



Takashi Ijiri

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Associate Professor,
Interactive Graphics Lab (PI),
Shibaura Institute of Technology.

Ph.D
Information Science and Technology

Contact information

E-mail1 : takashi.ijiri80 AT gmail.com

E-mail2 : ijiri AT shibaura-it.ac.jp

Address : 3-7-5 Toyosu, Koto-ku, Tokyo, Japan, 135-8548.

Education

4 / 2006 – 3 / 2009 Ph.D in Information Science and Technology, the University of Tokyo.

4 / 2004 – 3 / 2006 MS in Information Science and Technology, the University of Tokyo.

4 / 2000 – 3 / 2004 BS in Information Science, Tokyo Institute of Technology.

Research Interests

I am interested in computer graphics, image processing, and user interface in general, especially in interactive 3D modeling and interactive image segmentation. My current subject is easy-to-use interactive techniques for modeling 3D biological objects such as plants, cells, or organs.

Work Experience

4 / 2017 – present Associate Professor, Shibaura Institute of Technology

4 / 2017 – present Visiting Researcher, Keio University, SFC

9 / 2016 – present Visiting Researcher, National Cerebral and Cardiovascular Center.

4 / 2015 – present Visiting Researcher, RIKEN

4 / 2015 – 3 / 2017 Full time lecturer, Ritsumeikan University

9 / 2014 – 3 / 2016 Visiting Researcher, National Cerebral and Cardiovascular Center.

4 / 2013 – 3 / 2016 Visiting Associate Professor, Hokkaido University

4 / 2012 – 3 / 2015 Special Postdoctoral Researcher, RIKEN

4 / 2009 – 3 / 2012 Researcher, RIKEN

5 / 2007 – 8 / 2007 Student intern, Adobe Systems Incorporated

Programming Experiences

Computer languages: C/C++, OpenGL, Python, Java, Java 3D, and Scheme.

Plat forms: Windows and UNIX.

Language Skills

Japanese (native) and English (10 years of study).

Publications

Journals

- Y. Dobashi, K. Iwasaki, M. Okabe, **T. Ijiri**, H. Todo. **Inverse Appearance Modeling of Interwoven Cloth**. *The Visual Computer*, Vol. 35, Issue 2, pp. 175–190, February 2019.
- T. Ijiri**, H. Todo, A. Hirabayashi, K. Kohiyama, Y. Dobashi. **Digitization of natural objects with micro CT and photographs**. *PLoS ONE* 13(4): e0195852, April 2018. [online journal]
- R. Kawami, A. Hirabayashi, N. Tanaka, **T. Ijiri**, S. Shimamura, H. Kikuchi, G. Kim, T. Ushio. **Simple Compression Technique for Phased Array Weather Radar and 2-Dimensional High-Quality Reconstruction**. *IEEJ Transactions on Electronics, Information and Systems*, Vol. 137, No. 7, pp. 864-870, July 2017.
- N. Nogami, A. Hirabayashi, **T. Ijiri**, J. White. **Toward large-pixel number high-speed imaging exploiting time and space sparsity**. *IEICE Transactions on Fundamentals of Electronics, Communications and Computer Sciences*, Vol. E100-A, No. 6, pp. 1279-1285, June 2017.
- T. Ijiri**, A. Nakamura, A. Hirabayashi, W. Sakai, T. Miyazaki, R. Himeno. **Automatic spin measurements for pitched Baseballs via consumer-grade high-speed cameras**. *Springer, Signal Image and Video Processing*, Vol. 11, Issue 7, pp 1197–1204, 22 February 2017.
- M. Morita, T. Tawara, M. Nishimura, S. Yoshizawa, B. Chou, I. Kuroki, **T. Ijiri**, Y. Tsujimura, R. Himeno, and H. Yokota, **Communication Platform for Image Analysis and Sharing in Biology**. *International Journal of Networking and Computing*, 4(2), 369-391, 2014.
- D. Ueno, K. Makiyama, H. Yamanaka, **T. Ijiri**, H. Yokota and Y. Kubota: **Prediction of open urinary tract in laparoscopic partial nephrectomy by virtual resection plane visualization**. *BMC Urology*, 14(47), 2014.
- T. Ijiri**, S. Yoshizawa, H. Yokota, T. Igarashi. **Flower Modeling via X-ray Computed Tomography**, *ACM Transactions on Graphics*, 33(4), 2014. (SIGGRAPH 2014).
- T. Ijiri**, S. Yoshizawa, Y. Sato, M. Ito, H. Yokota. **Bilateral Hermite Radial Basis Functions for Contour-based Volume Segmentation**. *Computer Graphics Forum*, 32(2), 123-132, 2013. (EUROGRAPHICS 2013)
- T. Ijiri**, T. T. Ashihara, N. Umetani, T. Igarashi, R. Haraguchi, H. Yokota, K. Nakazawa. **A Kinematic Approach for Efficient and Robust Simulation of the Cardiac Beating Motion**. *PLoS ONE* 7(5), 2012.
- T. Ijiri**, H. Yokota. **Contour-based Interface for Refining Volume Segmentation**. *Computer Graphics Forum*, 29(7), 2153-2160, 2010. (Pacific Graphics 2010).
- T. Ijiri**, K. Takayama, H. Yokota, T. Igarashi. **ProcDef: Local-to-global Deformation for Skeleton-free Character Animation**. *Computer Graphics Forum*, 28(7), 1821-1828, 2009. (Pacific Graphics 2009).

- T. Ijiri, R. Měch, G. Miller, T. Igarashi. **An Example-based Procedural System for Element Arrangement**. *Computer Graphics Forum*, 27(2), 429-436, 2008. (EUROGRAPHICS 2008)
- T. Ijiri, T. Ashihara, T. Yamaguchi, K. Takayama, T. Igarashi, T. Shimada, T. Namba, R. Haraguchi, K. Nakazawa. **A procedural method for modeling the Purkinje fibers of the heart**. *The Journal of Physiological Science*, 58(7), 481-486, 2008.
- K. Takayama, T. Ashihara, T. Ijiri, T. Igarashi, R. Haraguchi, K. Nakazawa, **A Sketch-Based Interface for Modeling Myocardial Fiber Orientation that Considers the Layered Structure of the Ventricles**. *The Journal of Physiological Sciences*, 58(7), 487-492, 2008.
- K. Takayama, M. Okabe, T. Ijiri, T. Igarashi. **Lapped solid textures: filling a model with anisotropic textures**. *ACM Transactions on Graphics*, 27(3), 2008. (ACM SIGGRAPH 2008)
- T. Ijiri, S. Owada, T. Igarashi. **Seamless Integration of Initial Sketching and Subsequent Detail Editing in Flower Modeling**. *Computer Graphics Forum*, 25(3), 617-624, 2006. (EUROGRAPHICS 2006)
- T. Ijiri, S. Owada, M. Okabe, T. Igarashi, **Floral diagrams and inflorescences: Interactive flower modeling using botanical structural constraints**. *ACM Transactions on Graphics*, 24(3), 720-726, 2005. (ACM SIGGRAPH 2005)

Refereed full papers (more than 3 pages)

- R. Kawami, H. Kataoka, D. Kitahara, A. Hirabayashi, T. Ijiri, S. Shimamura, H. Kikuchi, T. Ushio. **Fast high-quality three-dimensional reconstruction from compressive observation of phased array weather radar**. In Proceedings of Asia-Pacific Signal and Information Processing Association Annual Summit and Conference (APSIPA ASC) 2017, pp. 44-49, Kuala Lumpur, Malaysia, December 2017.
- R. Kawami, A. Hirabayashi, T. Ijiri, S. Shimamura, H. Kikuchi, T. Ushio. **3-dimensional compressive sensing and high-quality recovery for phased array weather radar**. In Proceedings of 2017 International Conference on Sampling Theory and Applications (SampTA), pp. 658-661, Tallin, Estonia, July 2017.
- C. Tang, N. Inamuro, T. Ijiri, and A. Hirabayashi. **Compressed sensing MRI using double sparsity with additional training images**. In Proceedings of the International Conference on Acoustics, Speech, and Signal Processing (ICASSP) 2017, New Orleans, LA, March 2017.
- Y. Dobashi, T. Ijiri, H. Todo. **Estimating Surface Roughness for Realistic Rendering of Fruits**. IEVC 2017, Da Nang, Vietnam, 28 Feb - 3 Mar 2017
- H. Kataoka, T. Ijiri, J. White, A. Hirabayashi, **Acoustic Probing to Estimate Freshness of Tomato**, *Asia-Pacific Signal and Information Processing Association (APSIPA) 2016*, Jeju Korea, 13-16 Dec 2016.
- R. Kawami; A. Hirabayashi; N. Tanaka; M. Shibata; T. Ijiri, **2-Dimensional High-Quality Reconstruction of Compressive Measurements of Phased Array Weather Radar**, *Asia-Pacific Signal and Information Processing Association (APSIPA) 2016*, Jeju Korea, 13-16 Dec 2016.
- M. Shibata, N. Inamuro, T. Ijiri, and A. Hirabayashi, **High accuracy reconstruction algorithm for CS-MRI using SDMM**, *Asia-Pacific Signal and Information Processing Association (APSIPA) 2016*, Jeju Korea, 13-16 Dec 2016.
- A. Hirabayashi, N. Nogami, T. Ijiri, L. Condat, **Sequential image completion for high-speed large-pixel number sensing**, *EUSIPCO 2016*, Posters, Budapest, Hungary, 29 Aug - 2 Sep 2016.
- T. Kojima, T. Ijiri, H. Kataoka, J. White, A. Hirabayashi. **CogKnife: Food Recognition From Their Cutting Sounds**, *Proc. CEA2016: 8th Workshop on Multimedia for Cooking and Eating Activities (ICME 2016)*, Seattle WA, 15 Jul, 2016.

- K. Nakashima, Y. Koyama, T. Igarashi, **T. Ijiri**, S. Inada, K. Nakazawa., **Interactive Deformation of Structurally Complex Heart Models Constructed from Medical Images**, *Eurographics 2016*, Short Papers, Lisbon, Portugal, 09-13 May, 2016.
- M. Morita, T. Tawara, M. Nishimura, S. Yoshizawa, B. Chou, I. Kuroki, **T. Ijiri**, Y. Tsujimura, R. Himeno, and H. Yokota. **Biomedical Image Communication Platform**, In *Proc. of International Symposium on Computing and Networking*, 281-287, Matsuyama, Japan, 2013.
- T. Ijiri**, M. Yokoo, S. Kawabata, T. Igarashi. **Surface-based Growth Simulation for Opening Flowers**. In *Proc. Graphics Interface 2008*, 227-234. 2008. Michael A. J. Sweeney Award (best student paper award).
- T. Ijiri**, S. Owada, T. Igarashi. **Sketch L-System: Global Control of Tree Modeling Using Free-form Stroke**. In *Proc of the 6th International Symposium of SmartGraphics*, 138-146, 2006.

Other presentations

- Daisuke Inagaki, Yucheng Qiu, Raku Egawa, **Takashi Ijiri**. **Pop-up digital tabletop: seamless integration of 2D and 3D visualizations in a tabletop environment**. SIGGRAPH ASIA 2019, posters, Brisbane Australia 17 November 2019. (refereed poster, 2 page short paper)
- Yucheng Qiu, Daisuke Inagaki, Kenji Kohiyama, Hiroya Tanaka, **Takashi Ijiri**. **Focus stacking by multi-viewpoint focus bracketing**. SIGGRAPH ASIA 2019, posters, Brisbane Australia 17 November 2019. (refereed poster, 2 page short paper)
- Takashi Ijiri**. **3D modeling of flowers and insects by using X-ray CT and photographs**. MEIS 2018, Tokyo Japan, 8-9 Dec 2018. (non refereed, invited talk, 1 page abstract)
- Wataru Ono, Hikaru Shionozaki, **Takashi Ijiri**, Kenji Kohiyama, Hiroya Tanaka. **Shape and texture reconstruction for insects by using X-ray CT and focus stack imaging**. SIGGRAPH ASIA 2018, posters, article no. 36, Tokyo Japan, December 2018. (Refereed poster, 2 page short paper)
- Hiroki Sakai, Daisuke Niino, and **Takashi Ijiri**. **Japanese Kanji Font Style Transfer based on GAN with Unpaired Training**. Pacific Graphics 2018 posters, Hong Kong, China, 8-11 October, 2018. (Refereed poster, 2 page short paper)
- Sakiho Kato, Tomofumi Narita, Chika Tomiyama, **Takashi Ijiri**, Hiroya Tanaka. 4D computed tomography measurement for growing plant animation, SIGGRAPH Asia 2017 Posters, Bangkok, Thailand, 27-30 November, 2017. (Refereed poster, 2 page short paper)
- S. Pirk, B. Benes, O. Deussen, R. Mech, B. Chen. and **T. Ijiri**.: **Modeling Plant Life in Computer Graphics**, *SIGGRAPH 2016 courses*, Anaheim, USA, 24-28 July, 2016. (Refereed tutorial)
- Y. Dobashi, **T. Ijiri**, H. Todo, K. Iwasaki, M. Okabe, S. Nishimura., **Measuring Microstructures Using Confocal Laser-Scanning Microscopy for Estimating Surface Roughness**. *SIGGRAPH 2016 Posters*, Anaheim, USA, 24-28 July, 2016.
- Y. Sato, K. Akita, **T. Ijiri**, Y. Tsukada, M. Ito, H. Yokota, N. Saito. **The diversity of pelvic floor by MRI image analysis and histologic reevaluation of its anatomy**. *Asian Association of Clinical Anatomists*, Busan, Korea, November 3-4, 2012.
- T. Ijiri**, T. Ashihara, N. Umetani, T. Igarashi, R. Haraguchi, H. Yokota, K. Nakazawa, **An Efficient, Robust Framework For Simulating the Beating Heart**, *23rd Conference of the Society for Medical Innovation and Technology*, Tel Aviv, Israel, September 2011.
- Y. Sato, **T. Ijiri**, T. Kobayashi, H. Yokota, M. Ito, **Semi-automatic Segmentation Tool for Anal Sphincter Muscles**, *23rd Conference of the Society for Medical Innovation and Technology*, Tel Aviv, Israel, Sep, 2011.

M. Okabe, K. Takayama, **T. Ijiri**, T. Igarashi, **Light shower: a poor man's light stage built with an off-the-shelf umbrella and projector**, *ACM SIGGRAPH 2007 sketches*, San Diego, CA, USA, Aug, 2007.

T. Ijiri, K. Takayama, T. Igarashi, T. Ashihara, T. Namba, T. Yamaguchi, T. Shimada, R. Haraguchi, K. Nakazawa, **The use of L-system for modeling Purkinje fibers**. *The 2nd MEI International Symposium: The Worldwide Challenge to Physiome and Systems Biology*, 07-09 Dec, 2007.

T. Ijiri, T. Igarashi, S. Takahashi, E. Shibayama. **Sketch interface for 3D modeling of flowers**, *SIGGRAPH 2004 Sketches and Applications*, Los Angeles, CA, USA, Aug, 2004.

(and others in Japanese)