

松井 勇佑

The University of Tokyo, 7-3-1 Hongo
Bunkyo-ku, Tokyo, 113-8656, Japan
✉ matsui@hal.t.u-tokyo.ac.jp
🌐 <http://yusukematsui.me>

Research Interests

Computer vision and multimedia processing (large-scale indexing, image retrieval, comic image processing).

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.*
- 2007–2011 **BE, Information and Communication Engineering**, *The University of Tokyo, Japan.*

Research and Work Experience

- 2020–Present **Lecturer (Assistant Professor)**, *Department of Information and Communication Engineering, Graduate School of Information Science and Technology,, The University of Tokyo, Japan.*
- 2019–2020 **Assistant Professor**, *Institute of Industrial Science, The University of Tokyo, Japan.*
at Prof. Yoichi Sato's Lab
- 2016–2018 **Postdoctoral Researcher**, *National Institute of Informatics, Japan.*
at Prof. Shin'ichi Satoh's Lab
- Spring 2016 **Visiting Student**, *Columbia University, New York, NY, USA.*
Mentor: Prof. Shih-Fu Chang
- Summer 2014 **Research Intern**, *Microsoft Research, Redmond, WA, USA.*
Mentor: Dr. Yinpeng Chen
- Summer 2013 **Research Intern**, *Microsoft Research Asia, Beijing, China.*
Mentor: Dr. Takaaki Shiratori

Journal Publications

- [1] [Yusuke Matsui](#), Toshihiko Yamasaki, Kiyoharu Aizawa, "PQTable: Nonexhaustive 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

- [1] [Yusuke Matsui](#), Ryota Hinami, Shin'ichi Satoh, "Reconfigurable Inverted Index", *ACM International Conference on Multimedia*, (ACMMM), 2018.

- [2] Yusuke Matsui, Shin'ichi Satoh, "Revisiting Column-Wise Vector Quantization for Memory-Efficient Matrix Multiplication", IEEE International Conference on Image Processing, (ICIP), 2018.
- [3] Yusuke Matsui, Keisuke Ogaki, Toshihiko Yamasaki, Kiyoharu Aizawa, "PQk-means: Billion-scale Clustering for Product-quantized Codes", ACM International Conference on Multimedia, (ACMMM), 2017.
- [4] Yusuke Matsui, "Challenge for Manga Processing: Sketch-based Manga Retrieval", ACM International Conference on Multimedia, (ACMMM), 2015.
- [5] 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.
- [6] Yusuke Matsui, Kiyoharu Aizawa, Yushi Jing, "Sketch2Manga: Sketch-based Manga Retrieval", IEEE International Conference on Image Processing, (ICIP), 2014.
- [7] Yusuke Matsui, Toshihiko Yamasaki, Kiyoharu Aizawa, "Interactive Manga Retargeting", ACM SIGGRAPH, 2011.
- [8] Fan Yang, Ryota Hinami, Yusuke Matsui, Steven Ly, Shin'ichi Satoh, "Efficient Image Retrieval via Decoupling Diffusion into Online and Offline Processing", AAAI Conference on Artificial Intelligence, (AAAI), 2019.
- [9] Haolin Ren, Fan Yang, Benjamin Renoust, Yusuke Matsui, Tetsuro Kobayashi, Shin'ichi Satoh, "Evaluating Face Tracking for Political Analysis in Japanese News Over a Long Period of Time", IEEE/WIC/ACM International Conference on Web Intelligence, (WI), 2019.
- [10] Ryota Hinami, Yusuke Matsui, Shin'ichi Satoh, "Region-based Image Retrieval Revisited", ACM International Conference on Multimedia, (ACMMM), 2017.
- [11] 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.
- [12] 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.
- [13] 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.
- [14] Toru Ogawa, Yusuke Matsui, Toshihiko Yamasaki, Kiyoharu Aizawa, "Sketch Simplification by Classifying Strokes", International Conference on Pattern Recognition, (ICPR), 2016.
- [15] Kota Ito, Yusuke Matsui, Toshihiko Yamasaki, Kiyoharu Aizawa, "Interactive Region Segmentation for Manga", International Conference on Pattern Recognition, (ICPR), 2016.
- [16] 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.
- [17] Masaki Saito, Yusuke Matsui, "Illustration2vec: A Semantic Vector Representation of Illustrations", ACM SIGGRAPH Asia, 2015.
- [18] Yuji Aramaki, Yusuke Matsui, Toshihiko Yamasaki, Kiyoharu Aizawa, "Interactive Segmentation for Manga using Lossless Thinning and Coarse Labeling", APSIPA ASC, 2015.
- [19] Kota Ito, Yusuke Matsui, Toshihiko Yamasaki, Kiyoharu Aizawa, "Separation of Manga Line Drawings and Screentones", Eurographics, 2015.
- [20] Yuji Aramaki, Yusuke Matsui, Toshihiko Yamasaki, Kiyoharu Aizawa, "Interactive Segmentation for Manga", ACM SIGGRAPH, 2014.

- [21] Daiki Matsumoto, Yusuke Matsui, Toshihiko Yamasaki, Kiyoharu Aizawa, Takanori Katagiri, "IllustStyleMap: Visualization of Illustrations based on Similarity of Drawing Style of Authors", ACM SIGGRAPH, 2014.
- [22] Kazuhiro Sato, Yusuke Matsui, Toshihiko Yamasaki, Kiyoharu Aizawa, "Reference based Manga Colorization by Graph Correspondence Using Quadratic Programming", ACM SIGGRAPH Asia, 2014.
- [23] Saemi Choi, Yusuke Matsui, Kiyoharu Aizawa, "Diffusion : Change an Ambience of the Space with a Small Amount of Ink", ACM SIGGRAPH Asia, 2014.

Technical Reports

- [1] Yasunori Kudo, Keisuke Ogaki, Yusuke Matsui, Yuri Odagiri, "Unsupervised Adversarial Learning of 3D Human Pose from 2D Joint Locations", CoRR, 2018.
- [2] Toru Ogawa, Atsushi Otsubo, Rei Narita, Yusuke Matsui, Toshihiko Yamasaki, Kiyoharu Aizawa, "Object Detection for Comics using Manga109 Annotations", CoRR, 2018.
- [3] Yusuke Matsui, Toshihiko Yamasaki, Kiyoharu Aizawa, "PQTable: Non-exhaustive Fast Search for Product-quantized Codes using Hash Tables", CoRR, 2017.
- [4] Yusuke Matsui, Keisuke Ogaki, Kiyoharu Aizawa, Toshihiko Yamasaki, "PQk-means: Billion-scale Clustering for Product-quantized Codes", CoRR, 2017.
- [5] Yusuke Matsui, Kota Ito, Yuji Aramaki, Toshihiko Yamasaki, Kiyoharu Aizawa, "Sketch-based Manga Retrieval using Manga109 Dataset", CoRR, 2015.
- [6] 松井勇佑, 佐野峻平, 古田諒佑, "ICIP 2014 参加報告", 映像情報メディア学会誌, 2015.
- [7] 松井勇佑, 崔セミ, "SIGGRAPH ASIA 2014 参加報告", 映像情報メディア学会誌, 2015.
- [8] 松井勇佑, 山崎俊彦, "ゼロから始めるクラウド・コンピューティング~Amazon Web Services 応用編~", 映像情報メディア学会誌, 2015.
- [9] 松井勇佑, "マイクロソフトリサーチアジア (北京) 見学取材レポート", 映像情報メディア学会誌, 2014.
- [10] 松井勇佑, "Kinect を用いた画像処理プログラミング (1)", 映像情報メディア学会誌, 2012.

Book

- [1] 米谷竜, 斎藤英雄, 池畑諭, 牛久祥孝, 内山英昭, 内海ゆづ子, 小野峻佑, 片岡裕雄, 金崎朝子, 川西康友, 齋藤真樹, 櫻田健, 高橋康輔, 松井勇佑, "コンピュータビジョン—広がる要素技術と応用—", 共立出版, 2018.

Awards

- 2018 **7th place**, *Google Landmark Retrieval Challenge*.
- 2018 **7th place**, *Google Landmark Recognition Challenge*.
- 2018 **Outstanding Reviewer Award**, *ACM ICMR*.
- 2011 **ACM Student Research Competition 3rd Place**, *ACM SIGGRAPH*.
- 2018 **船井研究奨励賞**, 船井情報科学振興財団.
- 2016 **Student Best Paper Award**, 第 10 回 *IEEE Signal Processing Society Japan*.
- 2016 **研究会推薦博士論文速報**, *IPSJ*.
- 2016 **研究科長賞**, 東京大学大学院情報理工学系研究科.
- 2015 **学生論文賞**, *IMPS*.
- 2014 **最優秀インタラクティブ発表賞**, *HCG シンポジウム*.
- 2013 **学府長賞**, 東京大学大学院学際情報学府.
- 2012 **原島博学術奨励賞**, 電気・電子情報学術振興財団.

2011 工学部長賞, 東京大学工学部.

Invited Talks

- 2018 **Manga109 and Beyond: Recent Advancement in Comic Image Processing**, *Naver*, [Yusuke Matsui](#).
- 2018 **Sketch-based Manga Retrieval**, *Handai IDS-JFLI joint Workshop on Media and Graphics*, [Yusuke Matsui](#).
- 2017 **Sketch-Based Image Retrieval And Data-Driven Drawing Assistance**, *Vietnam-Japan Scientific Exchange Meeting (VJSE)*, [Yusuke Matsui](#).
- 2020 **annbench: 近似最近傍探索アルゴリズムのベンチマーク**, *ML@Loft #11*, [松井勇佑](#).
- 2020 **近似最近傍探索の最前線**, 東北大学 *MiCS (みちのく情報伝達学セミナー)*, [松井勇佑](#).
- 2019 **billion-scale の近似最近傍探索**, 産業技術総合研究所, [松井勇佑](#).
- 2018 **billion-scale の近似最近傍探索**, サーバーエージェント, [松井勇佑](#).
- 2018 **billion-scale の近似最近傍探索**, *DeNA*, [松井勇佑](#).
- 2018 **古典籍に対する画像検索**, 日本語の歴史的典籍国際研究集会, [松井勇佑](#).
- 2017 **1時間で画像検索エンジンを作る**, コンピュータグラフィックスとビジュアル情報学研究会, [松井勇佑](#).
- 2016 **PQTable: Fast Exact Asymmetric Distance Neighbor Search for Product Quantization using Hash Tables**, 第19回画像の認識・理解シンポジウム (*MIRU*), 招待講演, [松井勇佑](#).
- 2016 **PQTable: ハッシュテーブルを用いたプロダクト量子化ベクトルの高速探索**, 第20回 *Image Processing Tokyo*, [松井勇佑](#).
- 2016 **ショートコードによる近似最近傍探索**, 大阪大学 講義, [松井勇佑](#).
- 2016 **漫画に対する画像処理**, 第15回情報科学技術フォーラム (*FIT*), 助教が吼える! 各界の若手研究者大集合, [松井勇佑](#).

Tutorials

- 2020 **Image Retrieval in the Wild**, *CVPR 2020 Tutorial*, [Yusuke Matsui](#), Takuma Yamaguchi, Zheng Wang.
- 2019 **近似最近傍探索の最前線**, 第22回画像の認識・理解シンポジウム (*MIRU*), チュートリアル, [松井勇佑](#).

Professional Activities/Service

- 2019 **Local Chair**, *IEEE International Conference on Computational Photography*.
- 2019 **Organizer**, *Multi-Discipline Approach for Learning Concepts - Zero-Shot, One-Shot, Few-Shot and Beyond (ICCV Workshop)*.
- 2018 **General Chair**, *International Workshop on coMics ANalysis, Processing and Understanding*.
- 2018 **Publication Chair**, *ACM International Conference on Multimedia Retrieval*.
- 2017 **Program Chair**, *International Workshop on coMics ANalysis, Processing and Understanding*.
- 2020 **エリアチェア**, *MIRU*.
- 2019 **エリアチェア**, *MIRU*.
- 2019 **幹事**, コミック工学研究会.

Grants

- 2019–2023 **大規模で不完全なセンサデータに対する高速な近似最近傍探索**, さきがけ, 科学技術振興機構, [松井勇佑](#).

- 2019–2022 **Perfect-code** のハッシングへの応用と数理的解析, 基盤研究 B, 科学研究費助成金, 上瀧剛, 白井啓一郎, 京地清介, 松井勇佑.
- 2018–2020 **圧縮線形代数：データ圧縮による省メモリ高速大規模行列演算**, ACT-I 加速フェーズ, 科学技術振興機構, 松井勇佑.
- 2016–2019 **画像検索のための構造化問い合わせ言語による歴史的典籍画像検索システム**, 未来投資型プロジェクト, 情報・システム研究機構, 松井勇佑, 佐藤真一.
- 2016–2018 **圧縮線形代数：データ圧縮による省メモリ高速大規模行列演算**, ACT-I, 科学技術振興機構, 松井勇佑.
- 2016–2018 **映像データベースを用いた非専門家向けアニメーション制作支援**, 研究活動スタート支援, 日本学術振興会, 松井勇佑.
- 2016–2017 **大規模画像・映像コンテンツの解析**, 共同研究, 株式会社ドワンゴ, 松井勇佑.
- 2013–2016 **漫画に対する画像処理（漫画の特徴を考慮した検索とリターゲティング）**, 特別研究員 (DC1), 日本学術振興会, 松井勇佑.

Last updated: July 11, 2020