

SHOGO KATO

Institute of Statistical Mathematics
10-3 Midori-cho, Tachikawa, Tokyo 190-8562, Japan
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April 12, 2025

EDUCATION:

Keio University, Yokohama, Japan
Ph. D. in Statistics, September 2007
M. S. in Statistics, March 2005
B. S. in Statistics, March 2003

PROFESSIONAL INTERESTS:

Directional statistics; regression analysis; distribution theory; copulas; spatio-temporal statistics; entropy theory.

QUALIFICATIONS AND RESEARCH EXPERIENCE:

Current Position: Associate Professor

- (March 2024-Present) Statistical Modeling Group, Department of Fundamental Statistical Mathematics, Institute of Statistical Mathematics
Conducted joint research with S. Eguchi (Institute of Statistical Mathematics, Japan), M.C. Jones (The Open University, UK), T. Koike (Hitotsubashi University, Japan), C. Ley (University of Luxembourg, Luxembourg), K.V. Mardia (University of Leeds, UK), S. Loizidou (University of Luxembourg, Luxembourg), K. Nagasaki (Tokyo Institute of Technology, Japan), W. Nakanishi (Kanazawa University, Japan), A. Pewsey (Universidad de Extremadura, Spain), A.T.A. Wood (Australian National University, Australia), and T. Yoshida (Bank of Japan, Japan).

Prior Academic Experience

- (September 2014-February 2024) Mathematical Statistics Group, Department of Mathematical Analysis and Statistical Inference, Institute of Statistical Mathematics
Associate Professor; conducted joint research with S. Eguchi, M.C. Jones, T. Koide (National Institute of Genetics, Japan), T. Koike, S. Kuriki (Institute of Statistical Mathematics, Japan), I. Leguey (Universidad Rey Juan Carlos de Madrid, Spain), P.

McCullagh (The University of Chicago, USA), H. Ogata, A. Pewsey, H. Noma (Institute of Statistical Mathematics, Japan), L-P. Rivest (Université Laval, Canada), M. Taniguchi (Waseda University, Japan) and T. Yoshida.

- (October 2009-August 2014) Mathematical Statistics Group, Department of Mathematical Analysis and Statistical Inference, Institute of Statistical Mathematics
Assistant Professor; conducted joint research with S. Eguchi, M.C. Jones, T. Koide, S. Kuriki, P. McCullagh and A. Pewsey.
- (October 2013-March 2014) Department of Statistics, The University of Chicago
Visiting Scholar; conducted joint research with P. McCullagh.
- (April 2008-September 2009) Prediction and Knowledge Discovery Research Center, Institute of Statistical Mathematics
Project Researcher; conducted joint research with S. Eguchi and M.C. Jones.
- (November 2007-January 2008) Department of Mathematics and Statistics, The Open University
Visiting Research Fellow; conducted joint work with M.C. Jones.
- (October 2007-March 2008) Department of Mathematics, Keio University
Postdoctoral Fellow; conducted joint research with K. Shimizu (Keio University, Japan), M. Faravani, B.B. Baki and C.H. Sim (University of Malaya, Malaysia).
- (April 2005-September 2007) School of Fundamental Science and Technology, Keio University
Ph. D. student; conducted joint research with K. Shimizu and G.S. Shieh (Academia Sinica, Taiwan).
- (April 2003-March 2005) School of Fundamental Science and Technology, Keio University
M. S. student; conducted joint work with K. Shimizu.
- (April 1999-March 2003) Department of Mathematics, Keio University

TEACHING AND MENTORING EXPERIENCE:

- (October 2023-Present) The Graduate University for Advanced Studies, SOKENDAI
Vice supervisor of Ichiro Nishi, a Ph. D. student.
- (April 2021-Present) The Graduate University for Advanced Studies, SOKENDAI
Vice supervisor of Kazuki Nakajima, a M. S. student.
- (Spring 2020-Present) Department of Applied Mathematics, Waseda University
Instructor; instructed courses of multivariate probability distributions.
- (Fall 2018-Present) Department of Mathematics, Keio University
Instructor; instructed courses of multivariate probability distributions.
- (October 2023) Institute of Statistical Mathematics

- Instructor; instructed an extension course of directional statistics.
- (2014; 2016; 2018-2021) The Graduate University for Advanced Studies, SOKENDAI
Instructor; instructed courses of mathematical statistics in Fall 2016 and Fall 2020, directional statistics in Fall 2014 and Spring 2018, copulas in Spring 2019, and distribution theory in Spring 2021.
- (2015-2017) The Graduate University for Advanced Studies, SOKENDAI
Vice supervisor of Tsutomu Takai, a Ph. D. student.
- (December 2017) Technical University of Madrid, Spain
Supervised Ignacio Leguey, a Ph. D. student from Technical University of Madrid, Spain, during his research visit to the Institute Statistical Mathematics.
- (December 2014) Institute of Statistical Mathematics
Instructor; instructed an extension course of copulas.
- (Spring 2003-2006) Department of Mathematics, Keio University
Teaching assistant; taught exercise courses in mathematical statistics for undergraduate students.
- (Fall 2003-2006) Department of Mathematics, Keio University
Teaching assistant; assisting undergraduate courses introducing data analysis and S-PLUS.

PUBLICATIONS:

(Refereed articles)

31. Koike, T., Kato, S. and Yoshiba, T. “Measuring and testing tail equivalence”, *Journal of Multivariate Analysis*, to appear.
30. Tsagris, M., Papastamoulis, P. and Kato, S. (2025). “Directional data analysis: spherical Cauchy or Poisson kernel-based distribution?”, *Statistics and Computing*, **35**, 51.
29. Nagasaki, K., Kato, S., Nakanishi, W. and Jones, M.C. (2025). “Traffic count data analysis using mixtures of Kato-Jones distributions”, *Journal of the Royal Statistical Society: Series C (Applied Statistics)*, **74**, 352-372.
28. Koike, T., Kato, S. and Hofert, M. (2023). “Measuring non-exchangeable tail dependence using tail copulas”, *ASTIN Bulletin: The Journal of the IAA*, **75**, 466-487.
27. Kato, S. (2023). “Probability distributions in statistics of directional data” (in Japanese), *Sugaku Expositions*, **75**, 246-270.
26. Yoshiba, T., Koike, T., Kato, S. (2023). “On a measure of tail asymmetry for the bivariate skew-normal copula”. *Symmetry*, **15**, 1410.
25. Kato, S., Yoshiba, T. and Eguchi, S. (2022). “Copula-based measures of asymmetry between the lower and upper tail probabilities”, *Statistical Papers*, **63**, 1907-1929.
24. Kato, S., Pewsey, A. and Jones, M.C. (2022). “Tractable circular densities from Fourier

- series”, *TEST*, **31**, 595-618.
23. Noma, H., Nagashima, K., Kato, S., Teramukai, S. and Furukawa, T.A. (2022). “Meta-analysis using flexible random-effects distribution models”, *Journal of Epidemiology*, **32**, 441-448.
 22. Kato, S. and McCullagh, P. (2020). “Some properties of a Cauchy family on the sphere derived from the Möbius transformations”, *Bernoulli*, **26**, 3224-3248.
 21. Taniguchi, M., Kato, S., Ogata, H. and Pewsey, A. (2020). “Models for circular data from time series spectra”, *Journal of Time Series Analysis*, **41**, 808-829.
 20. Rivest, L.-P. and Kato, S. (2019). “A random effects model for clustered circular data”, *The Canadian Journal of Statistics*, **47**, 712-728.
 19. Leguey, I., Larránaga, P., Bielza, C. and Kato, S. (2019). “A circular-linear dependence measure under Johnson-Wehrly distributions and its application in Bayesian networks”, *Information Sciences*, **486**, 240-253.
 18. Kato, S. (2017). “The wrapped Cauchy distribution on the circle and related statistical models” (JSS Research Prize Lecture, in Japanese), *Journal of the Japan Statistical Society, Japanese Issue*, **46**, 85-111.
 17. Pewsey, A. and Kato, S. (2016). “Parametric bootstrap goodness-of-fit testing for Wehrly-Johnson bivariate circular distributions”, *Statistics and Computing*, **26**, 1307-1317.
 16. Kato, S. and Eguchi, S. (2016). “Robust estimation of location and concentration parameters for the von Mises-Fisher distribution”, *Statistical Papers*, **57**, 205-234.
 15. Kato, S. and Pewsey, A. (2015). “A Möbius transformation-induced distribution on the torus”, *Biometrika*, **102**, 359-370.
 14. Jones, M.C., Pewsey, A. and Kato, S. (2015). “On a class of circulas: copulas for circular distributions”, *Annals of the Institute of Statistical Mathematics*, **67**, 843-862.
 13. Kato, S. and Jones, M.C. (2015). “A tractable and interpretable four-parameter family of unimodal distributions on the circle”, *Biometrika*, **102**, 181-190.
 12. Takahashi, A., Sugimoto, H., Kato, S., Shiroishi, T. and Koide, T. (2015). “Mapping of genetic factors that elicit intermale aggressive behavior on Mouse Chromosome 15: intruder effects and the complex genetic basis”, *PLOS ONE*, **10(9)**, e0137764.
 11. Kato, S., Ishii, A., Nishi, A., Kuriki, S. and Koide, T. (2014). “Segregation of a QTL cluster for home-cage activity using a new mapping method based on regression analysis of congenic mouse strains”, *Heredity*, **113**, 416-423.
 10. Kato, S. and Jones, M.C. (2013). “An extended family of circular distributions related to wrapped Cauchy distributions via Brownian motion”, *Bernoulli*, **19**, 154-171.
 9. Eguchi, S., Komori, O. and Kato, S. (2011). “Projective power entropy and maximum Tsallis entropy distributions”, *Entropy*, **13**, 1746-1764.

8. Kato, S. (2010). “A Markov process for circular data”, *Journal of the Royal Statistical Society: Series B (Statistical Methodology)*, **72**, 655-672.
7. Kato, S. and Jones, M.C. (2010). “A family of distributions on the circle with links to, and applications arising from, Möbius transformation”, *Journal of the American Statistical Association*, **102**, 249-262.
6. Eguchi, S. and Kato, S. (2010). “Entropy and divergence associated with power function and the statistical application”, *Entropy*, **12**, 262-274
5. Kato, S. (2009). “A distribution for a pair of unit vectors generated by Brownian motion”, *Bernoulli*, **15**, 898-921.
4. Faravani, M., Baki, B.B., Kato, S., Shimizu, K. and Sim, C.H. (2009). “Effects of intra-plant competition on the ensuing spatial branching patterns of Straits Rhododenron”, *Research Journal of Environmental Sciences*, **3**, 427-438.
3. Kato, S., Shimizu, K. and Shieh, G.S. (2008). “A circular-circular regression model”, *Statistica Sinica*, **18**, 633-645.
2. Kato, S. and Shimizu, K. (2008). “Dependent models for observations which include angular ones”, *Journal of Statistical Planning and Inference*, **138**, 3538-3549.
1. Siew, H.-Y., Kato, S. and Shimizu, K. (2008). “The generalized t -distribution on the circle”, *Japanese Journal of Applied Statistics*, **37**, 1-16.

(Preprints)

- a. Kato, S., Ley, C., Loizidou, S. and Mardia, K.V. “A versatile trivariate wrapped Cauchy copula with applications to toroidal and cylindrical data”, *arXiv:2401.10824*.

HONORS:

- Research Achievement Prize, Japan Statistical Society
(September 2015) Awarded by the Japan Statistical Society for outstanding contributions in research in the fields of statistics and related areas.
- Excellent Paper Award for Young Researcher: “The Generalized t -Distribution on the Circle”
(August 2009) Selected as the excellent paper of young researcher from the papers published in the *Japanese Journal of Applied Statistics* in 2008.
- Excellent Paper Award: “A Markov Process for Circular Data”
(May 2007) Awarded for providing excellent paper and presentation in Student Paper Competition at *IMST2007 -FIM XV- International Conference on Interdisciplinary Mathematical and Statistical Techniques*, Shanghai, China.
- Outstanding Student Paper Award: “A Bivariate Circular Distribution with Uniform Marginals”

(September 2006) Awarded for providing outstanding student paper and presentation in Student Paper Competition held at *SCRA2006 -FIM XIII- International Conference on Interdisciplinary Mathematical and Statistical Techniques*, Tomar, Portugal.

- Research Fellow in the 21st Century COE Program
(April 2005-September 2007) Served as a Research Fellow in the 21st Century Center of Excellence (COE) Program for Integrative Mathematical Sciences: Progress in Mathematics Motivated by Social and Natural Sciences, funded by the Ministry of Education, Culture, Sport, Science and Technology in Japan.

GRANT:

- Japan Society for the Promotion of Science. Grant-in-Aid for Scientific Research (C) (JP 25K15037), “Parametric Statistical Models for Directional Data”, Principal Investigator, 2025-2028.
- Japan Society for the Promotion of Science. Grants-in-Aid for Scientific Research (B) (JP24K00273), “Modeling and Analysis of Dependency Structures under Financial Stress”, Coinvestigator, 2024-2028.
- Japan Society for the Promotion of Science. Grant-in-Aid for Scientific Research (C) (JP20K03759), “Regression Models for Directional Data”, Principal Investigator, 2020-2024.
- Japan Society for the Promotion of Science. Grant-in-Aid for Scientific Research (C) (JP17K05379), “Copula Theory for Multivariate Circular Data”, Principal Investigator, 2017-2020.
- Japan Society for the Promotion of Science. Grant-in-Aid for Scientific Research (C) (25400218), “Statistical Methods for Multivariate Data Which Include Angular Observations”, Principal Investigator, 2013-2017.
- The Ministry of Education, Culture, Sport, Science and Technology in Japan. Grant-in-Aid for Young Scientists (B) (22740076), “Theory of Circular Time Series Models With Asymmetric Angular Errors and Its Application”, Principal Investigator, 2010-2013.
- The Ministry of Education, Culture, Sport, Science and Technology in Japan. Grant-in-Aid for Young Scientists (B) (20740065), “Statistical Models for Time Series of Circular Data”, Principal Investigator, 2008-2010.

PROFESSIONAL SOCIETY MEMBERSHIPS:

- (2004-Present) Japan Statistical Society
- (2009-Present) Japanese Society of Applied Statistics
- (2004-Present) Mathematical Society of Japan

SELECTED PAST RESPONSIBILITIES:

- (March 2021-Present) Editorial Advisory Board Member, *Dependence Modeling*
- (May 2015-Present) Associate Editor, *Annals of the Institute of Statistical Mathematics*
- (April 2024-Present) Director, Risk Analysis Research Center, *Institute of Statistical Mathematics*
- (April 2017-March 2023) Vice Director, Risk Analysis Research Center, *Institute of Statistical Mathematics*
- (May 2020-May 2022) Board of Directors, *Japan Statistical Society*
- (April 2016-March 2017) Associate Editor, (April 2017-March 2018) Editor-in-Chief, *Proceedings of the Institute of Statistical Mathematics*
- (November 2012-December 2016) Associate Editor, *Statistical Methodology*

ARTICLES REFEREED:

Journal article referee for the following publications:

Annals of the Institute of Statistical Mathematics, Applied Mathematics and Computation, Bernoulli, Biometrics, Biometrika, Communications in Statistics - Simulation and Computation, Communications in Statistics - Theory and Methods, Computational Statistics, Conference on Neural Information Processing Systems (NeurIPS), Econometrics and Statistics, Environmental and Ecological Statistics, Festschrift in honour of David E. Tyler, IEEE International Conference on Multisensor Fusion, IEICE Transactions A, IEICE Transactions on Fundamentals of Electronics, Communications and Computer Sciences, International Conference on Artificial Intelligence and Statistics (AISTATS), International Conference on Learning Representations (ICLR), International Conference on Machine Learning (ICML), ISIF Journal of Advances in Information Fusion, Japanese Journal of Applied Statistics, Japanese Journal of Statistics and Data Science, Journal of the American Statistical Association, Journal of Applied Statistics, Journal of Computational and Graphical Statistics, Journal of the Japan Statistical Society, Journal of Multivariate Analysis, Journal of Statistical Computation and Simulation, Journal of Statistical Planning and Inference, Platinum Jubilee Volume of Indian Statistical Institute, Proceedings of the Institute of Statistical Mathematics, REVSTAT, Scandinavian Journal of Statistics, Statistical Methodology, Statistical Papers, Statistics, Statistics and Probability Letters, Technometrics, TEST

PRESENTATIONS:

International Meetings (in English):

62. (March 2025) Regression for spherical data using a scaled link function
Invited speaker: *ISM Symposium on Environmental Statistics 2025*, Institute of Statistical Mathematics, Tokyo, Japan.
61. (December 2024) A versatile trivariate wrapped Cauchy copula
Invited speaker: *Webinar*, virtual seminar organized by the University of Crete, Rethymnon, Greece.
60. (November 2024) Regression for spherical data using a scaled link function
Invited speaker: *Statistics Seminar*, Australian National University, Canberra, Australia.
59. (July 2024) A versatile trivariate wrapped Cauchy copula
Invited speaker: *The 3rd Virtual Symposium on Directional Statistics (VSDS 2024)*, virtual conference.
58. (March 2024) The trivariate wrapped Cauchy copula - a multi-purpose model for angular data
Invited speaker: *ISM Symposium on Environmental Statistics 2024*, Institute of Statistical Mathematics, Tokyo, Japan.
57. (December 2023) A copula model for trivariate circular data
Invited speaker: *2023 IMS International Conference on Statistics and Data Science (ICSIDS)*, Centro Cultural de Belém, Lisbon, Portugal.
56. (December 2023) A mixed effects model for cylindrical data with application to small area estimation
Invited speaker: *The 15th International Conference of the ERCIM WG on Computational and Methodological Statistics (CMStatistics 2023)*, HTW Berlin, Berlin, Germany.
55. (December 2023) Weighted estimation with copula-based divergence
ISI-ISM-ISSAS Joint Conference 2023, Indian Statistical Institute, Kolkata, India.
54. (June 2023) A tractable and interpretable family of distributions on the circle, and its mixture model for traffic count data analysis
Invited speaker: *Statistics Seminar*, Australian National University, Canberra, Australia.
53. (January 2023) A copula model for trivariate circular data
Invited speaker: *Luxembourg-Waseda Conference on Modelling and Inference for Complex Data*, University of Luxembourg, Esch-sur-Alzette, Luxembourg.
52. (December 2022) A Cauchy-type model for cylindrical data
Invited speaker: *The 15th International Conference of the ERCIM WG on Computational and Methodological Statistics (CMStatistics 2022)*, virtual talk at hybrid conference, King's College London, London, UK.
51. (August 2022) A copula-based measure of asymmetry between the lower and upper tail probabilities of bivariate distributions

- Invited speaker: *The 24th International Conference on Computational Statistics (COMPSTAT 2022)*, virtual talk at hybrid conference, University of Bologna, Bologna, Italy.
50. (June 2022) A copula model for trivariate circular data
Invited speaker: *International Workshop "Advances in Directional Statistics" (ADISTA22)*, virtual talk at hybrid conference, University of Santiago de Compostela, Santiago de Compostela, Spain.
 49. (December 2021) Mixtures of Kato–Jones distributions on the circle with an application to traffic count data
Invited speaker: *The 14th International Conference of the ERCIM WG on Computational and Methodological Statistics (CMStatistics 2021)*, virtual talk at hybrid conference, King's College London, London, UK.
 48. (September 2021) Mixtures of Kato–Jones distributions on the circle, with an application to traffic count data
Invited speaker: *The 13th Scientific Meeting of the Classification and Data Analysis Group (CLADAG 2021)*, virtual conference.
 47. (March 2021) Parameter estimation for a Cauchy family of distributions on the sphere
ANU-ISM Workshop on Data Science, virtual workshop.
 46. (December 2020) Parameter estimation for a Cauchy family of distributions on the sphere
Invited speaker: *The 13th International Conference of the ERCIM WG on Computational and Methodological Statistics (CMStatistics 2020)*, virtual conference.
 45. (November 2019) A Cauchy family derived by the Möbius transformations of the sphere
Invited speaker: *International Symposium on Theories and Methodologies for Large Complex Data*, Tsukuba International Congress Center, Tsukuba, Japan.
 44. (August 2019) Möbius transformation and a Cauchy family on the sphere
Invited speaker: *The 62nd ISI World Statistics Congress 2019*, Kuala Lumpur Convention Centre, Kuala Lumpur, Malaysia.
 43. (August 2019) A Bayesian network model for multivariate data which include circular observations
International Conference on Environmental Statistics, Yunnan University, Kunming, China.
 42. (July 2019) A copula-based measure for comparing the upper and lower tail probabilities of bivariate distributions
Invited speaker: *SEED Seminar*, virtual seminar organized by National University of Singapore, Singapore.
 41. (June 2019) A measure for comparing the upper and lower tail probabilities of bivariate distributions
Invited speaker: *The 28th South Taiwan Statistics Conference*, National Chung Hsing

University, Taichung, Taiwan.

40. (December 2018) Circulas obtained through a Fourier series based approach
Invited speaker: *The 11th International Conference of the ERCIM WG on Computational and Methodological Statistics (CMStatistics 2018)*, University of Pisa, Pisa, Italy.
39. (February 2018) Möbius transformation and a Cauchy family on the sphere
Invited speaker: *Waseda International Symposium “Recent Developments in Time Series Analysis: Quantile Regression, High Dimensional Data & Causality”*, Waseda University, Tokyo, Japan.
38. (December 2017) A Bayesian network model for linear-circular data
Invited speaker: *The 10th International Conference of the ERCIM WG on Computational and Methodological Statistics (CMStatistics 2017)*, University of London, London, UK.
37. (December 2017) A Bayesian network model for linear-circular data
ISI-ISM-ISSAS Joint Conference Tokyo 2017, Institute of Statistical Mathematics, Tachikawa, Japan (presentation under a form of poster).
36. (October 2017) A Bayesian network model for linear-circular data
Invited speaker: *Waseda International Symposium “Recent Developments for Statistical Asymptotic Theory for Time Series & Circular Distributions”*, Waseda University, Tokyo, Japan.
35. (June 2017) Möbius transformation and a multivariate Cauchy family on the sphere
Invited speaker: *International Workshop “Advances in Directional Statistics” (ADISTA17)*, Roma Tre University, Rome, Italy.
34. (June 2017) Statistics of circular data
Invited speaker: *2017 Chinese Institute of Probability and Statistics Annual Meeting and Chung-hwa Data Mining Society Annual Meeting*, National Taipei University, New Taipei City, Taiwan.
33. (March 2017) The wrapped Cauchy distribution on the circle and its bivariate extension
Invited speaker: *Keio International Symposium “Statistical Analysis for High-Dimensional, Circular or Time Series Data”*, Keio University, Yokohama, Japan.
32. (February 2017) Some properties of a family of distributions on the sphere related to the Möbius transformation
ISI-ISM-ISSAS Joint Conference 2017, Indian Statistical Institute, Delhi, India.
31. (February 2016) A tractable and interpretable four-parameter family of unimodal distributions on the circle
ISI-ISM-ISSAS Joint Conference 2016, Academia Sinica, Taipei, Taiwan.
30. (January 2016) A family of distributions for bivariate circular data
ISM Symposium on Environmental Statistics 2016, Institute of Statistical Mathematics, Tokyo,

Japan.

29. (November 2015) A tractable and interpretable four-parameter family of unimodal distributions on the circle
Invited speaker: *Waseda International Symposium “High Dimensional Statistical Analysis for Spatio-Temporal Processes & Quantile Analysis for Time Series”*, Waseda University, Tokyo, Japan.
28. (September 2015) The wrapped Cauchy distribution on the circle and its bivariate extension
Invited speaker: *Statistics Seminar*, The Open University, Milton Keynes, UK.
27. (June 2015) A family of copulas for circular data and its extension
International Symposium on Dependence and Copulas 2015, Institute of Statistical Mathematics, Tokyo, Japan.
26. (December 2014) Some properties of a family of distributions on the sphere related to the Möbius transformation
Invited speaker: *The 7th International Conference of the ERCIM WG on Computational and Methodological Statistics (ERCIM 2014)*, University of Pisa and Conference Centre, Pisa, Italy.
25. (September 2014) A tractable and interpretable four-parameter family of unimodal distributions on the circle
Invited speaker: *Seminar*, University of Valladolid, Valladolid, Spain.
24. (May 2014) A tractable and interpretable four-parameter family of unimodal distributions on the circle
Invited speaker: *International Workshop “Advances in Directional Statistics” (ADISTA14)*, Free University of Brussels and the Atomium, Brussels, Belgium.
23. (January 2014) A Möbius transformation-induced distribution on the torus
Workshop “Advances and Applications in Distribution Theory”, Institute of Statistical Mathematics, Tokyo, Japan.
22. (August 2013) A family of circular distributions related to wrapped Cauchy distributions via Brownian motion
2013 Joint Statistical Meetings, Palais de congrès de Montréal, Montréal, Canada.
21. (July 2012) Regression analysis of circular data
Workshop on Directional Statistics, Satellite Office of the Institute of Statistical Mathematics, Tokyo, Japan.
20. (July 2012) Robust estimation of location and concentration parameters for the von Mises-Fisher distribution
The 2nd Institute of Mathematical Statistics Asia Pacific Rim Meeting, Tsukuba University, Tsukuba, Japan.

19. (May 2012) A family of circular distributions arising from Brownian motion
Keio-Yonsei Workshop, Keio University, Yokohama, Japan.
18. (February 2012) A Möbius transformation induced distribution on the torus
2012 Joint Meeting of Indian Statistical Institute, the Institute of Statistical Mathematics, and Institute of Statistical Science, Academia Sinica, Institute of Statistical Mathematics, Tokyo, Japan.
17. (December 2011) An extended family of circular distributions related to wrapped Cauchy distributions via Brownian motion
International Conference on Advances in Probability and Statistics - Theory and Applications: A Celebration of N. Balakrishnan's 30 Years of Contributions to Statistics, Chinese University of Hong Kong, Hong Kong, China.
16. (August 2011) An extension of the wrapped Cauchy distribution via Brownian motion
Invited speaker: *Complex Phenomena from Statistical Point of View -Seismology, Environmentology and Economy-*, Meiji University, Kawasaki, Japan.
15. (February 2011) A Markov process for circular data
Invited speaker: *Seminar on Mathematical Sciences Based on Modeling, Analysis and Simulation*, Meiji University, Kawasaki, Japan.
14. (January 2010) A family of distributions on the circle with links to, and applications arising from, Möbius transformation
Two-Day Conference on Statistics and Probability, Indian Statistical Institute, Kolkata, India.
13. (November 2009) A Markov process for circular time series
Invited speaker: *Workshop "Directional, Asymptotic, Differential-Geometric Statistics and Related Area"*, Osaka Prefecture University, Sakai, Japan.
12. (June 2009) A family of distributions on the circle arising from Brownian motion
The 1st Institute of Mathematical Statistics Asia Pacific Rim Meeting, Seoul National University, Seoul, Korea.
11. (December 2008) An asymmetric extension of the wrapped Cauchy distribution
Workshop on Directional Statistics 2008, Institute of Statistical Mathematics, Tokyo, Japan.
10. (July 2008) A family of asymmetric distributions on the circle with links to Möbius transformation
The Seventh World Congress in Probability and Statistics, National University of Singapore, Singapore.
9. (June 2008) A Markov process for time series of circular data
2008 Joint Meeting of Indian Statistical Institute, the Institute of Statistical Mathematics, and Institute of Statistical Science, Academia Sinica, Academia Sinica, Taipei, Taiwan.
8. (March 2008) A family of asymmetric distributions on the circle with links to, and

applications arising from, Möbius transformation

Invited speaker: *Cherry Bud Workshop 2008*, Keio University, Yokohama, Japan.

7. (October 2007) A circle-valued Markov process
Workshop on Directional Statistics 2007, Institute of Statistical Mathematics, Tokyo, Japan.
6. (May 2007) A Markov process for circular data
IMST2007 -FIM XV- International Conference on Interdisciplinary Mathematical and Statistical Techniques, Shanghai, China.
5. (March 2007) A distribution for a pair of unit vectors generated by Brownian motion
Invited speaker: *Cherry Bud Workshop 2007*, Keio University, Yokohama, Japan.
4. (October 2006) A bivariate circular distribution with uniform marginals
Workshop on Directional Statistics, Institute of Statistical Mathematics, Tokyo, Japan.
3. (September 2006) A bivariate circular distribution with uniform marginals
Awarded Outstanding Student Paper Award: *SCRA2006 -FIM XIII- International Conference on Interdisciplinary Mathematical and Statistical Techniques*, Tomar, Portugal.
2. (March 2006) A circular-circular regression model
Invited speaker: *Cherry Bud Workshop 2006*, Keio University, Yokohama, Japan.
1. (December 2005) Dependent models on two tori, cylinders and discs
Invited speaker: *International Statistics Conference "Statistics in the Technological Age"*, University of Malaya, Kuala Lumpur, Malaysia.

National Meetings:

51. (December 2024) A regression model for spherical data using a scaled link function
Statistical Mathematics Seminar, virtual seminar organized by the Institute of Statistical Mathematics, Tokyo (in Japanese).
50. (September 2024) A copula model for trivariate circular data
The 2022 Japanese Joint Statistical Meeting, Tokyo University of Science, Tokyo (in Japanese).
49. (November 2023) Weighted estimation with copula-based divergence
Statistical Mathematics Seminar, virtual seminar organized by the Institute of Statistical Mathematics, Tokyo (in Japanese).
48. (September 2023) Weighted estimation with copula-based divergence
Workshop "Advances in Copula Theory 2023", Institute of Statistical Mathematics, Tokyo (in Japanese).
47. (December 2022) A copula model for multivariate circular data
Statistical Mathematics Seminar, virtual seminar organized by the Institute of Statistical Mathematics, Tokyo (in Japanese).

46. (September 2022) A copula-based measure of asymmetry between the lower and upper tail probabilities of bivariate distributions
Invited speaker: *Advances in Copula Theory*, Institute of Statistical Mathematics, Tokyo (in Japanese).
45. (September 2022) Mixtures of asymmetric distributions on the circle, with an application to traffic count data
Invited speaker: *The 2022 Japanese Joint Statistical Meeting*, Seikei University, Tokyo (in Japanese).
44. (December 2021) Mixtures of distributions on the circle, with an application to traffic count data
Statistical Mathematics Seminar, virtual seminar organized by the Institute of Statistical Mathematics, Tokyo (in Japanese).
43. (December 2020) Parameter estimation for a Cauchy family on the sphere
Statistical Mathematics Seminar, virtual seminar organized by the Institute of Statistical Mathematics, Tokyo (in Japanese).
42. (November 2020) Statistical methods for directional data
Invited speaker: *Applied Statistics Workshop*, virtual seminar organized by the University of Tokyo, Tokyo (in Japanese).
41. (December 2019) A mixed-effects model for clustered circular data
Statistical Mathematics Seminar, Institute of Statistical Mathematics, Tokyo (in Japanese).
40. (September 2019) A copula-based measure for comparing the upper and lower tail probabilities of bivariate distributions
The 2019 Japanese Joint Statistical Meeting, Shiga University, Hikone (in Japanese).
39. (December 2018) A measure for comparing upper and lower tail probabilities of bivariate distributions
Statistical Mathematics Seminar, Institute of Statistical Mathematics, Tokyo (in Japanese).
38. (September 2018) A class of circulas obtained through a Fourier series based approach
Mathematical Society of Japan 2018 Autumn Meeting, Okayama University, Okayama (in Japanese).
37. (January 2018) A Bayesian network model for linear-circular data
Statistical Mathematics Seminar, Institute of Statistical Mathematics, Tokyo (in Japanese).
36. (September 2017) A Bayesian network model for linear-circular data
The 2017 Japanese Joint Statistical Meeting, Nanzan University, Nagoya (in Japanese).
35. (March 2017) Copulas for circular data
Statistical Mathematics Seminar, Institute of Statistical Mathematics, Tokyo (in Japanese).
34. (January 2017) Statistical models for directional data

- Invited speaker: *Symposium "Modern Issues in Statistical Science"*, Kanazawa University, Kanazawa (in Japanese).
33. (September 2016) A tractable and interpretable four-parameter family of unimodal distributions on the circle
The 2016 Japanese Joint Statistical Meeting, Kanazawa University, Kanazawa (in Japanese).
 32. (December 2015) Statistical analysis of directional data
 Invited speaker: *Special Lecture on Data Science*, Keio University, Yokohama (in Japanese).
 31. (November 2015) Statistical methods for directional data
 Invited speaker: *Special Lecture on Data Science*, Osaka University, Osaka (in Japanese).
 30. (September 2015) The Cauchy distribution on the circle and related statistical models
 Invited speaker: *The 2015 Japanese Joint Statistical Meeting*, Okayama University, Okayama (in Japanese).
 29. (April 2015) Multivariate Cauchy families and conformal mapping
Statistical Mathematics Seminar, Institute of Statistical Mathematics, Tokyo (in Japanese).
 28. (January 2015) Regression models for directional data
Workshop "Spatio-Temporal Pattern in Biology and Statistical Mathematics: Synchronization, Recognition and Behavior", Institute of Statistical Mathematics, Tokyo (in Japanese).
 27. (October 2014) The wrapped Cauchy distribution on the circle and its bivariate extension
 Invited speaker: *Applied Statistics Workshop*, University of Tokyo, Tokyo (in Japanese).
 26. (June 2014) A characterization of a Cauchy family on the complex space
Statistical Mathematics Seminar, Institute of Statistical Mathematics, Tokyo (in Japanese).
 25. (July 2013) Genetic analysis of home-cage activity of congenic mice strains using regression models
Statistical Mathematics Seminar, Institute of Statistical Mathematics, Tokyo (in Japanese).
 24. (October 2012) A family of distributions on the circle characterized by its trigonometric moments
Statistical Mathematics Seminar, Institute of Statistical Mathematics, Tokyo (in Japanese).
 23. (September 2012) The Cauchy distribution on the circle and related statistical models
 Invited speaker: *Mathematical Society of Japan 2012 Autumn Meeting*, Kyushu University, Fukuoka (in Japanese).
 22. (September 2012) A family of distributions on the circle with links to, and an application arising from, Möbius transformation
The 2012 Japanese Joint Statistical Meeting, Hokkaido University, Sapporo (in Japanese).
 21. (September 2011) An extended family of circular distributions related to wrapped Cauchy distributions

- The 2011 Japanese Joint Statistical Meeting*, Kyushu University, Fukuoka (in Japanese).
20. (June 2011) A bivariate circular distribution and related statistical models
Statistical Mathematics Seminar, Institute of Statistical Mathematics, Tokyo (in Japanese).
 19. (February 2011) A distribution for a pair of unit vectors generated by Brownian motion
Konno-Kajiwarra Laboratory Seminar, Yokohama National University, Yokohama (in Japanese).
 18. (September 2010) A family of distributions on the circle with links to Möbius transformation
Mathematical Society of Japan 2010 Autumn Meeting, Nagoya University, Nagoya (in Japanese).
 17. (September 2010) Regression analysis of directional data
Workshop "Biotic Community and Statistical Mathematics", Institute of Statistical Mathematics, Tokyo (in Japanese).
 16. (May 2010) A Markov process for circular data
Statistical Mathematics Seminar, Institute of Statistical Mathematics, Tokyo (in Japanese).
 15. (April 2010) A Markov process for circular data
Invited speaker: *Seminar on Probability and Statistics*, University of Tokyo, Tokyo (in Japanese).
 14. (November 2009) A family of distributions on the circle with links to, and applications arising from, Möbius transformation
Workshop "Statistics of Asymmetric Probability Distributions", Keio University, Yokohama (in Japanese).
 13. (March 2009) A family of asymmetric distributions on the circle arising from Brownian motion
Mathematical Society of Japan 2009 Annual Meeting, University of Tokyo, Tokyo (in Japanese).
 12. (March 2008) A family of asymmetric distributions on the circle with links to Möbius transformation
The 21st Century Center of Excellence Program Annual Conference, Keio University, Yokohama.
 11. (September 2007) A Markov process for circular data
Mathematical Society of Japan 2007 Autumn Meeting, Tohoku University, Sendai (in Japanese).
 10. (March 2007) A bivariate circular distribution generated by Brownian motion
The 21st Century Center of Excellence Program Annual Conference, Keio University, Yokohama (presentation under a form of poster; in Japanese).
 9. (March 2007) A distribution for a pair of unit vectors generated by Brownian motion

- Mathematical Society of Japan 2007 Annual Meeting*, Saitama University, Saitama (in Japanese).
8. (September 2006) A bivariate circular distribution with uniform marginals
Mathematical Society of Japan 2006 Autumn Meeting, Osaka City University, Osaka (in Japanese).
 7. (March 2006) A circular-circular regression model
Mathematical Society of Japan 2006 Annual Meeting, Chuo University, Tokyo (in Japanese).
 6. (March 2006) Dependent models with specified marginals on two tori, cylinders and discs
The 21st Century Center of Excellence Program Annual Conference, Keio University, Yokohama (presentation under a form of poster; in Japanese).
 5. (September 2005) Dependent models on two tori and cylinders
Mathematical Society of Japan 2005 Autumn Meeting, Okayama University, Okayama (in Japanese).
 4. (March 2005) Construction of stochastic models on the cylinder using maximum entropy principle
Mathematical Society of Japan 2005 Annual Meeting, Nihon University, Tokyo (in Japanese).
 3. (November 2004) A further study of t -distributions on spheres
Workshop on Statistical Inference and Applications of Time Series and Point Processes, Kagoshima (in Japanese).
 2. (September 2004) A skew t -distribution on the circle
Mathematical Society of Japan 2004 Autumn Meeting, Hokkaido University, Sapporo (in Japanese).
 1. (November 2003) Distributions on the torus
Workshop on Statistical Inference and Applications of Massive Data, Keio University, Yokohama (in Japanese).

OTHERS:

- Fluent in English and Japanese; proficient in C++, Python, and R.