

Makoto Yamada

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RESEARCH INTERESTS **Machine Learning:** nonlinear feature selection, transfer learning, discriminative learning, anomaly detection, and matrix factorization.
Bioinformatics: personalized/precision medicine (biomarker discovery)

EDUCATION ◇ **The Graduate University for Advanced Studies**, Tachikawa, Tokyo, Japan.
Ph.D., Statistical Science, March 2010
◇ **Colorado State University**, Fort Collins, CO, U.S.A.
M.S., in Electrical Engineering, May 2005
◇ **University of Aizu**, Aizuwakamatsu, Fukushima, Japan.
B.S., Computer Science, Mar 2003

ACADEMIC EXPERIENCE ◇ **RIKEN AIP center**, Tokyo Japan
Unit Leader (PI, equivalent to associate professor) **March, 2017 - present**
◇ **Kyoto University**, Kyoto, Japan
Assistant Professor **October, 2015 - February, 2017**
◇ **Carnegie Mellon University & Disney Research**, Pittsburgh, PA USA
Visitor **January, 2012 - June, 2012**
◇ **Tokyo Institute of Technology**, O-okayama, Tokyo Japan
Postdoctoral Fellow **April, 2010 - June, 2012**

INDUSTRY EXPERIENCE ◇ **Yahoo Labs**, Sunnyvale USA
Research Scientist **July, 2013 - October, 2015**
◇ **NTT Communication Science Laboratory**, Kyoto Japan
Research Associate **July, 2012 - June, 2013**
◇ **Yamaha Corporation**, Iwata, Shizuoka Japan
Research Engineer **July, 2007 - March, 2010**
◇ **Hitachi Corporation**, Hitachinaka, Ibaraki, Japan
System Engineer **July, 2005 - June, 2007**

SKILLS ◇ C, C++, Python, MATLAB
◇ Hadoop, Spark, Pig
◇ Native in Japanese, Fluent in spoken/written English

PROFESSIONAL
AFFILIATIONS AND
ACTIVITIES

1. **Member**, IEEE.
2. **Reviewer**, JMLR, Neural Computation, IEEE Trans. SP, NN and KDE, Pattern Recognition Letters, Neural Networks, Speech Communication, Neurocomputing, NIPS 2011-2015, ECML 2010,2012, SDM 2013,2014, MLSP 2011, WWW 2014
3. **Publicity chair** WSDM 2018
4. **SPC member** AIRS 2016
5. **PC member**, WWW 2015-2017, WSDM 2017, AISTATS 2014-2017, ICML 2017, ICANN 2011, IJCAI 2011-15, 2017, AAAI 2017, ACML 2010-2015, ECML 2016-2017, SIGIR 2016-2017, SDM 2017

HONORS AND
AWARDS

1. Best paper award, ACM International Conference on Web Search and Data Mining (WSDM 2016)
2. Yahoo Labs Excellence Award, 2014
3. Interactive Presentation Award, Meeting on Image Recognition and Understanding (MIRU2013).
4. IBISML Award Finalist in 2012, IEICE, Information-Based Induction Sciences and Machine Learning (IBISML) Technical Group
5. Honorable mention, Information-Based Induction Sciences (IBIS 2010)
6. Student Travel Grant, International Conference on Acoustics, Speech, and Signal Processing (ICASSP 2009)

RESEARCH
GRANT

1. Dec. 2016 to Mar. 2020, PRESTO (Synthesis of Knowledge for Information Oriented Society), Japan Science and Technology Agency. ¥ 35,600,000 for 3.5 years.
2. Apr. 2016 to Mar. 2018, Grant-in-Aid for Young Scientists (B), Japan Ministry of Education, Culture, Sports, Science and Technology. ¥ 1,950,000 for two years.

ADVISING
AND COL-
LABORATING
STUDENTS

1. Yali Wan (2016; Ph.D. student at University of Washington)
2. Junning Gao (2015; Ph.D. student at Fudan University)
3. Wenzhao Lian (2015; Ph.D. student at Duke University)
4. Nurjahan Begum (2015; Ph.D. student at University of California Riverside)
5. Suriya Gunasekar (2014; Ph.D. student at University of Texas Austin)
6. Yue Wang (2014; Ph.D. student at University of Michigan, Ann Arbor)
7. Alejandro Marcos Alvarez (2013; Ph.D. student at Universite de Liege)

PUBLICATION Books

1. **Yamada, M.**, Chen, J., and Chang, Y., “Transfer Learning: Algorithms and Applications,” Morgan Kaufmann (Elsevier), 2017.
2. Sugiyama, M., Ide, T., Kamishima, T., Kurita, T., and Maeda, E. (Eds.), Ijiri, Y., Ide, T., Iwata, T., Kanamori, T., Kanemura, A., Karasuyama, M., Kawahara, Y., Kimura, A., Konishi, Y. Sakai, T., Suzuki, T., Takeuchi, I., Tamaki, T., Deguchi, D., Tomioka, R., Habe, H., Maeda, S., Mochihashi, D., and **Yamada, M.** (Trans.), “Elements of Statistical Learning: Data Mining, Inference, and Prediction,” 888 pages, Kyoritsu Publishing, Tokyo, Japan, 2014.

Journal articles: Please note that TPAMI and IJCV are highly competitive top-tier computer vision journals. MLJ and NECO are competitive top-tier machine learning journals.

1. Chang, Y. , **Yamada, M.**, Ortega, A., and Liu, Y., “Lifecycle Modeling for Buzz Temporal Pattern Discovery,” *TKDD* 11(2): 20:1-20:24 (2016).
2. **Yamada, M.**, Sigal, L., Raptis, M., Toyoda, M., Chang, Yi., and Sugiyama, M., “Cross-Domain Matching with Squared-Loss Mutual Information,” *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*, vol.37, no.9, pp.1764-1776, 2015.
3. **Yamada, M.**, Sigal, L., and Chang, Y., “Domain Adaptation for Structured Prediction,” *International Journal of Computer Vision (IJCV)*, vol. 109, 126-145, 2014.
4. Niu, G., Dai, B., **Yamada, M.**, and Sugiyama, M., “Information-theoretic Semi-supervised Metric Learning via Entropy Regularization,” *Neural Computation (NECO)*, vol.26, no.8, pp.1717-1762, 2014.
5. **Yamada, M.**, Sugiyama, M., and Sese, J., “Least-Squares Independence Regression for Non-linear Causal Inference under Non-Gaussian Noise,” *Machine Learning (MLJ)*. vol.96, no.3, pp.249-267, 2014.
6. **Yamada, M.**, Sigal, L., and Raptis, M., “Covariate Shift Adaptation for Discriminative 3D Pose Estimation,” *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*, vol. 36, no.2, 235–247, 2014.
7. **Yamada, M.**, Jitkrittum, W., Sigal, L., Xing, E.P., and Sugiyama, M., “High-Dimensional Feature Selection by Feature-Wise Kernelized Lasso,” *Neural Computation (NECO)*, vol.26, no.1, pp.185-207, 2014.
8. Sugiyama, M., Niu, G., **Yamada, M.**, Kimura, M., and Hachiya, H., “On Information Maximization Clustering: Tuning Parameter Selection and Analytic Solution,” *Neural Computation (NECO)*, vol.26, no.1, pp.84-131, 2014.
9. Sugiyama, M., **Yamada, M.**, and du Plessis, M. C., “Learning under non-stationarity: Covariate shift and class-balance change,” *WIREs Computational Statistics*, 13 pages, 2013.
10. Sugiyama, M., Liu, S., M. C. du Plessis, M. Yamanaka, **Yamada, M.**, Suzuki, T., and Kanamori, T., “Direct Divergence Approximation between Probability Distributions and Its Applications in Machine Learning,” *JSCE* 7(2), pp.99–111, 2013.
11. **Yamada, M.**, Suzuki, T., Kanamori, T., Hachiya, H., and Sugiyama, M., “Relative Density-Ratio Estimation for Robust Distribution Comparison,” *Neural Computation (NECO)*, vol.25, no.5, pp.1324-1370, 2013.
12. Liu, S., **Yamada, M.**, Colliar, N., and Sugiyama, M., “Change-Point Detection in Time-Series Data by Relative Density-Ratio Estimation,” *Neural Networks*, vol.43, pp.72-83, 2013.
13. **Yamada, M.**, Wichern, G., Kondo, K., Sugiyama, M., and Sawada, H., “Noise Adaptive Unmixing Matrix Initialization,” *Digital Signal Processing, Elsevier*, vol.23, 1–8, 2013.
14. Sugiyama, M. and **Yamada, M.**, “On kernel parameter selection in Hilbert-Schmidt independence criterion,” *IEICE Transactions on Information and Systems*, vol.E95-D, no.10, pp.2564-2567, 2012.
15. **Yamada, M.**, Sugiyama, M., Wichern, G., and Simm, J., “Improving the Accuracy of Least-Squares Probabilistic Classifiers,” *IEICE Transactions on Information and Systems*, vol.E94-D No.6 pp.1337-1340.

16. Sugiyama, M., **Yamada, M.**, Bünauf, P. von., Suzuki, T., Kanamori, T., and Kawanabe, K., “Direct Density-ratio Estimation with Dimensionality Reduction via Least-squares Hetero-distributional Subspace Search,” *Neural Networks*, vol.24, no.2, pp.183–198, 2011.
17. **Yamada, M.**, Sugiyama, M., Wichern, G., and Simm, J., “Direct Importance Estimation with Generative Models,” *IEICE Transactions on Information and Systems*, vol. E93-D, no.10, pp.2846–2849, 2010.
18. **Yamada, M.**, Sugiyama, M., and Matsui, T., “Semi-supervised Speaker Identification under Covariate Shift,” *Signal Processing*, vol. 90, no.8, pp.2353–2361, 2010.
19. **Yamada, M.** and Sugiyama, M., “Direct Importance Estimation with Gaussian Mixture Model,” *IEICE Transactions on Information and Systems*, vol. E92-D, no.10, pp.2159–2162, 2009.

International Conference paper

1. **Yamada, M.**, Takeuchi, K., Iwata, T., Shawe-Taylor, J., and Kaski, S., “Localized Lasso for High-dimensional Regression,” In Proceedings of twentieth International Conference on Artificial Intelligence and Statistics (**AISTATS2017**), to appear.
2. Iwata, T., **Yamada, M.** “Multi-view Anomaly Detection via Robust Probabilistic Latent Variable Models.” *Advances in Neural Information Processing Systems 30 (NIPS2016)*, pp. 1136-1144.
3. Kozareva, Z. **Yamada, M.** “Which Tumblr Post Should I Read Next?,” In Proceedings of the Annual Meeting of the Association for Computational Linguistics (**ACL 2016**). pp. 332–336.
4. Chang, Y., Tang, J., Yin, D., **Yamada, M.**, Liu, Y. “Timeline Summarization with Publications Life Cycle Models,” In *Proceedings of International Joint Conference on Artificial Intelligence (IJCAI 2016)*, pp. 3698–3704.
5. Gao, J., **Yamada, M.**, Kaski, S., Mamitsuka, H., Zhu, S. “A Robust Convex Formulation for Ensemble Clustering,” In *Proceedings of International Joint Conference on Artificial Intelligence (IJCAI 2016)*, pp. 1476–1482.
6. Wang, Y., Yin, D., Luo, J., Wang, P., **Yamada, M.**, Chang, Y., Mei, Q. “Beyond Ranking: Optimizing Whole-Page Presentation.” In Proceedings of the 9th ACM Conference on Web Search and Data Mining (**WSDM 2016**), San Francisco, US, Feb 2016 (**Best Paper Award**).
7. Gunasekar, S., **Yamada, M.**, Yin, D., and Chang, Y., “Consistent Collective Matrix Completion under Joint Low Rank Structure,” In Proceedings of Eighteenth International Conference on Artificial Intelligence and Statistics (**AISTATS2015**).
8. Chang, Y. , **Yamada, M.**, Ortega, A., and Liu, Y., “Ups and Downs in Buzzes: Life Cycle Modeling for Temporal Pattern Discovery, ” In Proceedings of (**ICDM 2014**), pp: 749–754.
9. Marcos, A. M., **Yamada, M.**, Kimura, A., and Iwata, T., “Clustering-Based Anomaly Detection in Multi-View Data ,” In Proceedings of ACM Conference of Information and Knowledge Management (**CIKM2013**) , pp. 1545–1548.
10. Kimura, A., Ishiguro, K., Marcos, A. M., Kataoka, K., Murasaki, K., and **Yamada, M.**, “Image context discovery from socially curated contents,” In Proceedings of ACM International Conference on Multimedia (**ACMMM2013**), pp. 565–568.
11. **Yamada, M.**, Kimura, A., Naya, F., and Sawada, H., “Change-Point Detection with Feature Selection in High-Dimensional Time-Series Data,” International Joint Conference on Artificial Intelligence (**IJCAI2013**), pp. 1827–1833.

12. Liu, S., **Yamada, M.**, Colliar, N., and Sugiyama, M., “Change-Point Detection in Time-Series Data by Relative Density-Ratio Estimation,” International Workshop on Statistical Technique in Pattern Recognition (SPR2012).
13. **Yamada, M.**, Sigal, L., and Raptis, M., “No Bias Left Behind: Covariate Shift Adaptation for Discriminative 3D Pose Estimation,” In proceedings of European Conference on Computer Vision (**ECCV2012**), pp.674-687 2012.
14. Niu, G., Dai, B., **Yamada, M.**, and Sugiyama, M., “Information-theoretic Semi-supervised Metric Learning via Entropy Regularization,” In proceedings of 29th International Conference on Machine Learning (**ICML2012**), pp.89-96, Edinburgh, Scotland, Jun. 26-Jul. 1.
15. Sugiyama, M., Hachiya, H., **Yamada, M.**, Simm, J., and Nam, H., “Least-squares probabilistic classifier: A computationally efficient alternative to kernel logistic regression,” In *Proceedings of International Workshop on Statistical Machine Learning for Speech Processing (IWSML2012)*, pp.1-10, Kyoto, Japan, Mar. 31, 2012.
16. **Yamada, M.**, Suzuki, T., Kanamori, T., Hachiya, H., and Sugiyama, M., “Relative Density-Ratio Estimation for Robust Distribution Comparison,” In J. Shawe-Taylor, R. S. Zemel, P. Bartlett, F. Pereira, and K. Q. Weinberger (Eds.), *Advances in Neural Information Processing Systems 24 (NIPS2011)*, pp.594-602, 2011.
17. **Yamada, M.**, Niu, G., Takagi, J., and Sugiyama, M., “Computationally Efficient Sufficient Dimension Reduction via Squared-Loss Mutual Information” In C.-N. Hsu and W. S. Lee (Eds.), *Proceedings of the Third Asian Conference on Machine Learning (ACML2011), JMLR Workshop and Conference Proceedings*, vol.20, pp.247-262, Taoyuan, Taiwan, Nov. 13-15, 2011.
18. **Yamada, M.** and Sugiyama, M., “Direct Density-Ratio Estimation with Dimensionality Reduction via Hetero-Distributional Subspace Analysis,” In *Proceedings of the Twenty-Fifth AAAI Conference on Artificial Intelligence (AAAI-11)*, pp.549–554, San Francisco, California, Aug. 7-11, 2011.
19. Sugiyama, M., **Yamada, M.**, Kimura, M., and Hachiya, H., “On Information-Maximization Clustering: Tuning Parameter Selection and Analytic Solution,” In *Proceedings of 28th International Conference on Machine Learning (ICML2011)*, pp.65–72, Bellevue, Washington, Jun. 28 - Jul. 2, 2011.
20. **Yamada, M.** and Sugiyama, M., “Cross-Domain Object Matching with Model Selection,” In *Proceedings of Fourteenth International Conference on Artificial Intelligence and Statistics (AISTATS2011), JMLR Workshop and Conference Proceedings*, vol.15, pp.807-815, Fort. Lauderdale, Florida, Apr 11-13, 2011.
21. Takagi, J., Ohishi, Y., Kimura, A., Sugiyama, M., **Yamada, M.**, and Kameoka, H., “Automatic Audio Tag Classification via Semi-Supervised Canonical Density Estimation,” In *Proceedings of IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP2011)*, pp. 2232–2235, Prague, Czech Republic, May 2011.
22. **Yamada, M.** and Sugiyama, M., “Dependence Minimizing Regression with Model Selection for Non-Linear Causal Inference under Non-Gaussian Noise,” In *Proceedings of the Twenty-Fourth AAAI Conference on Artificial Intelligence (AAAI-10)*, pp.643–648, Atlanta, Georgia, U.S.A, Jul. 11-15, 2010.
23. Wichern, G., **Yamada, M.**, Thornburg, H., Sugiyama, M. and Spanias, A., “Automatic Audio Tagging using Covariate Shift Adaptation,” In *Proceedings of IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP2010)*, pp. 253–256, Dallas, Texas, Mar. 14–19, 2010.
24. **Yamada, M.**, Sugiyama, M., and Wichern, G., “Direct Importance Estimation with Probabilistic Principal Component Analyzers,” In *Proceedings of IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP2010)*, pp. 1962–1965, Dallas, Texas, Mar. 14–19, 2010.

25. **Yamada, M.**, Sugiyama, M., Wichern, G., and Matsui, T., “Acceleration of Sequence Kernel Computation for Real-time Speaker Identification,” In *Proceedings of IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP2010)*, pp. 1626–1629, Dallas, Texas, Mar. 14–19, 2010.
26. Kondo, K., **Yamada, M.**, and Kenmochi, H., “A Semi-blind Source Separation Method with A Less Amount of Computation Suitable for Tiny DSP Modules,” In *Proceedings of Interspeech 2009*, pp.1339-1342, Brighton, U.K, Sept. 6-10, 2009.
27. Kim, S. and **Yamada, M.**, “A New Up-mixing Algorithm Based on Frequency Domain Independent Component Analysis,” AES Tokyo Convention 2009, Jul. 23–25. (abstract review)
28. **Yamada, M.**, Sugiyama, M., and Matsui, T., “Covariate shift adaptation for semi-supervised speaker identification,” In *Proceedings of IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP2009)*, pp. 1661–1664, Taipei, Taiwan, Apr. 19–24, 2009.
29. **Yamada, M.** and Azimi-Sadjadi, M. R., “Kernel Wiener Filter with Distance Constraint,” In *Proceedings of IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP2006)*, pp. 3047–3050, Toulouse, France, May 14-19, 2006.
30. **Yamada, M.** and Azimi-Sadjadi, M. R., “Nonlinear signal estimation using kernel Wiener filter in Canonical Correlation Analysis Framework,” In *Proceedings of International Conference on Computational Intelligence for Modeling Control and Automation (CIMCA)*, pp. 1095–1101, Vienna, Austria, Nov 28 - 30, 2005.
31. **Yamada, M.**, Azimi-Sadjadi, M. R., and Cartmill, J., “Buried Underwater Target Classification Using the New BOSS and Canonical Coordinate Decomposition Feature Extraction,” In *Proceedings of MTS/IEEE Oceans Conference*, 2005.
32. **Yamada, M.**, Pezeshki, A., and Azimi-Sadjadi, M. R., “Relation between KCCA and KFDA,” *International Joint Conference on Neural Networks (IJCNN)*, pp. 226–231, Montreal Canada, Jul 31 - Aug 4, 2005.
33. **Yamada, M.** and Azimi-Sadjadi, M. R., “Kernel Wiener Filter using Canonical Correlation Analysis Framework,” In *Proceedings of IEEE Workshop on Statistical Signal Processing 2005 (SSP 2005)*, pp. 769–774, Bordeaux, France, July 17-20, 2005.

International workshop paper

1. **Yamada, M.**, Takeuchi, K., Iwata, T., Shawe-Taylor, J., and Kaski, S., “Localized Lasso for High-dimensional Regression,” NIPS 2016 Learning in High Dimensions with Structure workshop.
2. **Yamada, M.**, Umezumi, Y., Fukumizu, K., and Takeuchi, I., “Post Selection Inference with Kernels,” NIPS 2016 Adaptive and Scalable Nonparametric Methods in Machine Learning workshop. (Oral)

Patent

1. **Yamada, M.**, et al., 2014 at Yahoo!.
2. **Yamada, M.**, Chang, Y., 2014 at Yahoo!.
3. **Yamada, M.**, Ouyang, H., Saha, A., Chang, Y., 2014 at Yahoo!.
4. **Yamada, M.**, Kimura, A., and Iwata, T., Jun 2013 at NTT.
5. Iwata, T. and **Yamada, M.**, Jun 2013 at NTT.
6. **Yamada, M.** et al., Apr 2013 at NTT.
7. **Yamada, M.**, Kim, S., and Kondo, K., Mar 2010 at Yamaha Corp.
8. **Yamada, M.** and Kondo, K., Dec 2009 at Yamaha Corp.

9. **Yamada, M.** and E. Akazawa, Dec 2009 at Yamaha Corp.
10. **Yamada, M.** and Kondo, K., Dec 2009 at Yamaha Corp.
11. **Yamada, M.** and Kim, S., Jul 2009 at Yamaha Corp.
12. **Yamada, M.** and Kondo, K., Mar 2009 at Yamaha Corp.
13. **Yamada, M.** and Kondo, K., Mar 2009 at Yamaha Corp.
14. **Yamada, M.** and Kondo, K., Nov 2008 at Yamaha Corp.
15. **Yamada, M.** and Kondo, K., Nov 2008 at Yamaha Corp.
16. **Yamada, M.**, H. Okawara, and T. Ando, 2007 at Hitachi Ltd.