

Yusuke Matsui | CV

National Institute of Informatics, 2-1-2 Hitotsubashi
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Web / Google Scholar / Github

Research Interests

Computer vision (approximate nearest neighbor search, large-scale clustering, image retrieval).
Computer graphics (comic image processing, drawing assistance).

Education

- 2013–2016 **PhD, Information Science and Technology**, *The University of Tokyo, Japan*.
Advisor: Prof. Kiyoharu Aizawa
Thesis: Retrieval and Drawing Assistance for Manga
- 2011–2013 **MA, Interdisciplinary Information Studies**, *The University of Tokyo, Japan*.
Advisor: Prof. Kiyoharu Aizawa
- 2007–2011 **BE, Information and Communication Engineering**, *The University of Tokyo, Japan*.
Advisor: Prof. Kiyoharu Aizawa

Research and Work Experience

- 2016–Present **Postdoctoral Researcher**, *National Institute of Informatics, Japan*.
Mentor: Prof. Shin'ichi Satoh
Research topic: Large-scale image search
- 2017 **Technical Advisor**, *DAWANGO Co., Ltd., Japan*.
- Spring 2016 **Visiting Student**, *Columbia University, New York, NY, USA*.
Mentor: Prof. Shih-Fu Chang
Research topic: Efficient nearest neighbor search
- Summer 2014 **Research Intern**, *Microsoft Research, Redmond, WA, USA*.
Mentor: Dr. Yinpeng Chen
Research topic: Cartoon rendering for immersive telecommunications
- Summer 2013 **Research Intern**, *Microsoft Research Asia, Beijing, China*.
Mentor: Dr. Takaaki Shiratori
Research topic: Drawing assistance system

Awards

- 2018 **Outstanding Reviewer Award**, *ACM ICMR*.
- 2018 **7th place, Retrieval Challenge**, *Google Landmark Competition*.
in 209 teams
- 2018 **7th place, Recognition Challenge**, *Google Landmark Competition*.
in 483 teams
- 2016 **Student Best Paper Award**, *IEEE Signal Processing Society, Japan*.
- 2016 **Dean's Award**, *The University of Tokyo*, for PhD thesis.
Ranked top 6 in 50 students
- 2013 **Dean's Award**, *The University of Tokyo*, for master thesis.
Ranked 1st in 90 students
- 2011 **Dean's Award**, *The University of Tokyo*, for bachelor thesis.
Ranked 1st in 80 students

Journal Publications

- [1] Yusuke Matsui, Toshihiko Yamasaki, Kiyoharu Aizawa, "PQTable: Non-exhaustive Fast Search for Product-quantized Codes using Hash Tables", IEEE Transactions on Multimedia, (TMM), 2018.
- [2] Yusuke Matsui, Yusuke Uchida, Hervé Jégou, Shin'ichi Satoh, "A Survey of Product Quantization", ITE Transactions on Media Technology and Applications, (ITE), 2018.
- [3] Yusuke Matsui, Takaaki Shiratori, Kiyoharu Aizawa, "DrawFromDrawings: 2D Drawing Assistance via Stroke Interpolation with a Sketch Database", IEEE Transactions on Visualization and Computer Graphics, (TVCG), 2017.
- [4] Yusuke Matsui, Kota Ito, Yuji Aramaki, Azuma Fujimoto, Toru Ogawa, Toshihiko Yamasaki, Kiyoharu Aizawa, "Sketch-based Manga Retrieval using Manga109 Dataset", Multimedia Tools and Applications, (MTAP), 2017.

Conference Publications

- [5] Yusuke Matsui, Shin'ichi Satoh, "Revisiting Column-Wise Vector Quantization for Memory-Efficient Matrix Multiplication", IEEE International Conference on Image Processing, (ICIP), 2018.
- [6] Yusuke Matsui, Keisuke Ogaki, Toshihiko Yamasaki, Kiyoharu Aizawa, "PQk-means: Billion-scale Clustering for Product-quantized Codes", ACM International Conference on Multimedia, (ACMMM), 2017.
- [7] Yusuke Matsui, "Challenge for Manga Processing: Sketch-based Manga Retrieval", ACM International Conference on Multimedia, (ACMMM), Doctoral Symposium, 2015.
- [8] Yusuke Matsui, Toshihiko Yamasaki, Kiyoharu Aizawa, "PQTable: Fast Exact Asymmetric Distance Neighbor Search for Product Quantization using Hash Tables", IEEE International Conference on Computer Vision, (ICCV), 2015.
- [9] Yusuke Matsui, Kiyoharu Aizawa, Yushi Jing, "Sketch2Manga: Sketch-based Manga Retrieval", IEEE International Conference on Image Processing, (ICIP), 2014.
- [10] Yusuke Matsui, Toshihiko Yamasaki, Kiyoharu Aizawa, "Interactive Manga Retargeting", ACM SIGGRAPH, Poster, 2011.
- [11] Ryota Hinami, Yusuke Matsui, Shin'ichi Satoh, "Region-based Image Retrieval Revisited", ACM International Conference on Multimedia, (ACMMM), 2017.
- [12] Junfu Pu, Yusuke Matsui, Fan Yang, Shin'ichi Satoh, "Energy based Fast Event Retrieval in Video with Temporal Match Kernel", IEEE International Conference on Image Processing, (ICIP), 2017.
- [13] Chairath Sirirattanapol, Yusuke Matsui, Shin'ichi Satoh, Kuninori Matsuda, Kazuaki Yamamoto, "Deep Image Retrieval Applied on Kotenseki Ancient Japanese Literature", IEEE International Workshop on Machine Learning and Computing for Visual Semantic Analysis, (MLCSA), 2017.
- [14] Yuji Aramaki, Yusuke Matsui, Toshihiko Yamasaki, Kiyoharu Aizawa, "Text Detection in Manga by Combining Connected-component-based and Region-based Classifications", IEEE International Conference on Image Processing, (ICIP), 2016.
- [15] Toru Ogawa, Yusuke Matsui, Toshihiko Yamasaki, Kiyoharu Aizawa, "Sketch Simplification by Classifying Strokes", International Conference on Pattern Recognition, (ICPR), 2016.
- [16] Kota Ito, Yusuke Matsui, Toshihiko Yamasaki, Kiyoharu Aizawa, "Interactive Region Segmentation for Manga", International Conference on Pattern Recognition, (ICPR), 2016.

- [17] Azuma Fujimoto, Toru Ogawa, Kazuyoshi Yamamoto, Yusuke Matsui, Toshihiko Yamasaki, Kiyoharu Aizawa, "Manga109 Dataset and Creation of Metadata", International Workshop on Comics Analysis, Processing and Understanding, (MANPU), 2016.
- [18] Masaki Saito, Yusuke Matsui, "Illustration2vec: A Semantic Vector Representation of Illustrations", ACM SIGGRAPH Asia, Technical Brief, 2015.
- [19] Yuji Aramaki, Yusuke Matsui, Toshihiko Yamasaki, Kiyoharu Aizawa, "Interactive Segmentation for Manga using Lossless Thinning and Coarse Labeling", APSIPA ASC, 2015.
- [20] Kota Ito, Yusuke Matsui, Toshihiko Yamasaki, Kiyoharu Aizawa, "Separation of Manga Line Drawings and Screentones", Eurographics, Short Paper, 2015.
- [21] Yuji Aramaki, Yusuke Matsui, Toshihiko Yamasaki, Kiyoharu Aizawa, "Interactive Segmentation for Manga", ACM SIGGRAPH, Poster, 2014.
- [22] Daiki Matsumoto, Yusuke Matsui, Toshihiko Yamasaki, Kiyoharu Aizawa, Takanori Katagiri, "IllustStyleMap: Visualization of Illustrations based on Similarity of Drawing Style of Authors", ACM SIGGRAPH, Poster, 2014.
- [23] Kazuhiro Sato, Yusuke Matsui, Toshihiko Yamasaki, Kiyoharu Aizawa, "Reference based Manga Colorization by Graph Correspondence Using Quadratic Programming", ACM SIGGRAPH Asia, Technical Brief, 2014.
- [24] Saemi Choi, Yusuke Matsui, Kiyoharu Aizawa, "Diffusion : Change an Ambience of the Space with a Small Amount of Ink", ACM SIGGRAPH Asia, Poster, 2014.

Invited Talks

- 2018 Sketch-based Manga Retrieval, Handai IDS-JFLI joint Workshop on Media and Graphics, Japan.
- 2017 Sketch-Based Image Retrieval And Data-Driven Drawing Assistance, Vietnam-Japan Scientific Exchange Meeting, Japan.
- 2017 Writing an Image Search Engine from Scratch, Computer Graphics and Visual Informatics, Japan.
- 2016 PQTable: Fast Exact Asymmetric Distance Neighbor Search for Product Quantization using Hash Tables, The 21st Meeting on Image Recognition and Understanding, Japan.
- 2016 PQTable: Fast Exact Asymmetric Distance Neighbor Search for Product Quantization using Hash Tables, The 20th Image Processing Tokyo, Japan.
- 2016 Manga Image Processing, The 15th Forum on Information Technology, Japan.

Teaching

- Winter 2016 Approximate Nearest Neighbor Search via Short Codes, invited lecture, Osaka University, Japan.
- Winter 2011 Image Processing using Kinect, The University of Tokyo, Japan.

Grants

- 2018–2020 **ACT-I (Advanced)**, *Japan Science and Technology Agency.*
- 2016–2018 **Future Investment Research Project**, *Research Organization of Information and Systems.*
- 2016–2018 **ACT-I**, *Japan Science and Technology Agency.*
- 2016–2018 **Research Activity Start-up**, *Japan Society for the Promotion of Science.*
- 2016–2017 **Joint Research**, *DWANGO Co., Ltd..*
- 2013–2016 **Research Fellowship for Young Scientists (DC1)**, *The Japan Society for the Promotion of Science.*

Professional Activities/Service

- 2018 **General Chair**, *International Workshop on coMics ANalysis, Processing, and Understanding (MANPU)*.
- 2018 **Publication Chair**, *ACM International Conference on Multimedia Retrieval (ICMR)*.
- 2017 **Program Chair**, *International Workshop on coMics ANalysis, Processing, and Understanding (MANPU)*.

References

Shin'ichi Satoh, Ph.D. (satoh@nii.ac.jp), Professor, National Institute of Informatics, Japan. (advisor at National Institute of Informatics)

Kiyoharu Aizawa, Ph.D. (aizawa@hal.t.u-tokyo.ac.jp), Professor, Department of Information and Communication Engineering, The University of Tokyo, Japan. (Thesis advisor)

Toshihiko Yamasaki, Ph.D. (yamasaki@hal.t.u-tokyo.ac.jp), Associate Professor, Department of Information and Communication Engineering, The University of Tokyo, Japan. (Thesis co-advisor)