Stripe Projection Method", *Journal of the Japan Society for Precision Engineering*, Vol.73, No.2, pp.265-269, February 2007, (in Japanese).
- 5) H. Agata, A. Yamashita and T. Kaneko: "Chroma Key Using a Checker Pattern Background", *IEICE Transactions on Information and Systems*, Vol.90-D, No.1, pp.242-249, January 2007.
- 6) Y. Tanaka, A. Yamashita, T. Kaneko and K. T. Miura: "Removal of Adherent Waterdrops from Images Acquired with a Stereo Camera System", *IEICE Transactions on Information and Systems*, Vol.89-D, No.7, pp.2021-2027, July 2006.
- 7) A. Yamashita, E. Hayashimoto and T. Kaneko: "3-D Shape Measurement of Objects in Liquid with a Laser Range Finder", *Transactions of the Japan Society of Mechanical Engineers (Series C)*, Vol.72, No.717, pp.1506-1513, May 2006, (in Japanese).
- 8) A. Yamashita, T. Hara and T. Kaneko: "Hammering Test with Image and Sound Signal Processing", *Transactions of the Japan Society of Mechanical Engineers (Series C)*, Vol.72, No.715, pp.772-779, March 2006, (in Japanese).
- 9) S. Kato, A. Yamashita, T. Kaneko and K. T. Miura: "Three-dimensional Sensing in Underwater Environments with a Stereo Camera System", *The Journal of Three Dimensional Images*, Vol.19, No.4, pp.102-107, December 2005.
- 10) A. Yamashita, T. Harada, T. Kaneko and K. T. Miura: "Virtual Wiper -Removal of Adherent Noises from Images of Dynamic Scenes by Using a Pan-Tilt Camera-", *Advanced Robotics*, Vol.19, No.3, pp.295-310, April 2005.
- 11) A. Yamashita, A. Nishimoto, T. Kaneko and K. T. Miura: "Automatic Generation of Stereogram by Using Stripe Backgrounds", *The Journal of Three Dimensional Images*, Vol.18, No.1, pp.53-58, March 2004.
- 12) A. Yamashita, T. Kaneko, M. Nishimura and K. T. Miura: "Removal of View-Disturbing Waterdrops in Images Using a Pan-Tilt Camera", *The Journal of Three Dimensional Images*, Vol.18, No.1, pp.47-52, March 2004.
- 13) A. Yamashita, T. Kaneko, S. Matsushita and K. T. Miura: "Region Extraction with Chromakey Using Stripe Backgrounds", *IEICE Transactions on Information and Systems*, Vol.87-D, No.1, pp.66-73, January 2004.
- 14) K. T. Miura, M. Adachi, T. Ikedo, A. Yamashita and T. Kaneko: "View-Dependent Refinement by Two-Stepped Catmull-Clark Subdivision", *The Journal of Three Dimensional Images*, Vol.17, No.4, pp.33-38, December 2003.
- 15) A. Yamashita, T. Kaneko, M. Nishimura and K. T. Miura: "Restoration of Deteriorated Images in Contrary Weather by Changing the Camera Direction -Removal of View-Disturbing Waterdrops in Images by Using a Pan-Tilt Camera System-", *The Journal of The Institute of Image Information and Television Engineers*, Vol.57, No.10, pp.1347-1353, October 2003, (in Japanese).
- 16) A. Yamashita, T. Kaneko, S. Matsushita, K. T. Miura and S. Isogai: "Camera Calibration and 3-D Measurement with an Active Stereo Vision System for Handling Moving Objects", *Journal of Robotics and Mechatronics*, Vol.15, No.3, pp.304-313, June 2003.

- 17) A. Yamashita, H. Asama, T. Arai, J. Ota and T. Kaneko: "A Survey on Trends of Mobile Robot Mechanisms", *The Journal of the Robotics Society of Japan*, Vol.21, No.3, pp.282-292, April 2003, (in Japanese).
- 18) A. Yamashita, T. Arai, J. Ota and H. Asama: "Motion Planning of Multiple Mobile Robots for Cooperative Manipulation and Transportation", *IEEE Transactions on Robotics and Automation*, Vol.19, No.2, pp.223-237, April 2003.
- 19) K. T. Miura, J. Sone, A. Yamashita, T. Kaneko, M. Ueda and M. Osano: "Adaptive Refinement for B-spline Subdivision Curves", *The Journal of Three Dimensional Images*, Vol.16, No.4, pp.74-78, December 2002.
- 20) A. Kawarago, A. Yamashita, T. Kaneko and K. T. Miura: "Character Recognition for Books with Curved Surface using a Stereo Vision System", *The Journal of The Institute of Image Information and Television Engineers*, Vol.56, No.5, pp.858-862, May 2002, (in Japanese).
- 21) M. Kuramoto, A. Yamashita, T. Kaneko and K. T. Miura: "Removal of Adherent Waterdrops in Images Causing View Disturbance", *The Journal of The Institute of Image Information and Television Engineers*, Vol.56, No.5, pp.853-857, May 2002, (in Japanese).
- 22) A. Yamashita, M. Fukuchi, J. Ota, T. Arai and H. Asama: "Motion Planning for Cooperative Transportation of a Large Object by Multiple Mobile Robots", *Transactions of the Japan Society of Mechanical Engineers (Series C)*, Vol.68, No.665, pp.165-172, January 2002, (in Japanese).
- 23) A. Yamashita, T. Kanazawa, H. Asama, H. Kaetsu, I. Endo, T. Arai and K. Sato: "Development of a Holonomic Omni-Directional Mobile Robot with Step-Climbing Ability", *Journal of Robotics and Mechatronics*, Vol.13, No.2, pp.160-167, April 2001.
- 24) A. Yamashita, J. Ota, K. Kawano, M. Fukuchi, T. Arai and H. Asama: "Motion Planning for Cooperative Manipulation of Object by Multiple Mobile Robots", *The Transactions of The Institute of Electrical Engineers of Japan*, Vol.121-C, No.3, pp.549-556, May 2001, (in Japanese).

Referred Conference Papers

- 1) Y. Suzuki, A. Yamashita and T. Kaneko: "Correction of Geometric and Photometric Distortion of Document Images Using a Stereo Camera System", *Proceedings of IAPR Conference on Machine Vision Applications*, pp.215-218, Tokyo (Japan), May 2007.
- 2) A. Yamashita, M. Fujii and T. Kaneko: "Color Registration of Underwater Images for Underwater Sensing with Consideration of Light Attenuation", *Proceedings of the 2007 IEEE International Conference on Robotics and Automation (ICRA2007)*, pp.4570-4575, Roma (Italy), April 2007, to appear.
- 3) H. Agata, A. Yamashita and T. Kaneko: "Region Extraction Using Chroma Key with a Checker Pattern Background", *Proceedings of 2nd Asia International Symposium on Mechatronics (AISM2006)*, Hong Kong (China), December 2006.
- 4) A. Yamashita, T. Hara and T. Kaneko: "Inspection of Visible and Invisible Features of Objects with Image and Sound Signal Processing", *Proceedings of the 2006 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS2006)*, pp.3837-3842, Beijing (China), October 2006.
- 5) A. Yamashita, S. Kato and T. Kaneko: "Robust Sensing against Bubble Noises in Aquatic Environments with a Stereo Vision System", *Proceedings of the 2006 IEEE International Conference on Robotics and Automation (ICRA2006)*, pp.928-933, Orlando (U.S.A.), May 2006.
- 6) T. Harada, A. Yamashita and T. Kaneko: "Environment Observation by Structure from Motion with an Omni-directional Camera", *Proceedings of International Workshop on Advanced Image Technology 2006 (IWAIT2006)*, pp.169-174, Okinawa (Japan), January 2006.
- 7) T. Nakamoto, A. Yamashita, T. Kaneko: "3-D Map Generation by a Mobile Robot Equipped with a Laser Range Finder", *Proceedings of International Workshop on Advanced Image Technology 2006 (IWAIT2006)*, pp.154-159, Okinawa (Japan), January 2006.

- 8) S. Kato, A. Yamashita, T. Kaneko and K. T. Miura: "Three-dimensional Sensing in Underwater Environments with a Stereo Camera System", *Proceedings of the Eighth International Conference on Humans and Computers (HC2005)*, pp.205-210, Tokyo (Japan), September 2005.
- 9) K. T. Miura, J. Sone, A. Yamashita and T. Kaneko: "Derivation of a General Formula of Aesthetic Curves", *Proceedings of the Eighth International Conference on Humans and Computers (HC2005)*, pp.166-171, Aizu-Wakamatsu (Japan), September 2005.
- 10) A. Yamashita, Y. Tanaka and T. Kaneko: "Removal of Adherent Waterdrops from Images Acquired with Stereo Camera", *Proceedings of the 2005 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS2005)*, pp.953-958, Edmonton (Canada), August 2005.
- 11) Y. Tanaka, A. Yamashita, T. Kaneko and Kenjiro T. Miura: "Restoration of Images Stained with Waterdrops on a Protection Glass Surface by Using a Stereo Image Pair", *Proceedings of IAPR Conference on Machine Vision Applications (MVA2005)*, pp.152-155, Tsukuba (Japan), May 2005.
- 12) A. Yamashita, S. Ikeda and T. Kaneko: "3-D Measurement of Objects in Unknown Aquatic Environments with a Laser Range Finder", *Proceedings of the 2005 IEEE International Conference on Robotics and Automation (ICRA2005)*, pp.3923-3928, Barcelona (Spain), April 2005.
- 13) Y. Tanaka, A. Yamashita, T. Kaneko and K. T. Miura: "Waterdrop Removal on a Protection Glass Surface in Stereo Images", *Proceedings of the 8th Joint International Conference on Advanced Science and Technology (JICAST2004)*, pp.137-140, Hangzhou (China), December 2004.
- 14) A. Yamashita, K. Fujita, T. Kaneko and H. Asama: "Path and Viewpoint Planning of Mobile Robots with Multiple Observation Strategies", *Proceedings of the 2004 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS2004)*, pp.3195-3200, Sendai (Japan), October 2004.
- 15) A. Yamashita, T. Harada, T. Kaneko and K. T. Miura: "Removal of Adherent Noises from Images of Dynamic Scenes by Using a Pan-Tilt Camera", *Proceedings of the 2004 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS2004)*, pp.437-442, Sendai (Japan), September 2004.
- 16) S. Ikeda, A. Yamashita and T. Kaneko: "3-D Shape Reconstruction of Objects in Water by a Laser Range Finder Held on a Manipulator", *Proceedings of the Joint Symposium between Sister Universities in Mechanical Engineering (JSSUME2004)*, pp.111-114, Yokohama (Japan), August 2004.
- 17) H. Asakura, A. Yamashita and T. Kaneko: "3-D Measurement of an Object by a Mobile Robot Equipped with a Laser Range Finder", *Proceedings of the Joint Symposium between Sister Universities in Mechanical Engineering (JSSUME2004)*, pp.107-110, Yokohama (Japan), August 2004.
- 18) Y. Tanaka, A. Yamashita, T. Kaneko and K. T. Miura: "Removal of Waterdrops on a Protection Glass Surface from Parallel Stereo Images", *Proceedings of the Joint Symposium between Sister Universities in Mechanical Engineering (JSSUME2004)*, pp.103-106, Yokohama (Japan), August 2004.
- 19) A. Yamashita, A. Kawarago, T. Kaneko and K. T. Miura: "Shape Reconstruction and Image Restoration for Non-Flat Surfaces of Documents with a Stereo Vision System", *Proceedings of 17th International Conference on Pattern Recognition (ICPR2004)*, Vol.1, pp.482-485, Cambridge (U.K.), August 2004.
- 20) A. Yamashita, T. Kaneko and K. T. Miura: "A Virtual Wiper -Restoration of Deteriorated Images by Using a Pan-Tilt Camera-", *Proceedings of the 2004 IEEE International Conference on Robotics and Automation (ICRA2004)*, pp.4724-4729, New Orleans (U.S.A.), April 2004.
- 21) A. Yamashita, H. Higuchi, T. Kaneko and Y. Kawata: "Three Dimensional Measurement of Object's Surface in Water Using the Light Stripe Projection Method", *Proceedings of the 2004 IEEE International Conference on Robotics and Automation (ICRA2004)*, pp.2736-2741, New Orleans (U.S.A.), April 2004.
- 22) A. Yamashita, M. Kuramoto, T. Kaneko and K. T. Miura: "A Virtual Wiper -Restoration of Deteriorated Images by Using Multiple Cameras-", *Proceedings of the 2003 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS2003)*, pp.3126-3131, Las Vegas (U.S.A.), October 2003.

- 23) A. Yamashita, E. Hayashimoto, T. Kaneko and Y. Kawata: "3-D Measurement of Objects in a Cylindrical Glass Water Tank with a Laser Range Finder", *Proceedings of the 2003 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS2003)*, pp.1578-1583, Las Vegas (U.S.A), October 2003.
- 24) T. Hara, A. Yamashita, T. Kaneko and K. T. Miura: "Hammering Test with Image and Sound Signal Processing", *Proceedings of the 6th Japan-France Congress on Mechatronics and 4th Asia-Europe Congress on Mechatronics*, pp.603-608, Saitama (Japan), September 2003.
- 25) S. Kinashi, H. Kitazawa, K. T. Miura, A. Yamashita and T. Kaneko: "Development of a Geometric-Modeling Device with Force-Feedback", *Proceedings of the 6th Japan-France Congress on Mechatronics and 4th Asia-Europe Congress on Mechatronics*, pp.591-596, Saitama (Japan), September 2003.
- 26) K. Fujita, A. Yamashita, T. Kaneko, H. Asakura, K. T. Miura and H. Asama: "Navigation Planning of Autonomous Mobile Robots with Multiple Observation Strategies", *Proceedings of the 6th Japan-France Congress on Mechatronics and 4th Asia-Europe Congress on Mechatronics*, pp.489-494, Saitama (Japan), September 2003.
- 27) K. T. Miura, M. Adachi, T. Ikedo, A. Yamashita and T. Kaneko: "View-Dependent Refinement by Two-Stepped Catmull-Clark Subdivision", *Proceedings of the Sixth International Conference on Humans and Computers (HC-2003)*, pp.30-35, Aizu-Wakamatsu (Japan), August 2003.
- 28) K. T. Miura, J. Sone, H. Masuda, A. Yamashita and T. Kaneko: "An Octree-based Approach to Fast Reconstruction of 3D Objects with Radial Basis Functions", *Proceedings of the Sixth International Conference on Humans and Computers (HC-2003)*, pp.36-41, Aizu-Wakamatsu (Japan), August 2003.
- 29) A. Yamashita, T. Kaneko, M. Nishimura and K. T. Miura: "Removal of View-Disturbing Waterdrops in Images Using a Pan-Tilt Camera", *Proceedings of the Sixth International Conference on Humans and Computers (HC-2003)*, pp.76-81, Aizu-Wakamatsu (Japan), August 2003.
- 30) A. Yamashita, Akihisa Nishimoto, T. Kaneko and K. T. Miura: "Automatic Generation of Stereogram by Using Stripe Backgrounds", *Proceedings of the Sixth International Conference on Humans and Computers (HC-2003)*, pp.253-258, Aizu-Wakamatsu (Japan), August 2003.
- 31) M. Kuramoto, A. Yamashita, T. Kaneko and K. T. Miura: "Removal of Waterdrops in Images by Using Multiple Cameras", *Proceedings of IAPR Workshop on Machine Vision Applications (MVA2002)*, pp.80-83, Nara (Japan), December 2002.
- 32) A. Kawarago, A. Yamashita, T. Kaneko and K. T. Miura: "Character Recognition of Thick Books Using a Stereo Vision System", *Proceedings of IAPR Workshop on Machine Vision Applications (MVA2002)*, pp.358-361, Nara (Japan), December 2002.
- 33) A. Yamashita, T. Kaneko, S. Matsushita and K. T. Miura: "Region Extraction with Chromakey Using Striped Backgrounds", *Proceedings of IAPR Workshop on Machine Vision Applications (MVA2002)*, pp.455-458, Nara (Japan), December 2002.
- 34) N. Tsunekawa, A. Yamashita, T. Kaneko and K. T. Miura: "Edge-Based Recognition of Polyhedral Objects using Gaussian Spheres", *Proceedings of the 7th Joint International Conference on Advanced Science and Technology (JICAST2002)*, pp.507-511, Hamamatsu (Japan), October 2002.
- 35) A. Yamashita, S. Matsushita, T. Sonohara, T. Kaneko, K. T. Miura and S. Isogai: "3-D Measurement of Moving Objects with an Active Stereo Camera System", *Proceedings of the 7th Joint International Conference on Advanced Science and Technology (JICAST2002)*, pp.511-514, Hamamatsu (Japan), October 2002.
- 36) K. T. Miura, J. Sone, A. Yamashita, T. Kaneko, M. Ueda and M. Osano: "Adaptive Refinement for B-Spline Subdivision Curves", *Proceedings of the Fifth International Conference on Humans and Computers (HC-2002)*, pp.57-61, Aizu-Wakamatsu (Japan), September 2002.
- 37) A. Yamashita, J. Ota, T. Arai, K. Ichikawa, K. Kamata and H. Asama: "Cooperative Manipulation and

- Transportation of a Large Object by Multiple Mobile Robots", *Proceedings of the Fourth IFAC Symposium on Intelligent Autonomous Vehicles (IAV2001)*, pp.400-403, Sapporo (Japan), September 2001.
- 38) A. Yamashita, H. Asama, Hayato Kaetsu, I. Endo and T. Arai: "Development of Omni-Directional and Step-Climbing Mobile Robot", *Proceedings of the 3rd International Conference on Field and Service Robotics (FSR2001)*, pp.327-332, Espoo (Finland), June 2001.
- 39) A. Yamashita, M. Fukuchi, J. Ota, T. Arai and H. Asama: "Motion Planning for Cooperative Transportation of a Large Object by Multiple Mobile Robots in a 3D Environment", *Proceedings of the 2000 IEEE International Conference on Robotics and Automation (ICRA2000)*, pp.3144-3151, San Francisco (U.S.A.), April 2000.
- 40) A. Yamashita, K. Kawano, J. Ota, T. Arai, M. Fukuchi, J. Sasaki and Y. Aiyama: "Planning Method for Cooperative Manipulation by Multiple Mobile Robots using Tools with Motion Errors", *Proceedings of the 1999 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS99)*, pp.978-983, Kyongju (Korea), October 1999.
- 41) J. Sasaki, A. Yamashita, N. Miyata, Y. Aiyama, J. Ota and T. Arai: "Constraint of Contacting Points in Cooperative Handling", *Proceedings of the 1998 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS98)*, pp.1425-1430, Victoria (Canada), October 1998.
- 42) A. Yamashita, J. Sasaki, J. Ota and T. Arai: "Cooperative Manipulation of Objects by Multiple Mobile Robots with Tools", *Proceedings of the 4th Japan-France / 2nd Asia-Europe Congress on Mechatronics*, pp.310-315, Kitakyushuu (Japan), October 1998.
- 43) J. Sasaki, G. Nishida, A. Yamashita, Y. Aiyama, J. Ota and T. Arai: "Estimating the Center of Gravity of an Object Using Tilting by Multiple Mobile Robots", *Proceedings of the 1997 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS97)*, pp.1748-1753, Grenoble (France), September 1997.

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