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RESEARCH INTERESTS

Mathematical Statistics	(1) Higher order asymptotic expansion & Generalized bootstrap method
	(2) Statistic analysis on infinite variance data
	(3) High dimension and ultra high dimension screening & model selection
	(4) Quantile regression
Time Series	(1) Optimal prediction problem of stationary processes
	(2) Robust methods for frequency domain in time series analysis
	(3) Extremogram and quantile-based statistical inference
	(4) Estimation of the tail index of heavy-tailed processes
	(5) Nonregular method for estimation of time series
Financial Engineering	(1) Optimal portfolio for large-scale funding
	(2) Optimal portfolio under the multi-period model

EDUCATION

2015 — 2016	Postdoctoral at Waseda University, Tokyo
2013 — 2015	Ph.D., Mathematical Statistics, Waseda University, Tokyo
	Thesis: Asymptotic Theory for Non-standard Estimating Function and Self-normalized Method in Time Series Analysis Supervisor: Dr. Masanobu Taniguchi Advisor: Dr. Takeru Suzuki, Dr. Ritei Shibata, Dr. Yasutaka Shimizu
2011 — 2013	Master of Science, Mathematical Statistics, Waseda University, Tokyo
	Thesis: Nonparametric Methods in Time Series Analysis Supervisor: Dr. Masanobu Taniguchi
2008 — 2011	Bachelor of Science, Applied Mathematics, Waseda University, Tokyo

Position

2016 — 2019	**Research Associate at Waseda University**
2015 — 2016	JSPS Research Fellowship for Young Scientists (PD)
2014 — 2015	JSPS Research Fellowship for Young Scientists (DC2)

Memberships

2015 —	Japan Statistical Society
2012 —	Mathematical Society of Japan
2013 — 2014	Early Bird Program, Waseda University

Languages

Chinese	Mother tongue
Japanese	**Bilingual**
English	**Fluent**
French	Some knowledge
German	Some knowledge
Italian	Some knowledge

Grants and Fellowships

2015	JSPS, "Research on the robust statistics applied to the time series models with infinite variance", ¥1170,000
2014	JSPS, "Research on the robust statistics applied to the time series models with infinite variance", ¥1,000,000
2013	Early Bird Program Fellowships, "On the properties of tail index estimators by self-normalized method", ¥700,000

Publications

2016	**Liu**, "Optimal portfolio of the Government Pension Investment Fund based on the systemic risk evaluated by a new asymmetric copula", *Advances in Science, Technology and Environmentology*, **B13**, 19-33.
2016	Suto, **Liu** and Taniguchi, "Asymptotic theory of parameter estimation by a contrast function based on interpolation error", *Statistical Inference for Stochastic Processes*, **19**(1), 93-110
2015	Akashi, **Liu** and Taniguchi, "An empirical likelihood approach for symmetric α-stable processes", *Bernoulli*, **21**(4), 2093-2119
2015	**Liu**, "Variance stabilizing properties of Box-Cox transformation for dependent observations", *Advances in Science, Technology and Environmentology*, **B12**, 63-70.
2014	**Liu**, "Asymptotics for M-estimators in time series", *Advances in Science, Technology and Environmentology*, **B10**, 55-67.
2013	**Liu**, "Asymptotic moments of symmetric self-normalized sums", *Scientiae Mathematicae Japonicae*, **77**(1), 59-67.

Presentations

Mar 2016	*Xue, **Liu** and Taniguchi, "Minimax extrapolation error of predictors", The Mathematical Society of Japan, Tsukuba
Mar 2016	**Liu**, "Box-Cox transformation for variance stabilization of dependent observations", The Mathematical Society of Japan, Tsukuba
Mar 2016	**Liu**, "Box-Cox transformation and variance stabilization", Ibusuki International Seminar, Ibusuki
Mar 2016	**Liu**, "Robust parameter estimation for irregularly observed stationary process", Kumamoto International Symposium, Kumamoto University
Mar 2016	**Liu**, Xue and Taniguchi, "Minimax extrapolation error of stationary processes", Waseda International Symposium, Waseda University
Nov 2015	**Liu**, "Variance stabilization and robust permutation tests", Hakone Seminar, Hakone
Nov 2015	***Liu**, Xue and Taniguchi, "Minimax extrapolation error of predictors", Waseda International Symposium, Waseda University
Sep 2015	*Nagahata, **Liu**, Uchiyama and Taniguchi, "Discriminant and cluster analysis of high-dimensional time series data", The Mathematical Society of Japan, Kyoto Sangyo University
Jun 2015	*Nagahata, **Liu**, Uchiyama and Taniguchi, "Discriminant and cluster analysis of high-dimensional time series data by a class of disparities", Project Research Seminar on Financial and Pension Mathematics, Waseda University
Mar 2015	**Liu**, "Asymptotic Theory for Minimum Contrast Estimation in Time Series Analysis", The Mathematical Society of Japan, Meiji University
Mar 2015	**Liu**, "A new class of minimum contrast estimators for parameter estimation in time series", Miura Statistical Seminar, Miura
Mar 2015	**Liu**, "Empirical likelihood methods for quantile regression with long range dependent errors", Waseda International Symposium, Waseda University
Feb 2015	**Liu**, "Prediction error or interpolation error? A general perspective of parameter estimation in time series analysis", Technische Universität München, Munich
Jan 2015	**Liu**, "Statistical Inference for Stable Process", Izu Seminar, Izu
Oct 2014	**Liu**, "Minimum Contrast Estimation for Spectral Densities Based on Exotic Disparity", Kaken Symposium, Niigata University
Sept 2014	**Liu**, "Quantile Estimation in Frequency Domain", The Mathematical Society of Japan, Hiroshima University
Sept 2014	*Suto, **Liu** and Taniguchi, "Parameter Estimation by a Contrast Function Based on Interpolation Error", The Mathematical Society of Japan, Hiroshima University
Sept 2014	**Liu**, "Robust Estimation of Frequencies", Kaken Symposium, Nara University of Education
Sept 2014	*Suto, **Liu** and Taniguchi, "Parameter Estimation by a Contrast Function of Interpolation Error", Kaken Symposium, Nara University of Education

May 2014	*Suto, **Liu** and Taniguchi, "Asymptotic Theory of Parameter Estimation by a Function Based on Interpolation Error", Project Research Seminar on Financial and Pension Mathematics, Waseda University
Mar 2014	**Liu**, "M-estimation in Time Series and Its Applications", The Mathematical Society of Japan, Gakushuin University
Mar 2014	(Poster) "On the Properties of Tail Index Estimators by Self-normalized Method", Final Results Presentation of Young Researchers, Waseda University
Mar 2014	**Liu**, "Tail Index Estimation by Self-normalized Method", Nishi-Izu Seminar, Nishi-Izu
Mar 2014	*Akashi, Liu and Taniguchi, "Empirical Likelihood Ratio for Symmetric Alpha-stable Processes", Waseda International Symposium, Waseda University
Mar 2014	**Liu**, "Generalized Periodogram and Its Statistical Inference for Time Series", Waseda International Symposium, Waseda University
Jan 2014	**Liu**, "Robust Spectral Estimation in Time Series Analysis", High Dimensional Statistical Analysis and Related Topics, Waseda University
Nov 2013	(Poster) "On the Properties of Tail Index Estimators by Self-normalized Method", WINeST Symposium, Waseda University
Nov 2013	**Liu**, "Asymptotics for M-Estimators in Time Series", Workshop in Statistical Applications and Time Series, Kanazawa University
Sept 2013	**Liu**, "A New Way to Estimate Tail Index", The Mathematical Society of Japan, Ehime University
Aug 2013	**Liu**, "The New Class of Estimating Tail Index by Self-normalization", Bird Meeting, Waseda University
May 2013	**Liu**, "Asymptotic Moments of Symmetric Self-normalized Sums", Project Research Seminar on Financial and Pension Mathematics, Waseda University
Mar 2013	**Liu** and Taniguchi, "Hypothesis Testing for Vector Stable Processes", The Mathematical Society of Japan, Kyoto University
Apr 2012	**Liu**, "Introduction to Rank Tests", Seminar of Physics and Mathematics, Waseda University
Dec 2010	**Liu**, "From Probability Distribution to Black-Scholes Model", Seminar of Physics and Mathematics, Waseda University

ATTENDANCE

Nov 2014	From Robust to High-dimensional Statistics: 50 Years of Statistics at ETH Zurich, ETHZ, Switzerland
May 2014	Self-normalized Asymptotic Theory in Probability, Statistics and Econometrics, National University of Singapore, Singapore

VISITING APPOINTMENTS

2015 Visiting Scholar	Department of Mathematics, Ruhr-University Bochum (Professor Holger Dette)
2015 Visiting Scholar	Department of Statistics, University of Illinois at Urbana-Champaign (Associate Professor Xiaofeng Shao)
2015 Visiting Scholar	Department of Mathematics, Technical University of Munich (Professor Claudia Klüppelberg)

Teaching Experience

2011 — 2015	Teaching Assistant as a Mathematics Tutor in school of FSE, Waseda University
2012 — 2014	Teaching Assistant as a Statistics Tutor in school of ILS, Waseda University
2010 — 2013	Teaching Assistant as a English Tutor in school of CSE, Waseda University

Research Experience

2013 — 2014	Research Assistant for Simulations of Some Warranty Models, Waseda University
2013 — 2014	Research Assistant for Script Writing, Waseda University
2014	Research Assistant for Statistic Analysis of Questionary, Waseda University
2013	Research Assistant for Translation Work on Insurance, The University of Hong Kong
2012	Research Assistant for Statistics of Transfer Pricing, Waseda University

Professional Experience

Organizer	Miura Statistical Seminar (Mar. 2015)
Referee	*Statistical Inference for Stochastic Processes*; *Advances in Science, Technology and Environmentology*; *American Journal of Mathematical and Management Sciences*; *Scientiae Mathematicae Japonicae*

Media

Apr 2015	*Waseda University Admission Brochure 2016*, p.9
Mar 2014	*Waseda Riko Plus 2014*, pp. 68-70

Manuscripts in Progress

1 Liu,
"Estimation for spectral densities of stationary processes by minimizing an exotic disparity".

2 Nagahata, Liu, Uchiyama and Taniguchi
"Discriminant and cluster analysis of high-dimensional time series data by a class of disparities".

3 Liu,
"Quantile tests in frequency domain for sinusoid models".

4 Liu, Xue and Taniguchi
"Robust linear extrapolations of stationary processes in L^p".

5 Liu, Akashi and Taniguchi
"Empirical Likelihood and Quantile Methods for Time Series", www.springer.com/jp/book/9789811001512