Kishan Wimalawarne

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Education

Tokyo Institute of Technology **Japan**
Doctor of Engineering in Computer Science *Sep 2011–Mar 2016*
Title: "Supervised Machine Learning for Tensor Structured Models with Scaled Latent Trace Norm Regularization"
Supervisor: Prof. Masashi Sugiyama

University of Moratuwa **Sri Lanka**
Master of Science in Computer Science *Jan 2006–Mar 2008*

University of Kelaniya **Sri Lanka**
Bachelor of Science in Physical Science *Jan 2000–Dec 2002*

Work Experience

Kyoto University
Bio-Knowledge Engineering Research Laboratory **Japan**
Postdoctoral Fellow (Program-Specific Researcher) *May 2025–Present*
- Investigation of graph neural networks and generative AI methods for science

University of Tokyo
Department of Mathematical Informatics **Japan**
Postdoctoral Researcher (Project Researcher) *Apr 2020–March 2025*
- Investigations into oversmoothing in graph convolutional neural networks.
- Investigating deep learning methods for solving partial differential equations.

Kyoto University
Bio-Knowledge Engineering Research Laboratory **Japan**
Postdoctoral Fellow (Program-Specific Researcher) *Apr 2016–March 2020*
Research on theoretically guaranteed methods to learn from sparse tensors.
- Development of convex low-rank norms for coupled tensor completion.
- Improvement of low-rank norms for efficient learning from higher-order tensors.
- Investigation into extending tensor network-based factorization for multiple coupled tensors.

Freakout Inc. **Japan**
Researcher (part-time) *Sep 2015–Feb 2016*
Research on improving click-through rate algorithms and recommendation systems.

Hitokuse Inc. **Japan**
Software Engineer (part-time) *Oct 2014–Sep 2015*
Development of software to extract image features from web advertisements and predict click-through rates. The software was developed using Python and scikit-learn.

University of Moratuwa
Department of Computer Science and Engineering **Sri Lanka**
Lecturer *Apr 2008–Aug 2011*

Undergraduate teaching on object oriented programming, computer vision, image processing, concurrent programming and undergraduate final year project supervision.

University of Moratuwa
Department of Computer Science and Engineering **Sri Lanka**
Instructor *Jan 2006–Mar 2008*
Laboratory instructions on object oriented programming.

Sellenevue Private Limited **Sri Lanka**
Web Developer *Mar 2003–Oct 2005*
Web application development using PHP.

Publications

Preprints

1. **K. Wimalawarne** and T. Suzuki, "Generalization Bounds For Physics-Informed Neural Networks and Deep Ritz Method in Besov Spaces"
2. **K. Wimalawarne** and T. Suzuki, "Tensor methods to parameterize the Green's function to solve high-dimensional PDE"

Conference Papers

1. **K. Wimalawarne** and T. Suzuki, S. Langer, "Learning Green's Function Efficiently Using Low-Rank Approximations" ECMLPKDD 2025 (journal track)
2. **K. Wimalawarne** and T. Suzuki, "Graph Polynomial Convolution Models for Node Classification of Non-Homophilous Graphs", International Conference on Machine Learning and Applications 2024 (ICMLA'24)
3. C. Clemm, L. Stobbe, **K. Wimalawarne**, J. Druschke, "Towards Green AI: Current status and future research", Electronics Goes Green 2024+, Berlin, Germany (2024) arXiv:2407.10237
4. **K. Wimalawarne**, T. Suzuki, S. Langer, Learning Green's Function Efficiently Using Low-Rank Approximations, 40th International Conference in Machine Learning (SynS ML Workshop @ ICML 2023)
5. **K. Wimalawarne**, T. Suzuki, Layer-wise Adaptive Graph Convolution Networks Using Generalized Pagerank, (oral presentation) 14th Asian Conference on Machine Learning (ACML 2022)
6. **K. Wimalawarne** and H. Mamitsuka, "Efficient Convex Completion of Coupled Tensors using Coupled Nuclear Norms", *Advances in Neural Information Processing Systems (NeurIPS)*, pp.6902-6910, December 2018.
7. M. Yamada, W. Lian, A. Goyal, J. Chen, **K. Wimalawarne**, S. A Khan, S. Kaski, H. Mamitsuka, and Y. Chang, "Convex Factorization Machine for Toxicogenomics Prediction", *23rd ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD)*, pp. 1215-1224, August 2017.
8. **K. Wimalawarne**, M. Sugiyama, and R. Tomioka. "Multitask learning meets tensor factorization: Task imputation via convex optimization." *Advances in Neural Information Processing Systems 27 (NIPS)*, pp. 2825-2833, December 2014.
9. M. Piraveenan, **K. Wimalawarne**, and D. Kasthurirathna, "Centrality and Composition of Four-Node Motifs in Metabolic Networks". *International Conference on Computational Science (ICCS)*, pp. 409-418, June 2013.

Journal Papers

1. **K. Wimalawarne** and T. Suzuki, S. Langer, "Learning Green's Function Efficiently Using Low-Rank Approximations", Machine Learning, 114, 214 2025.

2. **K. Wimalawarne** and H. Mamitsuka, "Reshaped Tensor Nuclear Norms for Higher Order Tensor Completion" Machine Learning Journal, Volume 110, pages 507–531, January 2021.
3. **K. Wimalawarne**, M. Yamada, and H. Mamitsuka, "Scaled Coupled Norms and Coupled Higher Order Tensor Completion" Neural Computation, Volume 32, Issue 2, February 2020.
4. **K. Wimalawarne**, M. Yamada, and H. Mamitsuka, "Convex Coupled Matrix and Tensor Completion", *Neural Computation*, Vol. 30, No. 11, Pages 3095-3127, November 2018.
5. **K. Wimalawarne**, R. Tomioka, and M. Sugiyama, "Theoretical and Experimental Analyses of Tensor-Based Regression and Classification", *Neural Computation*, Vol. 28, No. 4 , Pages 686-715, April 2016.

Invited Talks

1. K. Wimalawarne, "Coupled Tensor Completion using Low-Rank Inducing Norms", NTT Communication Science Laboratories, Keihanna Area and NTT Keihanna Building 2-4, Hikaridai, Seika-cho, "Keihanna Science City" Kyoto, Japan 619-0237. July 9 2019.
2. K. Wimalawarne, "Learning with Low Rank Tensor Norms", Yasuaki Hiraoka Laboratory, Advanced Institute for Materials Research, Tohoku University. April 20 2017.
3. K. Wimalawarne, "Supervised Machine Learning for Tensor Structured Models with Scaled Latent Trace Norm Regularization", Bio-Knowledge Engineering Research Laboratory, Bioinformatics Center, Institute of Chemical Research, Kyoto University, November 20, 2015.

Programming Skills

Python, Pytorch, Matlab, Java, C, C++

Awards

Japanese Government Monbukagakusho (MEXT) Scholarship (Sep 2011– Sep 2014)

Professional Services

Reviewer for ICML (2019,2020,2021), NeurIPS (2019,2020,2021), AISTAT (2020,2021), ICLR (2021), AAAI (2019), PAKDD (2019), ACML (2018)

Languages

Sinhala (Native), English (Fluent), Japanese (Limited working knowledge)

Interests

Martial Arts: Iaido (5-Dan), Kyudo (3-Dan), Kendo (2-Dan), Ki-Aikido (1-Kyu in Sri Lanka)

References

Taiji Suzuki
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