

Curriculum Vitae

Name: Hideyasu SHIMADZU, PhD, FHEA

Address: Department of Data Science
School of Frontier Engineering, Kitasato University
1-15-1 Kitazato Minami, Sagamihara, Kanagawa 252-0373, JAPAN

E-mail: shimadzu.hideyasu@kitasato-u.ac.jp

URL: <http://shimadzu.datascience.jp/>

ORCID: 0000-0003-0919-8829

Nationality: Japan

Academic qualifications

MSc (Data Science/Statistics), Keio University, Japan, 2004.

PhD (Data Science/Statistics), Keio University, Japan, 2008.

PGCert (Academic Practice), Loughborough University, UK, 2018.

A postgraduate qualification at the level of a master's degree in the UK (Level 7, RQF; Level 11, SCQF)

Professional appointments

2023 – *Professor of Data Science*, Kitasato University, Japan
Department of Data Science, School of Frontier Engineering

2016 – 2023 *Lecturer in Statistics*, Loughborough University, England, UK
Department of Mathematical Sciences, School of Science

2012 – 2016 *Research Fellow*, University of St Andrews, Scotland, UK
Centre for Biological Diversity, Scottish Oceans Institute, School of Biology

2008 – 2011 *Statistician/Mathematical modeller*, Australian Government Geoscience Australia, Australia
Environmental Geoscience Division, Coastal, Marine and Climate Change Group
Petroleum and Marine Division, Marine and Coastal Environment Group

Adjunct positions

IAS Visiting Fellow, Institute of Advanced Studies, Loughborough University, UK (November 2023).

Project Professor, Department of Data Science, School of Frontier Engineering, Kitasato University, Japan
(April – September 2023).

Visiting Research Fellow, Graduate School of Public Health, Teikyo University, Japan (October 2018 –
March 2023).

Hideyasu SHIMADZU CV

Visiting Scholar, School of Biology, University of St Andrews, UK (February – July 2016).

Visiting Research Fellow (April 2013 – March 2014), *Visiting Research Associate* (April 2012 – March 2013), Department of Mathematics, Keio University, Japan.

Visiting Scientist, the Commonwealth Scientific and Industrial Research Organisation (CSIRO) Mathematics, Informatics and Statistics, Australia (September 2008 – December 2011).

Honorary Fellow, Tasmanian Aquaculture and Fisheries Institute, University of Tasmania, Australia (July 2008 – June 2011).

Visiting Research Scholar, CSIRO Mathematical and Information Sciences, Australia (for six weeks in October – November 2007).

Research Assistant, the 21st Century Centre of Excellence (COE) Programme “Integrative Mathematical Sciences”, Keio University, Japan (April 2004 – March 2008).

External Director, Data Science Consortium, Ltd., Japan (April 2017 –).

External Statistics Advisor, F-index Co. Ltd., Japan (September 2021 –).

External Statistics Advisor, F-viz Co. Ltd., Japan (October 2019 – January 2021).

External Statistics Advisor, Another Ware Co. Ltd., Japan (November 2018 – September 2019).

External Statistics Consulting Editor, StaGen Co. Ltd., Japan (February 2015 – December 2017).

Adjunct Lecturer, Keio University, Japan (2023).

Research project supervisor, The African Institute for Mathematical Sciences (AIMS), Ghana (2022).

Adjunct Lecturer, Sophia University, Japan (April – September 2021).

Adjunct Lecturer, Jiyu Gakuen College of Liberal Arts, Japan (April 2012 – March 2013; April 2004 – March 2009).

Other invited departmental visits etc. including:

Academia Sinica (Taiwan); Central Queensland University, School of Health and Human Services (Australia); Civil Engineering and Eco-Technology Consultants (Japan); CSIRO (Australia); Hitotsubashi University, Graduate School of International Corporate Strategy (Japan); The International Institute for Applied Systems Analysis (Austria); The Institute of Marine Research (Norway); The Institute of Statistical Mathematics (Japan); Tokyo Medical and Dental University, M&D Data Science Center (Japan); Jiyu Gakuen College (Japan); Keio University, Department of Mathematics (Japan); Nagoya University, Graduate School of Medicine, Department of Biostatistics (Japan); Maynooth University, Department of Mathematics and Statistics (Ireland); National Taiwan University, Institute of Oceanography (Taiwan); Osaka University, Graduate School of Medicine (Japan); Teikyo University, Graduate School of Public Health (Japan); University of Canterbury, School of Mathematics and Statistics (New Zealand); University of St Andrews, Centre for Research into Ecological and Environmental Modelling (UK); University of Yamanashi, Department of Health Sciences (Japan); The University of the West Indies, Department of Life Sciences (Trinidad and Tobago); Victoria University of Wellington, School of Mathematics, Statistics and Operations Research (New Zealand); University of Warwick, Department of Statistics (UK).

Honours / distinctions

Annual General Meeting Award *Influence: Team*, Geoscience Australia (2010).

Poster Award, Statistical Modelling and Inference Conference (2010).

Young Researcher Award, the 7th Japanese Swimming Science Society Meeting (2003).

Best Presentation Award, the 2003 Japanese Joint Statistical Meeting (2003).

Professional membership / activities

Associate Editor, the *Journal of Agricultural, Biological and Environmental Statistics* (2022 – ; 2016 – 2018).

Associate Editor, the *Japanese Journal of Biometrics* (2017 –).

Associate Editor, the *Japanese Journal of Statistics and Data Science* (2017 – 2023).

Member of the editorial board for the *Bulletin of Jiyu Gakuen College of Liberal Arts* (2015 –).

Reviewer for journals: *Acta Oecologica*; *Asia-Pacific Financial Markets*; *Biology Letters*; *Biometrical Journal*; *Biostatistics and Epidemiology*; *Bulletin of the Computational Statistics of Japan*; *Canadian Journal of Fisheries and Aquatic Sciences*; *Climate*; *Conservation Biology*; *Ecology*; *Ecology Letters*; *Environmental and Ecological Statistics*; *Environmetrics*; *Global Ecology and Biogeography*; *ISME Journal*; *Japanese Journal of Biometrics*; *Japanese Journal of Statistics and Data Science*; *Journal of Environmental Informatics*; *Journal of Epidemiology*; *Landscape Ecology*; *Methods in Ecology and Evolution*; *Nature Communications*; *Nature Ecology and Evolution*; *Nature Sustainability*; *PloS ONE*; *R Journal*; *SpringerPlus*.

Professional member of the American Society of Naturalists; Biometric Society of Japan; British Ecological Society; International Biometric Society (British & Irish, 2012– ; Australasian, 2008–2012); Japan Statistical Society; London Mathematical Society; Royal Statistical Society.

Committee member (2020 – 2023), Secretary (2020 – 2021) of the RSS East Midlands local group, UK.

Member of the award committee for the Biometric Society of Japan.

Member of the event organising committee for the Biometric Society of Japan (2021 – 2022).

Member of the National Centre for Statistical Ecology, UK.

Fellow of the Higher Education Academy, UK (2018 –).

Invited lectures and seminars (recent ones)

Quantifying change in biodiversity—individual, population and community, Biodiversity Center, Academia Sinica, Taiwan (2023).

Modelling energy allocation strategies under different temperature conditions, Osaka University, Japan (2022).

A new perspective for quantifying biodiversity, Osaka University, Japan (2022).

Estimating energy allocation between somatic and gonadic growth, the Young Statisticians' Section of the Irish Statistical Association, Ireland (2021).

Quantifying biodiversity change and its implication, Seikei University, Japan (2021).

Modelling energy allocation strategies: challenges in data and models, University of São Paulo, Brazil (2021).

Investigating temporal change in biological diversity, International Institute for Applied Systems Analysis, Vienna, Austria (2019).

Organising conference sessions

Intersection of Biometrics and Ecology, 2023 Japanese Joint Statistical Meeting, Kyoto University, Japan (2023).

Advances in Ecological Data Analysis, 2021 Annual Meeting WNAR/IMS/JR, Virtual (2021).

Advances in Ecological Modelling, the 27th Annual Conference of the International Environmetrics Society, Bergamo, Italy (2017).

Examiner

External PhD examiner, Department of Mathematics and Statistics, Maynooth University (2023).
PhD examiner, Department of Mathematical Sciences, Loughborough University (2019).

Other

Peer Reviewer, Irish Research Council Laureate Awards.
Reviewer, the Japan Society for the Promotion of Science (JSPS) London Fellowship.
External member of staff selection committee for other universities.

Research and professional specialities

Data science: Data analysis; Data modelling (statistical/mathematical modelling); Marine ecology; Biodiversity; Public health.

Research experience

Analysis and modelling of data observed in various fields of science, with particular focuses these days on the area of ecology and biodiversity studies. Disciplines I have worked with include, but are not limited to, social science, public health, biology, ecology and sport engineering.
A range of statistical consulting experience in scientific and industrial research; examples include disciplines of biology, ecology, education, genetics, genomics and health/medical sciences.

Biological, environmental and ecological data science

I have worked on analyses and modelling of biological and ecological data to delineate how species distribute and vary over different spatio-temporal scales, responding to environment factors in different ways. This also accounts for the uncertainty associated with the collection of data, such as sub-sampling methods and spatially misaligned cases. I have investigated the temporal change (turnover) of biodiversity including seasonal variations in ecological communities, to understand key roles in the maintenance of biodiversity.

Public health data science

I have worked on developing a framework to detect multiple temporal/spatial disease clusters in epidemiological studies. This work combines scan statistics and regression models directly upon the model selection framework. I have also proposed a new information criterion that enables us to select an appropriate number of clusters in temporal and spatial contexts.

Teaching experience

Kitasato University, Department of Data Science, Japan

Exercices in Data Science Innovation

1 yr UG Semester 2 (2023–)

Loughborough University, Department of Mathematical Sciences, England

<i>Interdisciplinary Research Project</i> ^{†*} (Final year project)	NTC001	3 yr UG	Semester 1–2	(2021–2023)
<i>Statistical Modelling</i>	MAB270	2 yr UG	Semester 2	(2020–2023)
<i>Applied Statistics</i>	MAB171	2 yr UG	Semester 1	(2018–2023)
<i>Mathematics Report</i>	MAC200	3 yr UG	Semester 2	(2017–2023)
<i>Statistics Project</i> (Final year project)	MAC302	3 yr UG	Semester 1–2	(2016–2023)
<i>Small Group Tutorial</i>	MAQ110	1 yr UG	Semester 1–2	(2016–2023)
<i>Mechanical and Mathematical Principles of Fluid Mechanics</i> ^{†*}	CVA105	1 yr UG	Semester 1–2	(2019)
<i>Statistics</i> [†]	MAB206	2 yr UG	Semester 2	(2017–2019)
<i>Introduction to Stochastic Processes</i>	MAB280	2 yr UG	Semester 2	(2016)

Final year project supervision: 2–3 students every year; †: modules for other departments; *: group teaching.

Sophia University, Faculty of Science and Technology, Japan

Mathematics C1 (Statistical data analysis) MTH201 2 yr UG Spring (2021)

Jiyu Gakuen College of Liberal Arts, Japan

<i>General Seminar</i>	Final year research project	3 – 4 yr UG	(2012, 2007–2008, 2005)
<i>Data Science I</i>	Data analysis using R	1 yr UG	(2007–2008)
<i>Data Science II</i>	Data analysis using R	2 – 4 yr UG	(2008)
<i>Statistics</i>	Data analysis using R	2 yr UG	(2004–2007)
<i>Art of Mathematics</i>	Calculus, Linear Algebra	1 yr UG	(2004–2006)

Thesis supervision and/or examiner: 1(2005); 4(2007); 2(2008); 6(2012); 2(2013); 1(2014); 1(2018).

Teaching assistant / tutor

Keio University, Department of Mathematics, Japan

<i>Mathematics A1</i>	Analysis	1 yr UG	Spring	(2004–2007)
<i>Mathematics B1</i>	Linear Algebra	1 yr UG	Spring	(2004–2007)
<i>Mathematics A2</i>	Analysis	1 yr UG	Autumn	(2004–2007)
<i>Mathematics B2</i>	Linear Algebra	1 yr UG	Autumn	(2004–2007)
<i>Statistical Science and Its Exercise</i>	Data analysis using S-PLUS/R	3 yr UG	Spring	(2003–2007)
<i>Data Analysis and Its Exercise</i>	Data analysis using S-PLUS	3 yr UG	Autumn	(2003–2007)

Postgraduate supervision

PhDs

Fiona Houlgreave (2017–) Loughborough University (with Dr John Ward)

Georgios Stagakis (2021) *Markov Chain methods in 3-D structure inversion from Electron Microscopy images*. Loughborough University (with Professor Roger Smith)

Masters

Herd behaviour on corporate financial and CSR performances	(2022)	Loughborough University	MSc
Access log data analysis	(2022)	AIMS Ghana	MSc
Preventing re-hospitalisation in diabetic patients	(2021)	Loughborough University	MSc
Investigating epidemiological models for COVID-19	(2020)	Loughborough University	MSc
Covariate effects on competing events	(2018)	Loughborough University	MSc
Detecting associations amongst multiple event time series	(2018)	Loughborough University	MSc
Detecting anomaly in financial market time series data	(2016)	Loughborough University	MSc

University and departmental services

Kitasato University, the Kitasato Institute, Japan

Councillor, the Kitasato Institute (2023–)

Loughborough University, England

Programme Director, Mathematics with Statistics BSc programme (2021–2023)

Programme Director, Mathematics and Sport Science BSc programme (2021–2023)

Statistics seminar organiser (2017–2021)

Grants

2021 – 2025	JSPS Grant-in-Aid for Scientific Research (B) (21H03402) Multiple clusters in health-related data: modelling, detection, and evaluation. (with K. Takahashi, M. Yamamoto and T. Anzai)	17M JPY
2022	ROIS NII Open Collaborative Research 2022 (22S0501) Developing methodology for clearing and archiving real estate data. (with D. Yokouchi, K. Otsuki and N. Kumasaka)	1.2M JPY
2019 – 2022	JSPS Grant-in-Aid for Challenging Exploratory Research (19K21569) Interdisciplinary study on the interaction between health and biodiversity: challenges for new aspects of the healthy society. (with T. Tango, K. Yamaoka and A. Nemoto)	6.2M JPY

Publications

- [1] Yasuo Uchida, Hideyasu Shimadzu, and Taka-aki Sekimoto (2003). The relationship between the avifauna and environmental changes at Jiyu-Gakuen in Tokyo: a statistical analysis of the bird-census data for 35 years. *Strix*, **21**: 53–70.
- [2] Hideyasu Shimadzu and Ritei Shibata (2005). Analysis of bird count series by local regression to explore environmental changes. *Journal of the Japan Statistical Society*, **J34**(2): 187–207.
- [3] Tatsuhiko Anzai, Hideyasu Shimadzu, and Toshiki Endo. Modelling duration of necessary and non-necessary activities in daily life: fitting mixture models to Japanese time-use survey data. In: *Proceedings of the 23rd International Workshop on Statistical Modelling*. Utrecht, the Netherlands, 2008, 93–98.
- [4] Hideyasu Shimadzu, Ritei Shibata, and Yuji Ohgi (2008). Modelling swimmers' speeds over the course of a race. *Journal of Biomechanics*, **41**(3): 549–555. doi: [10.1016/j.jbiomech.2007.10.007](https://doi.org/10.1016/j.jbiomech.2007.10.007).

- [5] Scott D. Foster, Hideyasu Shimadzu, and Ross Darnell (2012). Uncertainty in spatially predicted covariates: is it ignorable? *Journal of the Royal Statistical Society. Series C: Applied Statistics*, **61**(4): 637–652. DOI: [10.1111/j.1467-9876.2011.01030.x](https://doi.org/10.1111/j.1467-9876.2011.01030.x).
- [6] Hideyasu Shimadzu, Maria Dornelas, Peter A Henderson, and Anne E Magurran (2013). Diversity is maintained by seasonal variation in species abundance. *BMC Biology*, **11**: 98. DOI: [10.1186/1741-7007-11-98](https://doi.org/10.1186/1741-7007-11-98).
- [7] Al J. Reeve, Alfredo F. Ojanguren, Amy E. Deacon, Hideyasu Shimadzu, Indar W. Ramnarine, and Anne E. Magurran (2014). Interplay of temperature and light influences wild guppy (*Poecilia reticulata*) daily reproductive activity. *Biological Journal of the Linnean Society*, **111**(3): 511–520. DOI: [10.1111/bij.12217](https://doi.org/10.1111/bij.12217).
- [8] Machiko Yano, Hideyasu Shimadzu, and Toshiki Endo (2014). Modelling temperature effects on milk production: a study on Holstein cows at a Japanese farm. *SpringerPlus*, **3**(1): 129. DOI: [10.1186/2193-1801-3-129](https://doi.org/10.1186/2193-1801-3-129).
- [9] Maria Dornelas, Nicholas J. Gotelli, Brian McGill, Hideyasu Shimadzu, Faye Moyes, Caya Sievers, and Anne E. Magurran (2014). Assemblage time series reveal biodiversity change but not systematic loss. *Science*, **344**(6181): 296–299. DOI: [10.1126/science.1248484](https://doi.org/10.1126/science.1248484).
- [10] Isabel Marques da Silva, Nick Hill, Hideyasu Shimadzu, Amadeu M. V. M. Soares, and Maria Dornelas (2015). Spillover effects of a community-managed marine reserve. *PLoS ONE*, **10**(4): e0111774. DOI: [10.1371/journal.pone.0111774](https://doi.org/10.1371/journal.pone.0111774).
- [11] Hideyasu Shimadzu and Ross Darnell (2015). Attenuation of species abundance distributions by sampling. *Royal Society Open Science*, **2**(4): 140219. DOI: [10.1098/rsos.140219](https://doi.org/10.1098/rsos.140219).
- [12] Hideyasu Shimadzu, Maria Dornelas, and Anne E. Magurran (2015). Measuring temporal turnover in ecological communities. *Methods in Ecology and Evolution*, **6**(12): 1384–1394. DOI: [10.1111/2041-210X.12438](https://doi.org/10.1111/2041-210X.12438).
- [13] Kunihiro Takahashi and Hideyasu Shimadzu (2015). The daily incidence of out-of-hospital cardiac arrest unexpectedly increases around New Year's Day in Japan. *Resuscitation*, **96**: 156–162. DOI: [10.1016/j.resuscitation.2015.08.003](https://doi.org/10.1016/j.resuscitation.2015.08.003).
- [14] Amy E. Deacon, Hideyasu Shimadzu, Maria Dornelas, Indar W. Ramnarine, and Anne E. Magurran (2015). From species to communities: The signature of recreational use on a tropical river ecosystem. *Ecology and Evolution*, **5**(23): 5561–5572. DOI: [10.1002/ece3.1800](https://doi.org/10.1002/ece3.1800).
- [15] Hideyasu Shimadzu, Scott D. Foster, and Ross Darnell (2016). Imperfect observations in ecological studies. *Environmental and Ecological Statistics*, **23**(3): 337–358. DOI: [10.1007/s10651-016-0342-2](https://doi.org/10.1007/s10651-016-0342-2).
- [16] Mark Vellend, Maria Dornelas, Lander Baeten, Robin Beauséjour, Carissa D. Brown, Pieter De Frenne, Sarah C. Elmendorf, Nicholas J. Gotelli, Faye Moyes, Isla H. Myers-Smith, Anne E. Magurran, Brian J. McGill, Hideyasu Shimadzu, and Caya Sievers (2017). Estimates of local biodiversity change over time stand up to scrutiny. *Ecology*, **98**(2): 583–590. DOI: [10.1002/ecy.1660](https://doi.org/10.1002/ecy.1660).
- [17] Nicholas J. Gotelli, Hideyasu Shimadzu, Maria Dornelas, Brian McGill, Faye Moyes, and Anne E. Magurran (2017). Community-level regulation of temporal trends in biodiversity. *Science Advances*, **3**(7): e1700315. DOI: [10.1126/sciadv.1700315](https://doi.org/10.1126/sciadv.1700315).
- [18] Anne E. Magurran, Amy E. Deacon, Faye Moyes, Hideyasu Shimadzu, Maria Dornelas, Dawn A. T. Phillip, and Indar W. Ramnarine (2018). Divergent biodiversity change within ecosystems. *Proceedings of the National Academy of Sciences of the United States of America*, **115**(8): 1843–1847. DOI: [10.1073/pnas.1712594115](https://doi.org/10.1073/pnas.1712594115).

- [19] Hideyasu Shimadzu (2018). On species richness and rarefaction: size- and coverage-based techniques quantify different characteristics of richness change in biodiversity. *Journal of Mathematical Biology*, **77**(5): 1363–1381. doi: [10.1007/s00285-018-1255-5](https://doi.org/10.1007/s00285-018-1255-5).
- [20] Kunihiko Takahashi and Hideyasu Shimadzu (2018). Multiple-cluster detection test for purely temporal disease clustering: Integration of scan statistics and generalized linear models. *PLoS ONE*, **13**(11): e0207821. doi: [10.1371/journal.pone.0207821](https://doi.org/10.1371/journal.pone.0207821).
- [21] Maria Dornelas, Nicholas J. Gotelli, Hideyasu Shimadzu, Faye Moyes, Anne E. Magurran, and Brian J. McGill (2019). A balance of winners and losers in the Anthropocene. *Ecology Letters*, **22**(5): 847–854. doi: [10.1111/ele.13242](https://doi.org/10.1111/ele.13242).
- [22] Kunihiko Takahashi and Hideyasu Shimadzu (2020). Detecting multiple spatial disease clusters: information criterion and scan statistic approach. *International Journal of Health Geographics*, **19**: 33. doi: [10.1186/s12942-020-00228-y](https://doi.org/10.1186/s12942-020-00228-y).
- [23] Takuro Ogawa, Hideyasu Shimadzu, and Ryosuke Saga. Causality Model for Text Data with a Hierarchical Topic Structure. In: *2020 International Conference on Technologies and Applications of Artificial Intelligence (TAAI)*. Taiwan, 2020, 205–210. doi: [10.1109/TAAI51410.2020.00045](https://doi.org/10.1109/TAAI51410.2020.00045).
- [24] Jeffery Dick, Pawel Ladosz, Eseoghene Ben-Iwhiwhu, Hideyasu Shimadzu, Peter Kinnell, Praveen K. Pilly, Soheil Kolouri, and Andrea Soltoggio (2020). Detecting changes and avoiding catastrophic forgetting in dynamic partially observable environments. *Frontiers in Neurorobotics*, **14**: 578675. doi: [10.3389/fnbot.2020.578675](https://doi.org/10.3389/fnbot.2020.578675).
- [25] Nicholas J. Gotelli, Faye Moyes, Laura H. Antão, Shane A. Blowes, Maria Dornelas, Brian J. McGill, Amelia Penny, Aafke M. Schipper, Hideyasu Shimadzu, Sarah R. Supp, Conor A. Waldock, and Anne E. Magurran (2022). Long-term changes in temperate marine fish assemblages are driven by a small subset of species. *Global Change Biology*, **28**(1): 46–53. doi: [10.1111/gcb.15947](https://doi.org/10.1111/gcb.15947).
- [26] Hideyasu Shimadzu and Hui-Yu Wang (2022). Estimating allometric energy allocation between somatic and gonadic growth. *Methods in Ecology and Evolution*, **13**(2): 407–418. doi: [10.1111/2041-210x.13761](https://doi.org/10.1111/2041-210x.13761).
- [27] Shane A. Blowes, Gergana N. Daskalova, Maria Dornelas, Thore Engel, Nicholas J. Gotelli, Anne E. Magurran, Inês S. Martins, Brian McGill, Daniel J. McGlinn, Alban Sagouis, Hideyasu Shimadzu, Sarah R. Supp, and Jonathan M. Chase (2022). Local biodiversity change reflects interactions among changing abundance, evenness, and richness. *Ecology*, **103**(12): e3820. doi: [10.1002/ecy.3820](https://doi.org/10.1002/ecy.3820).
- [28] Wu-Bing Xu, Shane A. Blowes, Viviana Brambilla, Cher F. Y. Chow, Ada Fontrodona-Eslava, Inês S. Martins, Daniel McGlinn, Faye Moyes, Alban Sagouis, Hideyasu Shimadzu, Roel van Klink, Anne E. Magurran, Nicholas J. Gotelli, Brian J. McGill, Maria Dornelas, and Jonathan M. Chase (2023). Regional occupancy increases for widespread species but decreases for narrowly distributed species in metacommunity time series. *Nature Communications*, **14**: 1463. doi: [10.1038/s41467-023-37127-2](https://doi.org/10.1038/s41467-023-37127-2).
- [29] Sonia Pascoal, Hideyasu Shimadzu, Rahia Mashoodh, and Rebecca M. Kilner (2023). Parental care results in a greater mutation load, for which it is also a phenotypic antidote. *Proceedings of the Royal Society B: Biological Sciences*, **290**(1999): 20230115. doi: [10.1098/rspb.2023.0115](https://doi.org/10.1098/rspb.2023.0115).

Conferences

†: Invited presentations

1. DandD Instance (2003). The 2003 Japanese Joint Statistical Meeting, Meijo University, Nagoya, Japan.
2. Swimming race data analysis through DandD (2003) (with Y. Ohgi*). Co-speaker at the 2003 Japanese Joint Statistical Meeting, Meijo University, Nagoya, Japan.
3. Analysis of bird count series by local regression to explore environmental changes (2003) (with R. Shibata). The 2003 Japanese Joint Statistical Meeting, Meijo University, Nagoya, Japan.
4. Aptitude of swimmers for race (2003) (with Y. Ohgi). The 7th Japanese Swimming Science Society Meeting, Keio University, Tsuruoka, Japan.
5. [†] Smoothness properties of local polynomial regression and its application to financial time series analysis (2004) (with R. Shibata). Invited speaker at the 4th International Conference on Financial Engineering and Statistical Finance, Hitotsubashi University, Tokyo, Japan.
6. Selection of smoothing parameter by local mean squared error (2004) (with R. Shibata). The 2004 Japanese Joint Statistical Meeting, Fuji University, Hanamaki, Japan.
7. Race data analysis of the 2004 Japan Swimming Championships (2005). Poster talk at the Keio University 21st Century COE Programme Annual Meeting, Keio University, Yokohama, Japan.
8. A model of swimming velocity changes; race data analysis of the 2004 Japan Swimming Championships (2005) (with R. Shibata and Y. Ohgi). The 2005 Japanese Joint Statistical Meeting, Hiroshima Prince Hotel, Hiroshima, Japan.
9. Validity of a swimming velocity model constructed from swimming race data analysis (2005) (with R. Shibata and Y. Ohgi). The 2005 Japanese Society of Sciences in Swimming and Water Exercise Meeting, University of Tokyo, Tokyo, Japan.
10. Modelling earthworm's neuron membrane potential (2006). Poster talk at the Keio University 21st Century COE Programme Annual Meeting, Keio University, Yokohama, Japan.
11. [†] Data modelling of neuron membrane potential (2006) (with R. Shibata, T. Shimoi and K. Oka). Invited speaker at the Cherry Bud Workshop 2006 *Building Models from Data*, Keio University, Yokohama, Japan.
12. An integrated model for neural action potential (2006) (with R. Shibata, T. Shimoi and K. Oka). The 2006 Japanese Joint Statistical Meeting, Tohoku University, Sendai, Japan.
13. [†] Modelling swimmers' speeds over the course of a race (2007) (with R. Shibata and Y. Ohgi). Invited speaker at Cherry Bud Workshop 2007 *Interaction through Data*, Keio University, Yokohama, Japan.
14. A data driven model of neural action potentials (2007). Poster talk at the Keio University 21st Century COE Programme Annual Meeting, Keio University, Yokohama, Japan.
15. A three stage model for neural action potentials (2007) (with R. Shibata). The 2007 Japanese Joint Statistical Meeting, Kobe University, Kobe, Japan.
16. Membrane potential modelling led by an *in vivo* measurement of a single neuron (2008). Poster talk at the Keio University 21st Century COE Programme Annual Meeting, Keio University, Yokohama, Japan.
17. [†] Discovery of a structural model for neuronal activation (2008) (with R. Shibata, T. Shimoi and K. Oka). Invited speaker at Cherry Bud Workshop 2008 *Discovery through Data Science*, Keio University, Yokohama, Japan.

18. A structural model for neuronal activation (2008) (with R. Shibata, T. Shimoï and K. Oka). The 19th Biennial Australian Statistical Conference 2008, Sofitel Melbourne, Melbourne, Australia.
19. Modelling duration of necessary and non-necessary activities in daily life: fitting mixture models to Japanese time use survey data (2008) (with T. Anzai* and T. Endo). Co-speaker at the 23rd International Workshop on Statistical Modelling, Utrecht University, Utrecht, the Netherlands.
20. Development of switching state models for bird count series (2008) (with H. Takahashi* and T. Endo). Co-speaker at the XXIVth International Biometric Conference, University College Dublin, Dublin, Ireland.
21. Challenges of multi-survey data analysis; an exploratory approach (2008) (with R. Darnell). Workshop on Spatial and Statistical Modelling, Geoscience Australia, Canberra, Australia.
22. † Investigating the issues of sampling in marine surveys (2009) (with R. Darnell). Invited speaker at Australia – Japan Workshop on Data Science, Keio University, Yokohama, Japan.
23. Modelling species abundances in the Australian ocean (2009) (with R. Darnell). The 2009 Japanese Joint Statistical Meeting, Doshisha University, Kyoto, Japan.
24. Some issues in modelling biodiversity using spatially modelled covariates (2009) (with S. D. Foster). Poster talk at the International Biometric Society Australasian Region Conference, Suncourt Hotel and Conference Centre, Taupo, New Zealand.
25. An exploratory analysis of the effects of sampling in marine surveys for biodiversity estimation (2009) (with R. Darnell). The International Biometric Society Australasian Region Conference, Suncourt Hotel and Conference Centre, Taupo, New Zealand.
26. Some issues in modelling biodiversity using spatially modelled covariates (2010) (with S. D. Foster*). Poster talk at Statistical Modelling and Inference Conference to celebrate Murray Aitkin's 70th birthday, Queensland University of Technology, Brisbane, Australia.
27. The effects of sampling in marine surveys on biodiversity estimation (2010) (with R. Darnell). Poster talk at GEOHAB 2010 (Marine Geological and Biological Habitat Mapping), Wellington Town Hall, Wellington, New Zealand.
28. Some issues in predicting biodiversity using spatially modelled covariates (2010) (with S. D. Foster and R. Darnell). GEOHAB 2010, Wellington Town Hall, Wellington, New Zealand.
29. Environmental – biological covariance in the softs sediments surrounding Lord Howe Island (2010) (with M. McArthur* and B. Brooke). Co-speaker at GEOHAB 2010, Wellington Town Hall, Wellington, New Zealand.
30. † Uncertainty in marine survey data (2010) (with R. Darnell and S. D. Foster). Invited speaker at the workshop on Predicting Species Distributions and Communities in the Marine Realm, National Institute of Water & Atmospheric Research, Wellington, New Zealand.
31. Statistically relating marine biodiversity to physical variables: coping with error in covariates (2010) (with S. D. Foster* and R. Darnell). Co-speaker at the 47th Australian Marine Sciences Association Conference, The University of Wollongong, Wollongong, Australia.
32. Environmental – biological covariance in the softs sediments surrounding Lord Howe Island (2010) (with M. McArthur*, T. Anderson, Z. Huang, B. Brooke and S. Nichol). Co-speaker at the 47th Australian Marine Sciences Association Conference, The University of Wollongong, Wollongong, Australia.

33. † The data-reality gap: an attempt to understand marine biodiversity through survey data (2010) (with S. D. Foster and R. Darnell). Invited speaker at the 2010 Japanese Joint Statistical Meeting, Waseda University, Tokyo, Japan.
34. † Reconciling marine survey data for more productive modelling (2010) (with R. Darnell). Invited speaker at the workshop on Ecological and Environmental Data Analysis, Keio University, Yokohama, Japan.
35. Modelling marine biodiversity with error in covariates (2010) (with S. D. Foster and R. Darnell). The XXVth International Biometric Conference, The Federal University of Santa Catarina, Florianópolis, Brazil.
36. What are the effects of sub-sampling in marine surveys for biodiversity estimation? (2011) (with R. Darnell*). Poster talk at the 48th Australian Marine Sciences Association Conference, Esplanade Hotel, Fremantle, Australia.
37. How much does sub-sampling influence biodiversity estimation? (2011) (with R. Darnell). The 48th Australian Marine Sciences Association Conference, Esplanade Hotel, Fremantle, Australia.
38. Modelling biodiversity accounting for sampling effects in marine surveys (2011) (with S. D. Foster and R. Darnell). The 2011 Japanese Joint Statistical Meeting, Kyushu University, Fukuoka, Japan.
39. Quantifying the effect of sampling for biodiversity modelling (2011) (with S. D. Foster and R. Darnell). The International Biometric Society Australasian Region Conference, Sebel Harbourside Hotel, Kiama, Australia.
40. † Reconciling the data-reality gap: modelling marine biodiversity from survey data (2011) (with S. D. Foster and R. Darnell). Invited speaker at the workshop on Animal Data Analysis, The Institute of Statistical Mathematics, Tokyo, Japan.
41. Species abundance distributions and random partitions of number (2012) (with M. Sibuya*). Co-speaker at the XXVIth International Biometric Conference, Kobe International Conference Center, Kobe, Japan.
42. Accounting for sampling effects in biodiversity modelling (2012) (with S. D. Foster and R. Darnell). The XXVIth International Biometric Conference, Kobe International Conference Center, Kobe, Japan.
43. Species community modelling for understanding biodiversity (2012). The 2012 Japanese Joint Statistical Meeting, Hokkaido University, Hokkaido, Japan.
44. Modelling the effect of individual difference and weather conditions on milk yield and its composition (2012) (with M. Yano* and T. Endo). Co-speaker at the 74th Symposium of Society for Science on Form, Tokyo University of Agriculture and Technology, Tokyo, Japan.
45. Investigating the relationship of flooding risk and groundwater level: a case study on the Sabi river in Nasu-shiobara city, Japan (2012) (with M. Sakai*, T. Takayama and T. Endo). Co-speaker at the 2012 Applied Mathematics Meeting, Ryukoku University, Shiga, Japan.
46. Species interactions as a multivariate feedback system (2013) (with M. Dornelas, P. A. Henderson and A. E. Magurran). The 4th Channel Network Conference, University of St Andrews, St Andrews, UK.
47. Effects of seasonal variation in abundance on species coexistence (2013) (with M. Dornelas*, P. A. Henderson and A. E. Magurran). Co-speaker at the 11th INTECOL Congress, ExCel, London, UK.

48. Investigating species interactions by modelling multivariate time series data (2013) (with M. Dornelas, P. A. Henderson and A. E. Magurran). Royal Statistical Society 2013 International Conference, University of Northumbria, Newcastle, UK.
49. Modelling biodiversity at the community level (2013). The 2013 Japanese Joint Statistical Meeting, Osaka University, Osaka, Japan.
50. [†] Investigating species interactions in a fish community (2014) (with M. Dornelas, P. A. Henderson and A. E. Magurran). Invited speaker at the ISM Symposium on Environmental Statistics 2014, The Institute of Statistical Mathematics, Tokyo, Japan.
51. On turnover measures of species communities (2014) (with M. Dornelas and A. E. Magurran). The International Statistical Ecology Conference 2014, Montpellier SupAgro, Montpellier, France.
52. [†] Modelling species abundance accounting for sampling mechanisms (2014) (with S. D. Foster and R. Darnell). Invited speaker at the XXVIIth International Biometric Conference, Palazzo dei Congressi, Florence, Italy.
53. Investigating the temporal change of species community (2014). The 2014 Japanese Joint Statistical Meeting, University of Tokyo, Tokyo, Japan.
54. Measuring diversity in species communities (2015). The 2015 Japanese Joint Statistical Meeting, Okayama University, Okayama, Japan.
55. Measuring temporal turnover in ecological communities (2015) (with M. Dornelas and A. E. Magurran). British Ecological Society 2015 Annual Meeting, the Edinburgh International Conference Centre, Edinburgh, UK.
56. Detecting increased incidence of out-of-hospital cardiac arrest around New Year's Day (2016) (with K. Takahashi*). Poster talk at the 26th Annual Scientific Meeting of the Japan Epidemiological Association, Yonago Convention Center, Yonago, Japan.
57. Quantifying temporal changes in ecological communities (2016). The International Statistical Ecology Conference 2016, University of Washington, Seattle, USA.
58. Rarefaction techniques and a bias in observed richness (2016). The XXVIIIth International Biometric Conference, Victoria Convention Centre, Victoria, Canada.
59. An empirical study of the effects of sub-sampling in marine surveys for biodiversity estimation (2016) (with R. Darnell*). Co-speaker at the XXVIIIth International Biometric Conference, Victoria Convention Centre, Victoria, Canada.
60. A multiple cluster detection test based on scan statistics and generalized linear models for disease clustering (2016) (with K. Takahashi*). Co-speaker at the XXVIIIth International Biometric Conference, Victoria Convention Centre, Victoria, Canada.
61. [†] The seven pillars of Data Science (2016). Invited speaker at the 2016 Japanese Joint Statistical Meeting, Kanazawa University, Kanazawa, Japan.
62. Measurement error in ecology: what is it? when is it ignorable? (2016) (with S. D. Foster*, J. Stoklosa and D. I. Warton). Co-speaker at the Australian Statistical Conference 2016, Hotel Realm, Canberra, Australia.
63. [†] Rarefaction techniques and species richness in biodiversity studies (2017). The 27th Annual Conference of the International Environmetrics Society join with GRASPA 2017 on Climate and Environment, the University of Bergamo, Bergamo, Italy.

64. Temporal turnover in ecological communities (2017) (with M. Dornelas*, N. Gotelli, A. E. Magurran, B. McGill). Co-speaker at the 2017 Ecological Society of America Annual Meeting, Oregon Convention Center, Portland, USA.
65. The number of species and rarefaction techniques in ecology (2017). The 2017 Japanese Joint Statistical Meeting, Nanzan University, Nagoya, Japan.
66. Rarefaction techniques and temporal change in species richness (2018). The International Statistical Ecology Conference 2018, University of St Andrews, St Andrews, UK. Poster talk.
67. Modelling life history under varying environmental conditions (2018). The XXIXth International Biometric Conference, Barcelona International Convention Centre, Barcelona, Spain.
68. Detecting multiple spatial-clusters by scan statistics (2018) (with K. Takahashi*). Co-speaker at the XXIXth International Biometric Conference, Barcelona International Convention Centre, Barcelona, Spain.
69. Modelling life history under varying temperature conditions (2018). The 2018 Japanese Joint Statistical Meeting, Chuo University, Tokyo, Japan.
70. The effect of parental care on population evolvability (2019) (with S. Pascoal*, R. M. Kilner). Co-speaker at Evolution evolving, University of Cambridge, Cambridge, UK.
71. † Detection and evaluation of multiple clusters in spatial epidemiology (2019) (with K. Takahashi*). Co-speaker at the 3rd International Conference on Econometrics and Statistics, National Chung Hsing University, Taichung, Taiwan.
72. Modelling growth and reproduction strategy of *Daphnia* under varying temperature conditions (2019) (with M. Barbosa and M. Dornelas). The 7th Channel Network Conference, Rothamsted Research Conference Centre, Hertfordshire, UK.
73. Parental care relaxes selection and increases genetic variation (2019) (with S. Pascoal*, R. M. Kilner). Co-speaker at 2019 Congress of the European Society for Evolutionary Biology, Logomo Congress and Events Center in Turku, Finland.
74. Evaluating spatial multiple-clusters with scan statistics (2019) (with K. Takahashi*). The 2019 Japanese Joint Statistical Meeting, Shiga University, Shiga, Japan.
75. Temporal change in biological diversity (2019). The 2019 Japanese Joint Statistical Meeting, Shiga University, Shiga, Japan.
76. † Investigating temporal turnover in ecological communities (2019). Invited speaker at British Ecological Society 2019 Annual Meeting, ICC, Belfast, UK.
77. Modelling temporal species-interactions in an ecological community (2020). Virtual International Statistical Ecology Conference 2020, University of New South Wales, Sydney, Australia.
78. † Modelling energy allocation strategies between growth and reproduction under different temperature conditions (2021). Invited speaker at Virtual ISI World Statistics Congress 2021.
79. † A detection test for adjacent hotspot clusters (2021) (with K. Takahashi*). Invited co-speaker at the 14th International Conference of the ERCIM WG on Computational and Methodological Statistics, King's College, London, UK.
80. Quantifying changes in biodiversity (2022). The 31st International Biometric Conference, Radisson Blu Latvija Conference & Spa Hotel, Riga, Latvia.
81. Comprehending the measurements of biodiversity (2022). The 2022 Japanese Joint Statistical Meeting, Seikei University, Tokyo, Japan.

82. † Quantifying change in marine biodiversity (2023). IMR-Waseda Workshop: Advances in pragmatic computational methodologies for fish stock assessment, human impact, and environmental factor on marine ecosystems, Institute of Marine Research, Bergen, Norway.
83. Decoding biodiversity change (2023). The 9th Channel Network Conference, Wageningen University & Research, Wageningen, the Netherlands.

Technical reports

1. Yukiyo Kira, Hideyasu Shimadzu and Motoi Yamagata (2002) The records of bird census at Jiyu-Gakuen. *Jiyu Gakuen Annual Report* 6: 161–180.
2. Brendan Brooke, Tara Anderson, Neville Barrett, Chris Battershill, Jeff Dunn, Peter Harris, Andrew Heyward, Nicole Hill, Zhi Huang, Gordon Keith, Rudy Kloser, Vanessa Lucieer, Matt McArthur, Scott Nichol, Rick Porter-Smith, Anna Potter, Linda Radke, Hideyasu Shimadzu and Justy Siwabessy (2011) Surrogates Program. *Marine Biodiversity Hub, Commonwealth Environment Research Facilities, Final report 2007-2010* (Ed. N. Bax), Report to Department of Sustainability, Environment, Water, Population and Communities. Canberra, Australia. (<http://www.nerpmarine.edu.au/>)
3. Roland Pitcher, Neville Barrett, Julian Caley, Ross Darnell, Piers Dunstan, Graham Edgar, Nick Ellis, Scott Foster, Nicole Hill, Emma Lawrence, Rebecca Leaper, Camille Mellin, Hideyasu Shimadzu, Russell Thomson and William Venables (2011) Prediction Program. *Marine Biodiversity Hub, Commonwealth Environment Research Facilities, Final report 2007-2010* (Ed. N. Bax), Report to Department of Sustainability, Environment, Water, Population and Communities. Canberra, Australia. (<http://www.nerpmarine.edu.au/>)
4. Hideyasu Shimadzu (2015) Assemblage time series reveal biodiversity change but not systematic loss. *Japanese Scientists in Science 2014*, 2015 Issue: 35.