Curriculum Vitae

Tomoyuki Nakagawa

Associate Professor
School of Data Science, Meisei University
2-1-1 Hodokubo Tachikawa-city Tokyo, 191-8506, Japan

E-mail Address (Primary): tomoyuki.nakagawa [at] meisei-u.ac.jp
E-mail Address (Second): t_nakagawa [at] rs.tus.ac.jp
URL: https://nakagawa96.github.io/TomoyukiNakagawa.github.io/
ORCID: https://orcid.org/0000-0001-5057-5927
Mathematics Genealogy: https://www.mathgenealogy.org/id.php?id=282439

Current Position

Associate Professor at School of Data Science, Meisei University

Associate Professor at Graduate School of Information Science, Meisei University

Visiting Associate Professor at Tokyo University of Science

Visiting researcher at Statistical Mathematics Unit, RIKEN Center for Brain Science

Areas of Specialisation

Mathematical Statistics; Discriminant analysis; High-dimensional data analysis;
Robust statistics; Bayesian analysis; Contingency tables; Spatio-Temporal analysis

Education

- Ph.D (Science): 2015.4–2018.3
  Department of Mathematics, Graduate School of Science, Hiroshima University.

- M.A. (Science): 2013.4–2015.3
  Department of Mathematics, Graduate school of Science, Hiroshima University.

- B.A. (Science): 2009.4–2013.3
  Department of Mathematics, Faculty of Science, Hiroshima University.

- Moji Daishoukan High School, 2006.4–2009.3.

Employments

- Associate Professor: 2023.4–present
  School of Data Science, Meisei University.

- Associate Professor: 2025.4–present
  Graduate School of Information Science, Meisei University.

- Visiting Researcher: 2024.7–present
  Statistical Mathematics Unit, RIKEN Center for Brain Science.

- ● Visiting Associate Professor: 2023.4–present
  Department of Information Sciences, Tokyo University of Science.

- ● Visiting Associate Professor: 2023.4–present
  Statistical Science Research Division, Tokyo University of Science.

- ● Visiting Associate Professor: 2023.6–present
  Medical Data Sciences, Tokyo University of Science.

- ● Junior Associate Professor: 2022.4–2023.3
  Department of Information Sciences, Tokyo University of Science.

- ● Member: 2022.4–2023.3
  Medical Data Sciences, Tokyo University of Science.

- ● Member: 2020.4–2023.3
  Statistical Science Research Division, Tokyo University of Science.

- ● Assistant Professor: 2018.4–2022.3
  Department of Information Sciences, Tokyo University of Science.

- ● Part-time Lecturer: 2015.4–2018.3
  Faculty of Engineering, Kindai University.

Grants

- ● Principal Investigator

1. Principal Investigator: 2023.4.1–2027.3.31
   Grant-in-Aid for Early-Career Scientists

2. Principal Investigator: 2019.4.1–2023.3.31
   Grant-in-Aid for Early-Career Scientists

- ● Co-Investigator

3. Co-Investigator: 2025.4.1–2030.3.31
   Grant-in-Aid for Scientific Research (A)

4. Co-Investigator: 2021.4.1–2025.3.31
   Grant-in-Aid for Scientific Research (B)

5. Co-Investigator: 2020.4.1–2025.3.31
   Grant-in-Aid for Scientific Research (C)

Awards

- ● JSAS Best Poster Award, 2021.5.15

Research Abroad

- ● Visiting Researcher (Mentor: Prof. Sam Subbey and Prof. Hiroko K. Solvang)
  Project: MarPro-PROVEN (project nr. 14412)
  Institute of Marine Research, 2017.8.20–2017.9.30

- ● Visiting Researcher (Mentor: Prof. Sam Subbey and Prof. Hiroko K. Solvang)
  Institute of Marine Research, 2025.1.16–2025.1.30

Membership

● Japan Statistical Society, 2014.5.26–present.

● The mathematical Society of Japan, 2016.10.1–present.

● Japanese Society of Applied Statistics, 2019.4.1–present.

● American Mathematical Society Reviewer for Mathematical Reviews, 2022.3.10–present.

● Japanese Society of Computational Statistics, 2022.4.1–present.

Publications

● Published and Accepted Papers (Peer-reviewed)

1. N. Sonobe, T. Momozaki and T. Nakagawa (2025+), Sampling from Density power divergence-based Generalized posterior distribution via Stochastic optimization. *Statistics and Computing*, accepted. arXiv.2501.07790. (R-code)

2. S. Orihara, S. Sugasawa, T. Ohigashi, K. Hirano, T. Nakagawa and M. Taguri (2025+), Nonparametric Bayesian Adjustment of Unmeasured Confounders in Cox Proportional Hazards Models. *Statistics in Medicine*, accepted, arXiv.2312.02404.

3. W. Urasaki, T. Nakagawa, J. Tsuchida and K. Tahata (2025), Visualization for departures from symmetry with the power-divergence-type measure in two-way contingency tables. *Psychometrika*, Published Online.
(DOI: `https://doi.org/10.1017/psy.2025.10057`)

4. S. Orihara, T. Momozaki and T. Nakagawa (2025), Generalized Bayesian Inference for Causal Effects using Covariate Balancing Procedure. *Biometrical Journal*, **67**, no.6: e70085.
(DOI: `https://doi.org/10.1002/bimj.70085`) (R-code)

5. K. Nakamura, T. Nakagawa and K. Tahata (2025), Quasi-symmetry and geometric marginal homogeneity: A simplicial approach to square contingency tables. *Information Geometry*, Published Online.
(DOI: `https://doi.org/10.1007/s41884-025-00176-1`)

6. 中川 智之 (2025), ロバストなダイバージェンスを用いた一般化ベイズ法, システム制御情報学会誌「システム/制御/情報」, Vol.**69**, No.2, pp.53–58. (in Japanese)
(DOI: `https://doi.org/10.11509/isciesci.69.2_53`)

7. M. Hyodo, T. Nishiyama, H. Watanabe, T. Nakagawa and K. Tahata (2025), Equality tests of covariance matrices under a low-dimensional factor structure. *Journal of Multivariate Analysis*, **206**, 195397.
(DOI: `https://doi.org/10.1016/j.jmva.2024.105397`)

8. W. Urasaki, T. Nakagawa, T. Momozaki and S. Tomizawa (2024), Generalized Cramér's coefficient via f-divergence for contingency tables. *Advances in Data Analysis and Classification*, Vol. **18**, 893–910.
(DOI: `https://doi.org/10.1007/s11634-023-00560-8`)

9. K. Nakamura, T. Nakagawa and K. Tahata (2024), Symmetry of Square Contingency Tables Using Simplicial Geometry. *Austrian Journal of Statistics*, **53**, No.4, 85–98.
(DOI: `https://doi.org/10.17713/ajs.v53i4.1845`)

10. W. Urasaki, Y. Wada, T. Nakagawa, K. Tahata and S. Tomizawa (2024), Geometric Mean Type of Proportional Reduction in Variation Measure for Two-Way Contingency Tables. *Sankhya B*, **86**, 139–163.
(DOI: `https://doi.org/10.1007/s13571-023-00320-w`)

11. T. Momozaki, K. Cho, T. Nakagawa and S. Tomizawa (2024), Improving the accuracy of estimating indexes in contingency tables using Bayesian estimators. *Journal of Statistical Theory and Practice*, **18**, Article number: 1.
(DOI: `https://doi.org/10.1007/s42519-023-00353-4`)

12. S. Kimura, K. Ohata, H. Iihara, S. Nishioka, R. Ozeki, M. Saito, T. Nakagawa, M. Komoda (2023), Study on the development and implementation of electronic patient reported outcome-pharmaceutical management system for enhanced CINV control, *Japanese Journal of Drug Informatics*, Vol. **25**, No. 3, 131–142. (in Japanese)
(DOI: `https://doi.org/10.11256/jjdi.25.131`)

13. M. Hyodo, H. Watanabe, S. Nakagawa and T. Nakagawa (2023), Normalizing transformation of Dempster type statistic in high-dimensional settings. *Communications in Statistics–Theory and Methods*, VOL. **52**, NO. 22, 8096–8113.
(DOI: `https://doi.org/10.1080/03610926.2022.2056749`)

14. S. Sugasawa, T. Nakagawa, H. K. Solvang, S. Subbey and S. Alrabeei (2023), Dynamic Spatio-temporal Zero-inflated Poisson Models for Predicting Capelin Distribution in the Barents Sea. *Japanese Journal of Statistics and Data Science*, Vol. **6**, 1–20.
(DOI: `https://doi.org/10.1007/s42081-022-00183-x`)

15. T. Momozaki, Y. Wada, T. Nakagawa and S. Tomizawa (2023), Extension of Generalized Proportional Reduction in Variation Measure for Two-Way Contingency Tables. *Behaviormetrika*, Vol.**50**, No.1, 385–398.
(DOI: `https://doi.org/10.1007/s41237-022-00186-8`)

16. T. Momozaki, T. Nakagawa, K. Iki and S. Tomizawa (2023), An Index for the Degree and Directionality of Asymmetry for Square Contingency Tables with Ordered Categories. *Austrian Journal of Statistics*, Vol.**52**, No.1, 62–71.
(DOI: `https://doi.org/10.17713/ajs.v52i1.1382`)

17. Y. Saigusa, N. Fukumoto, T. Nakagawa and S. Tomizawa (2022), Measure of departure from conditional partial symmetry for square contingency tables. *Journal of Mathematics and Statistics*, **18**, No.1, 138–142.
(DOI: `https://doi.org/10.3844/jmssp.2022.138.142`)

18. T. Nakagawa, S. Ohtsuka (2022), An asymptotic expansion for the distribution of Euclidean distance-based discriminant function in Normal populations. *Journal of Statistical Theory and Practice*, **16**, No.4, Article number: 62.
(DOI: `https://doi.org/10.1007/s42519-022-00292-6`).

19. K. Saito, N. Takakubo, A. Ishii, T. Nakagawa and S. Tomizawa (2022), Measures of Departure from Local Marginal Homogeneity for Square Contingency Tables. *Symmetry* **14**(6), 1075.
(DOI: `https://doi.org/10.3390/sym14061075`).

20. 田中 蘭, 綿川 日菜, 中川 智之, 小林 正弘, 田畑 耕治, 松澤 智史 (2022), 記述式評価データを用いた推薦システムの試作, オペレーション・リサーチ, **66**, 2, 64–72. (in Japanese)

21. T. Nakagawa, R. Namba, K. Iki and S. Tomizawa (2021), Improved approximate unbiased estimators of the measure of departure from partial symmetry for square contingency tables. *SUT Journal of Mathematics*, Vol. **57**, No. 2, 167–183.
(DOI: `https://doi.org/10.55937/sut/1641859470`)

22. T. Momozaki, T. Nakagawa, A. Ishii, Y. Saigusa and S. Tomizawa (2021), Two-dimensional index of departure from the symmetry model for square contingency tables with nominal categories. *Symmetry* **13**(11), 2031.
(DOI: `https://doi.org/10.3390/sym13112031`)

23. T. Nakagawa, H. Watanabe and M. Hyodo (2021), Kick-one-out-based variable selection method for Euclidean distance-based classifier in high-dimensional setting. *Journal of Multivariate Analysis*, **184**, 104756.
(DOI: `https://doi.org/10.1016/j.jmva.2021.104756`)

24. T. Nakagawa and S. Hashimoto (2021), On default priors for robust Bayesian estimation with divergences. *Entropy*, **23**(1), 29.
(DOI: `https://doi.org/10.3390/e23010029`)

25. T. Nakagawa, T. Takei, A. Ishii and S. Tomizawa (2020), Geometric mean type measure of marginal homogeneity for square contingency tables with ordered categories. *Journal of Mathematics and Statistics*, **16**, No.1, 170–175.
(DOI: `https://doi.org/10.3844/jmssp.2020.170.175`)

26. Y. Saigusa, T. Takada, A. Ishii, T. Nakagawa and S. Tomizawa (2020), Measure of departure from cumulative local symmetry for square contingency tables having ordered categories. *Biometrical Letters: Journal of the Polish Biometric Society*, **57**, No.1, 23–35.
(DOI: `https://doi.org/10.2478/bile-2020-0003`)

27. T. Nakagawa and S. Hashimoto (2020), Robust Bayesian inference based via γ-divergence. *Communications in Statistics–Theory and Methods*, VOL. **49**, NO.2, 343–360.
(DOI: `https://doi.org/10.1080/03610926.2018.1543765`)

28. Y. Saigusa, M. Takami, A. Ishii, T. Nakagawa and S. Tomizawa (2019), Measure for departure from cumulative partial symmetry for square contingency tables with ordered categories. *Journal of Statistics: Advances in Theory and Applications* Vol.**21**, No.1, 53–70.
(DOI: `http://dx.doi.org/10.18642/jsata_7100122036`)

29. T. Nakagawa, S. Subbey and H. K. Solvang (2019), Integrating Hawkes process- and Biomass Models to Capture Impulsive Population Dynamics. *Dynamics of Continuous, Discrete and Impulsive Systems Series B : Applications & Algorithms* Vol.**26**, No.3, 153-170.

30. T. Nakagawa (2018), Estimating the probabilities of misclassification using CV when the dimension and the sample sizes are large. *Hiroshima Mathematical Journal*, Vol.**48**, No.3, 474–411.
(DOI: `https://doi.org/10.32917/hmj/1544238034`)

31. T. Nakagawa and H. Wakaki (2017), Selection of the linear and the quadratic discriminant functions when the difference between two covariance matrices is small. *Journal of the Japan Statistical Society*, Vol.**47**, No.2, 145–165.
(DOI: `https://doi.org/10.14490/jjss.47.145`)

32. T. Tonda, T. Nakagawa and H. Wakaki (2017), EPMC Estimation in Discriminant Analysis when the Dimension and Sample Sizes are Large. *Hiroshima Mathematical Journal*, Vol. **47**, No.1, 43–62.
(DOI: `https://doi.org/10.32917/hmj/1492048847`)

● Proceedings (Peer-reviewed)

33. 北島茂樹, 山中脩也, 長慎也, 今野貴之, 中川智之 (2024), プログラミング学習環境における能動的推論の活用とその評価. 2024PC カンファレンス論文集, 93–96. (in Japanese)

34. 熊澤努, 地嵜頌子, 中川智之, 室井浩明, 渡邉卓也 (2022), 深層学習における正則化へのドロップアウトデザインの適用. 「ソフトウェア・シンポジウム 2022 論文集」, 1–10. (in Japanese)

● Preprints and Working Papers

35. H. Okahara, T. Nakagawa and S. Sugasawa (2026), Divergence-based Robust Generalised Bayesian Inference for Directional Data via von Mises-Fisher models. arXiv.2601.07158.
(R-code)

36. T. Nakagawa, Y. Tsuruta, S. Kazari and K. Tahata (2025), Divergence-based Robust Generalised Bayesian Inference for Directional Data via von Mises-Fisher models. arXiv.2512.05668. (R-code)

37. S. Sugasawa, T. Matsuda and T. Nakagawa (2025), Noise-Robust Phase Connectivity Estimation via Bayesian Circular Functional Models. arXiv.2509.06418. (R-code)

38. T. Momozaki, S. Sugasawa, T. Nakagawa, H. K. Solvang, and S. Subbey (2025), Robust Spatio-Temporal Distributional Regression. arXiv.2508.05041.

39. K. Nakamura, T. Nakagawa and K. Tahata (2025), Aichison 幾何に基づく分割表の対称性について. *RIMS kokyuroku*, No.2318, 1–12, (in Japanese).

40. W. Urasaki, G. Kawamitsu, T. Nakagawa and K. Tahata (2024), A measure of departure from symmetry via the Fisher-Rao distance for contingency tables. arXiv.2410.15874.

41. W. Urasaki, T. Nakagawa and K. Tahata (2024), 尺度に基づく対称性からの逸脱度の可視化と非対称モデルとの関係. *RIMS kokyuroku*, No.2284, 29–38, (in Japanese).

42. T. Momozaki and T. Nakagawa, S. Sugasawa and H. K. Solvang (2023), Semiparametric Copula Estimation for Spatially Correlated Multivariate Mixed Outcomes: Analyzing Visual Sightings of Fin Whales from Line Transect Survey. arXiv:2312.12710. (R-code)

43. T. Momozaki and T. Nakagawa (2023), Robustness of Bayesian ordinal response model against outliers via divergence approach. arXiv.2305.07553. (R-code)

44. T. Momozaki and T. Nakagawa (2023), Estimation by using Robust divergences in ordinal response model. *RIMS kokyuroku*, No.2254, 59–68, (in Japanese).

45. T. Momozaki and T. Nakagawa (2022), Robustness against outliers in ordinal response model via divergence approach. arXiv:2209.11965. (R-code)

46. T. Nakagawa, T. Momozaki, K. Cho and S. Tomizawa (2022), Choice of the Dirichlet parameter to estimate measures for square contingency tables. *RIMS kokyuroku*, No.2221, 20–29. (in Japanese).

47. T. Nakagawa (2019), Objective prior for the robust Bayesian estimation. *RIMS kokyuroku*, No.2133, 40–49 (in Japanese).

48. T. Nakagawa (2018), Bias correction methods by using cross-validation for estimating the expected probabilities of misclassification. *RIMS kokyuroku*, No.2091, 38–54. (in Japanese)

49. T. Nakagawa and S. Hashimoto (2017), Comparison of two Robust Bayes estimations using the divergence under heavy contamination. *RIMS kokyuroku*, No.2047, 55–66, (in Japanese).

50. N. Chanohara, T. Nakagawa and H. Wakaki (2017), Estimation of covariance matrix via shrinkage Cholesky factor. *Hiroshima Statistical Research Group Technical Report*. 17–03.

● Book

1. M. Hyodo, T. Nakagawa, H. Watanabe (2022), *A First Course in Statistics with R*, Kyoritsu Shuppan, (in Japanese).