KENJIRO SUGIMOTO, Ph.D.

Position	Research Associate
Affiliation	Waseda University, Japan
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Education

2009–2014	**Ph.D. of Engineering**, Waseda University, Graduate School of Information, Production and Systems, Japan.
2007–2009	**Master of Engineering**, Waseda University, Graduate School of Information, Production and Systems, Japan.
2005–2007	**Bachelor of Engineering** (with honors), Kurume National College of Technology, Advanced Engineering School, Japan.

Career

Oct. 2015 – Current	**Research Associate** with Waseda University, Japan. I am concentrating on theoretically accelerating modern image filtering algorithms for real-time computer vision applications.
Aug. 2015 – Sep. 2015	**Visiting Research Scientist** with Durham University, UK. **Adjunct Researcher** with Waseda University, Japan. This research theme was to design efficient real-time stereo vision algorithms using image filtering techniques.
Oct. 2014 – Jul. 2015	**Research Associate** with Waseda University, Japan. This research theme was a stereo vision task for autonomous vehicles with multiple cameras for intelligent transportation system.
Apr. 2010 – Mar. 2012	**Research Fellow** of Japan Society for the Promotion of Science, Japan. This research theme was faster image retrieval based on color information, which was applied to medicine package recognition system for preventing from dispensing error.

Research

My research interests lie on image processing and pattern recognition. Particularly, I am currently concentrating on pursuing more generalized but still practical algorithms of image filtering from a theoretical viewpoint. Image filtering still plays a fundamental role in many modern image processing applications, e.g., convolution operations in deep learning and denoising tools in vision applications.

Sharing research outcome with society is a major research motto of mine. I have developed medicine package checking systems based on image pattern recognition for supporting prescription process by collaborating with several companies. In recent years, the systems have been widely introduced into many pharmacies/drugstores in Japan, assisting pharmacists in their daily work for safe prescription process.

Publications

Journal papers/letters

- **Kenjiro Sugimoto**, and Sei-ichiro Kamata: "Compressive bilateral filtering", *IEEE Transactions on Image Processing*, vol. 24, no. 11, pp. 3357–3369 (November 2015).

- **Kenjiro Sugimoto**, and Sei-ichiro Kamata: "Efficient constant-time Gaussian filtering with sliding DCT/DST-5 and dual-domain error minimization", *ITE Transactions on Media Technology and Applications*, vol. 3, no. 1, pp. 12–21 (January 2015).

- **Kenjiro Sugimoto**, Koji Inoue, Yoshimitsu Kuroki, and Sei-ichiro Kamata: "A linear manifold color descriptor for medicine package recognition", *IEICE Transaction on Information and Systems.* vol. E95–D, no. 5, pp. 1264-1271 (May 2012).

- **Kenjiro Sugimoto**, Yoshimitsu Kuroki, and Sei-ichiro Kamata: "Lossless image compression based on predictor selection using local characteristics" (in Japanese), *IEICE Transaction on Information and Systems*, vol. J92–D, no. 10, pp. 1698–1701 (October 2009).

International conference papers

- Ryo Okutani, **Kenjiro Sugimoto**, and Sei-ichiro Kamata: "Efficient keypoint detection and description using via polynomial regression of scale space", *Proceedings of IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, pp. 1357–1361 (March 2016).

- Yuhang Ji, Qieshi Zhang, **Kenjiro Sugimoto**, and Sei-ichiro Kamata: "Disparity refinement with stability-based tree for stereo matching", *Proceedings of IEEE Intelligent Vehicles Symposium (IV)*, pp. 469–474 (June–July 2015).

- **Kenjiro Sugimoto**, Keiichiro Shirai and Sei-ichiro Kamata: "O(1) transposed bilateral filtering for optimization", *Proceedings of APSIPA Annual Summit and Conference (APSIPA ASC)*, pp. 1–4 (December 2014).

- **Kenjiro Sugimoto**, and Sei-ichiro Kamata: "Fast Gaussian filter with second-order shift property of DCT-V", *Proceedings of IEEE International Conference on Image Processing (ICIP)*, pp. 514–518 (September 2013). // Top 10% Paper Recognition: 4.5%

- **Kenjiro Sugimoto**, and S. Kamata: "Fast Gaussian filter based on DCT-V", *Proceedings of International Workshop on Advanced Image Technology (IWAIT)*, pp. 338–343 (January 2013).

- **Kenjiro Sugimoto**, and S. Kamata: "Fast image filtering by DCT-based kernel decomposition and sequential sum update", *Proceedings of IEEE International Conference on Image Processing (ICIP)*, pp. 125–128 (September 2012). // IEEE Fukuoka Section - Excellent Student Award 2012

- **Kenjiro Sugimoto**, and Sei-ichiro Kamata: "Color distribution matching using a weighted subspace descriptor", *Proceedings of IEEE International Conference on Image Processing (ICIP)*, pp. 1733–1736 (September 2011).

- **Kenjiro Sugimoto**, and Sei-ichiro Kamata: "Fast color matching using weighted subspace on medicine package recognition", *Proceedings of IAPR Machine Vision Applications (MVA)*, pp. 287–290 (June 2011).

- **Kenjiro Sugimoto**, Koji Inoue, Yoshimitsu Kuroki, and Sei-ichiro Kamata: "A color distribution descriptor for medicine package recognition", *Proceedings of China-Japan-Korea Joint Workshop on Pattern Recognition (CJKPR)*, pp. 64–69 (November 2010).

- **Kenjiro Sugimoto** and Sei-ichiro Kamata: "A study on fast random access decompression using start-step-stop coding and rank/select dictionary", *Proceedings of ISCA Advanced Computing and Communications (ACC)*, CD-ROM (September 2010).

- **Kenjiro Sugimoto**, Yoshimitsu Kuroki, Sei-ichiro Kamata and Yoshifumi Ueshige: "An improved predictor based on analysis of local information for lossless image compression", *Proceedings of International Symposium on Information and Computer Elements (ISICE)*, pp. 227–230 (September 2007).

Activity reports

- **Kenjiro Sugimoto**, and Akinari Tsugo: "A report of Visual Information Processing Camp 2008" (in Japanese), *Journal of IIEEJ*, vol. 38, no. 2, pp. 205–211 (March 2009).

Technical Skills

Languages	Japanese (Native), English (Business-level), Chinese (Beginner-level)
Programming	C/C++, C#, Java, Python, OpenCV, HTML, JavaScript. I participated in ACM/ICPC, the most famous programming contest in the world, advancing to Asia regional rounds by passing Japan domestic rounds in 2005 and 2006.

References

Supervisor	Prof. Sei-ichiro Kamata
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