

# Naoki Masuda

## Contact Information

Naoki Masuda  
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## Employment

09/2021–	Professor Department of Mathematics, State University of New York at Buffalo, USA Graduate School Director since 07/2022
08/19/2019–08/2021	Associate Professor Department of Mathematics, State University of New York at Buffalo, USA
08/19/2019–	Core Faculty in the Computational Data Sciences and Engineering Program, State University of New York at Buffalo, USA
08/01/2019– 08/18/2019	Associate Professor Department of Engineering Mathematics, University of Bristol, UK
03/2014–07/2019	Senior Lecturer Department of Engineering Mathematics, University of Bristol, UK
09/2008–02/2014	Associate Professor Department of Mathematical Informatics, University of Tokyo
10/2006–08/2008	Lecturer Department of Mathematical Informatics, University of Tokyo
04/2004–09/2006	Special Postdoctoral Fellow Amari Research Unit, RIKEN Brain Science Institute, Japan
04/2003–03/2004	Research Fellow (PD) Japan Society for the Promotion of Science, at Yokohama National University, Japan
10/2002–03/2003	Research Fellow (PD) Japan Society for the Promotion of Science, at University of Tokyo, Japan
04/2000–09/2002	Research Fellow (DC1) Japan Society for the Promotion of Science, at University of Tokyo, Japan

## Visiting and Term Appointments

09/2021–03/2023	Professor (non-tenured) Faculty of Science and Engineering, Waseda University, Japan
04/2020–08/2021	Associate Professor (non-tenured) Faculty of Science and Engineering, Waseda University, Japan
11/2018–08/2019	Turing Fellow Alan Turing Institute, UK (terminated because of NM's move to the USA)
04/2018–03/2021	Visiting Professor Dalian University of Technology, China
10/2008–03/2012	Researcher (part-time appointment) Japan Science and Technology Agency, Basic Research Programs PRESTO, Japan
07/2004–03/2006	Group Leader (part-time appointment) Japan Science and Technology Agency, ERATO Aihara Complexity Modelling Project, Japan

## Academic Qualifications

09/2002	Ph.D. in Engineering, University of Tokyo, Japan (Department of Mathematical Engineering and Information Physics) Thesis title: “Duality of Information Coding in Pulse-coupled Neural Networks” Thesis supervisor: Prof. Kazuyuki Aihara
03/2000	M.Sc. in Engineering, University of Tokyo, Japan (Department of Mathematical Engineering and Information Physics) Thesis title: “Cryptosystems with Discretized Chaotic Maps” Thesis supervisor: Prof. Kazuyuki Aihara
03/1998	B.Sc. in Engineering, University of Tokyo, Japan (Department of Mathematical Engineering and Information Physics)
2000–2001	Academic Year Abroad Department of Physics, University of California, San Diego, USA

## Citation Statistics

[Google Scholar Citations profile](#)

Number of citations: 8300 (Google Scholar Citations)

h-index: 51 (Google Scholar Citations)

## Grants

### State University of New York at Buffalo, USA

09/2022–09/2025

National Institute of General Medical Sciences (NIGMS) and National Science Foundation (administered by NIGMS)

Subject: DMS/NIGMS 1: Multilayer network approach to tandem repeat variation in genomes

Amount: \$444,842

Role: PI (co-I: Omer Gokcumen, University at Buffalo)

08/2022–08/2025

National Science Foundation (Applied Mathematics Program)

Subject: Theory and application of temporal network embedding

Amount: \$300,000

Role: PI (sole PI)

04/2021–03/2024

National Science Foundation (Mathematical Biology Program)

Subject: Floquet theory for stochastic temporal networks and optimization theory for the design of schedules for COVID-19

Amount: \$239,983

Role: PI (Co-PI: Dane Taylor, University at Buffalo)

04/2021–11/2025

Japan Science and Technology Agency, Moonshot Research & Development Program, Japan

Project title: Mathematical modeling and data analysis for understanding and intervening into resilience, robustness, and cascading failures in inter-organ networks

Amount: \$1,618,494 (= JPY 169,000,000) (to my group)

Role: Co-PI (PI: Kazuyuki Aihara, University of Tokyo, Co-PI: Jun-ichi Imura, Tokyo Institute of Technology; Shingo Iwami, Kyushu University; Yukinori Okada, Osaka University; Shigeru Saito, University of Toyama; Kiyohito Kasai, University of Tokyo)

11/2020–11/2021

Sumitomo Foundation

Project title: Analysis of epidemic process models using higher-order random walks on networks

Amount: \$13,302.83 (= JPY 1,400,000) (to my group)

Role: PI (Co-I: Gouhei Tanaka, University of Tokyo)

07/2020–06/2021

Nakatani Foundation

Project title: Engineering curfew strategies based on contact network analysis

Amount: \$18,497.97 (= JPY 2,000,000) (to my group)

Role: PI (Co-I: Dane Taylor, University at Buffalo; Naoya Fujiwara, Tohoku University)

05/2020–08/2021

JP Morgan Chase Faculty Research Awards

Project title: Detecting fraudulent transactions in online marketplaces using temporal network motifs

Amount: \$150,000

Role: PI (partner PI: A. Erdem Saryüce, University at Buffalo)

04/2020–07/2020

SUNY Research Seed Grant Program

Project title: Optimizing curfew schedules to suppress COVID-19 spreading

Amount: \$5,500 (\$2,750 to my group)

Role: PI (Other member of the Team: Dane Taylor, University at Buffalo)

02/2020–08/2023

Air Force Office of Scientific Research (AFOSR) European Office

Project title: Inferring dynamics of discrete states in time-varying networks

Amount: \$144,402 (Subcontracted from University of Bristol, which is NM's previous institution. NM secured \$160,709 while he was in Bristol, which has been split between Buffalo and Bristol.)

Role: PI (no Co-PI/Co-I)

**Waseda University, Japan (as non-tenured faculty member)**

04/2021–03/2024

Japan Society for Promotion of Science (Grant-in-Aid for Scientific Research (A))

Subject: Co-evolution of epidemics, interventions, and behavior in network epidemiology

Amount: JPY 15,000 (to my group)

Role: Co-I (PI: Petter Holme, Tokyo Institute of Technology, Co-Is: Tsuyoshi Murata, Misako Takayasu, Yoko Ibuka, Yusuke Asai, Catherine Beauchemin)

### **University of Bristol, UK**

02/2019–09/2019

GW4 Accelerator Fund

Project title: Recurrence analysis for the characterisation and classification of epileptic patients

Amount: £34,928 (£32,721 to my group)

Role: PI (Co-I: Lorenzo Livi, University of Exeter; Jiaxiang Zhang, Cardiff University; Tiago de Paula Peixoto, University of Bath)

11/2018–08/2019

Alan Turing Institute

Project title: Revealing citation cartels in network data

Amount: £35,139

Role: PI (no Co-PI/Co-I)

09/2018–02/2019

Mercari Inc (a company in Japan)

Project title: Detection of problematic transactions in online marketplaces of Mercari

Amount: £20,371 (company's contribution)

Role: PI (no Co-PI/Co-I)

05/2018–11/2018

EPSRC, BRIM (Building Resilience into Risk Management) Feasibility Fund

Project title: Network resilience theory for water distribution systems

Amount: £10,200

Role: PI (Co-I: Fanlin Meng, University of Exeter)

03/2018–02/2020

Cookpad Limited (a company registered in England and Wales)

Project title: Cookpad networks

Amount: £182,278 (company's contribution)

Role: PI (no Co-PI/Co-I)

03/2018–06/2018

Jean Golding Institute: Seed Corn Funding, University of Bristol

Project title: Immune state networks in wild mice

Amount: £2,600

Role: PI (Co-I: Mark Viney, University of Bristol)

02/2018–06/2018

GW4 Data Science Seed Corn Funding

Project title: Recurrence analysis for time-varying networks and its application to brain dynamics

Amount: £5,000

Role: PI (Co-I: Lorenzo Livi, University of Exeter; Jiaxiang Zhang, Cardiff University)

12/2017–06/2018

Faculty of Engineering: Research Pump Priming, University of Bristol

Project title: Immune response networks in wild mice

Amount: £5,000

Role: PI (Co-I: Mark Viney, University of Bristol)

09/2016–03/2017

EPSRC Institutional Sponsorship

Project title: Phase transitions in neuroimaging data

Amount: £7,234

Role: PI (Co-I: Elohim Fonseca dos Reis, University of Campinas, Brazil)

10/2013–03/2019

CREST, Japan Science and Technology Agency

Project title: Theory for analyzing temporal network data as deep knowledge (originally in Japanese. Translation by NM)

Amount: JPY 62,970,700 (to my group), of which £388,411.21 is to the University of Bristol; the rest is to the University of Tokyo

Role: Co-I (PI: Kenji Yamanishi, University of Tokyo, Japan)

### **University of Tokyo, Japan**

04/2013–02/2014

Bilateral Joint Research Projects, Japan Society for the Promotion of Science

Project title: TempoNet: theoretical foundations of temporal networks

Amount: JPY 2,500,000 (to my group)

Role: PI (partner PI: Renaud Lambiotte, University of Namur, Belgium)

04/2013–03/2014

Research Grants for Japanese Young Scientists (originally in Japanese. Translation by NM), The Nakajima Foundation

Project title: Quantify reputations of agents in networks (originally in Japanese. Translation by NM)

Amount: JPY 1,000,000

Role: PI (no Co-PI/Co-I)

04/2011–02/2014

Grant-in-Aid for Young Scientists (A), Japan Society for the Promotion of Science

Project title: Computational modeling of games on social networks and analysis of cooperative behavior

Amount: JPY 10,100,000

Role: PI (no Co-PI/Co-I)

11/2008–03/2013

Grant-in-Aid for Scientific Research on Innovative Areas, Japan Society for the Promotion of Science

Project title: Computational study of locomotion, learning, and memory using stochastic analysis methods

Amount: JPY 29,845,000 (to my group)

Role: PI (Co-I: Jun Ohkubo)

10/2008–03/2012

Japan Science and Technology Agency, Basic Research Programs PRESTO, Japan

Project title: Modeling of epidemic dynamics on networks with group structure

Amount: JPY 49,332,600

Role: PI (no Co-PI/Co-I)

04/2008–03/2011

Grant-in-Aid for Young Scientists (B), Japan Society for the Promotion of Science

Project title: Computational modeling of games on social networks and analysis of cooperative be-

havior

Amount: JPY 4,030,000

Role: PI (no Co-PI/Co-I)

04/2008–11/2009

Grant-in-Aid for Scientific Research on Priority Areas “Integrative Brain Research”, Ministry of Education, Culture, Sports, Science and Technology of Japan

Project title: Neurocomputational modelling of cooperative behavior (originally in Japanese. Translation by NM)

Amount: JPY 1,787,269

Role: PI (no Co-PI/Co-I)

06/2007–03/2009

Trend Micro Incorporated (a company in Japan)

Project title: Exploration of content security on the WWW using network analysis (originally in Japanese. Translation by NM)

Amount: JPY 5,250,000

Role: PI

26/04/2007–26/05/2007

Japan–U.S. Brain Research Cooperative Program, National Institute for Physiological Sciences, Japan (travel grant)

Project title: A computational study of improvement in behavioral performance by attention

Amount: JPY 570,000

Role: Visiting investigator (Host: Center for Neural Science, New York University)

### **As postdoc and PhD student**

04/2004–09/2006

Special Postdoctoral Researcher, RIKEN Brain Science Institute, Japan (research grant)

Project title: Spatiotemporal information processing by recurrent neural networks with synaptic learning and integrate-and-fire dynamics (originally in Japanese. Translation by NM)

Amount: JPY 3,900,000

Role: Sole recipient

04/2003–03/2004

Research Fellowships for Young Scientists, Japan Society for the Promotion of Science

Project title: Multiplexity of information representation and contributions of complex spiking patterns and synaptic learning to brain functioning (originally in Japanese. Translation by NM)

Amount: JPY 1,200,000

Role: Sole recipient

04/2000–03/2003

Research Fellowships for Young Scientists, Japan Society for the Promotion of Science

Project title: Analysis of finite-state transformations by chaotic mapping and its application to cryptosystems and neural dynamics (originally in Japanese. Translation by NM)

Amount: JPY 3,000,000

Role: Sole recipient

### **Honors and Awards**

PLoS ONE, Editorial Board, Long Service Award, 2023

IOP (Institute of Physics) Trusted Reviewer status 2020

(awarded to approximately the top 12% of reviewers since 2018)

JSPS (Japan Society for Promotion of Science) Prize 2020

(awarded to 24 researchers under the age of 45 across all fields of the humanities, social sciences, and natural sciences)

Junior Akira Okubo Prize 2019

jointly administered by the Society for Mathematical Biology and the Japanese Society for Mathematical Biology

Outstanding Reviewer Awards 2017

New Journal of Physics, IOP Publishing (awarded to 82 out of 1,507 reviewers)

The Young Scientists' Prize

The Commendation for Science and Technology by the Minister of Education, Culture, Sports, Science and Technology, Japan, April 2013.

Japanese Society for Mathematical Biology Early Career Award, 2012.

International Neural Network Society Young Investigator Award

The International Neural Network Society, August 15, 2007.

## Refereed Journal Papers

188. Neil G. MacLaren, Prosenjit Kundu, [Naoki Masuda](#).  
Early warnings for multistage transitions in dynamics on networks.  
Journal of the Royal Society Interface, 20, 20220743 (2023).
187. Ik Soo Lim, [Naoki Masuda](#).  
To trust or not to trust: Evolutionary dynamics of an asymmetric  $N$ -player trust game.  
IEEE Transactions on Evolutionary Computation, in press (2023).
186. Kazuki Nakajima, Kazuyuki Shudo, [Naoki Masuda](#).  
Higher-order rich-club phenomenon in collaborative research grants.  
Scientometrics, in press (2022).
185. Yukiko Matsumoto, Satoshi Nishida, Ryusuke Hayashi, Shuraku Son, Akio Murakami, Naganobu Yoshikawa, Hiroyoshi Ito, Naoya Oishi, [Naoki Masuda](#), Toshiya Murai, Karl Friston, Shinji Nishimoto, Hidehiko Takahashi.  
Disorganization of semantic brain networks in schizophrenia revealed by fMRI.  
Schizophrenia Bulletin, 49, 498–506 (2023).
184. Prosenjit Kundu, Neil G. MacLaren, Hiroshi Kori, [Naoki Masuda](#).  
Mean-field theory for double-well systems on degree-heterogeneous networks.  
Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 478, 20220350 (2022).
183. Takao Sasaki, [Naoki Masuda](#), Richard P. Mann, Dora Biro.  
Empirical test of the many-wrongs hypothesis reveals weighted averaging of individual routes in pigeon flocks.  
iScience, 25, 105076 (2022).
182. [Naoki Masuda](#), Prosenjit Kundu.  
Dimension reduction of dynamical systems on networks with leading and non-leading eigenvectors of adjacency matrices.  
Physical Review Research, 4, 023257 (2022).

181. Prosenjit Kundu, Hiroshi Kori, [Naoki Masuda](#).  
Accuracy of a one-dimensional reduction of dynamical systems on networks.  
Physical Review E, 105, 024305 (2022).
180. Elohim Fonseca dos Reis, [Naoki Masuda](#).  
Metapopulation models imply non-Poissonian statistics of interevent times.  
Physical Review Research, 4, 013050 (2022).
179. Penghang Liu, [Naoki Masuda](#), Tomomi Kito, Ahmet Erdem Sariyüce.  
Temporal motifs in patent opposition and collaboration networks.  
Scientific Reports, 12, 1917 (2022).
178. Kazuki Nakajima, Kazuyuki Shudo, [Naoki Masuda](#).  
Randomizing hypergraphs preserving degree correlation and local clustering.  
IEEE Transactions on Network Science and Engineering, 9, 1139–1153 (2022).
177. Lingqi Meng, [Naoki Masuda](#).  
Epidemic dynamics on metapopulation networks with node2vec mobility.  
Journal of Theoretical Biology, 534, 110960 (2022).
176. Arthur P. C. Spencer, Jonathan C. W. Brooks, [Naoki Masuda](#), Hollie Byrne, Richard Lee-Kelland, Sally Jary, Marianne Thoresen, Marc Goodfellow, Frances M. Cowan, Ela Chakkarapani.  
Motor function and white matter connectivity in children cooled for neonatal encephalopathy.  
NeuroImage: Clinical, 32, 102872 (2021).
175. Kashin Sugishita, Noha Abdel-Mottaleb, Qiong Zhang, [Naoki Masuda](#).  
A growth model for water distribution networks with loops.  
Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 477, 20210528 (2021).
174. Marie Saitou, [Naoki Masuda](#), Omer Gokcumen.  
Similarity-based analysis of allele frequency distribution among multiple populations identifies adaptive genomic structural variants.  
Molecular Biology and Evolution, 39, msab313 (2021).
173. Takahiro Ezaki, Yu Himeno, Takamitsu Watanabe, [Naoki Masuda](#).  
Modeling state-transition dynamics in resting-state brain signals by the hidden Markov and Gaussian mixture models.  
European Journal of Neuroscience, 54, 5404–5416 (2021).
172. Hang-Hyun Jo, [Naoki Masuda](#).  
Finite-size effects on the convergence time in continuous-opinion dynamics.  
Physical Review E, 104, 014309 (2021).
171. Kashin Sugishita, Mason A. Porter, Mariano Beguerisse-Díaz, [Naoki Masuda](#).  
Opinion dynamics on tie-decay networks.  
Physical Review Research, 3, 023249 (2021).
170. [Naoki Masuda](#), Joel C. Miller, Petter Holme.  
Concurrency measures in the era of temporal network epidemiology: A review.  
Journal of the Royal Society Interface, 18, 20210019 (2021).
169. Christos Ellinas, Christos Nicolaides, [Naoki Masuda](#).  
Mitigation strategies against cascading failures within a project activity network.  
Journal of Computational Social Science, 5, 383–400 (2022).



168. Sadamori Kojaku, Giacomo Livan, [Naoki Masuda](#).  
Detecting citation cartels in journal networks.  
Scientific Reports, 11, 14524 (2021).
167. Kashin Sugishita, [Naoki Masuda](#).  
Recurrence in the evolution of air transport networks.  
Scientific Reports, 11, 5514 (2021).
166. Arthur P. C. Spencer, Jonathan C. W. Brooks, [Naoki Masuda](#), Hollie Byrne, Richard Lee-Kelland, Sally Jary, Marianne Thoresen, James Tonks, Marc Goodfellow, Frances M. Cowan, Ela Chakkapani.  
Disrupted brain connectivity in children treated with therapeutic hypothermia for neonatal encephalopathy.  
NeuroImage: Clinical, 30, 102582 (2021).
165. Elohim Fonseca dos Reis, Mark Viney, [Naoki Masuda](#).  
Network analysis of the immune state of mice.  
Scientific Reports, 11, 4306 (2021).
164. Marinho A Lopes, Dominik Krzemiński, Khalid Hamandi, Krish D. Singh, [Naoki Masuda](#), John R. Terry, Jiaxiang Zhang.  
A computational biomarker of juvenile myoclonic epilepsy from resting-state MEG.  
Clinical Neurophysiology, 132, 922–927 (2021).
163. Lingqi Meng, [Naoki Masuda](#).  
Analysis of node2vec random walks on networks.  
Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 476, 20200447 (2020).
162. Shun Kodate, Ryusuke Chiba, Shunya Kimura, [Naoki Masuda](#).  
Detecting problematic transactions in a consumer-to-consumer e-commerce network.  
Applied Network Science, 5, 90 (2020).
161. Elohim Fonseca dos Reis, Aming Li, [Naoki Masuda](#).  
Generative models of simultaneously heavy-tailed distributions of inter-event times on nodes and edges.  
Physical Review E, 102, 052303 (2020).
160. Shogo Kajimura, [Naoki Masuda](#), Johnny King L. Lau, Kou Murayama.  
Focused attention meditation changes the boundary and configuration of functional networks in the brain.  
Scientific Reports, 10, 18426 (2020).
159. Xiu-Xiu Zhan, Ziyu Li, [Naoki Masuda](#), Petter Holme, Huijuan Wang.  
Susceptible-infected-spreading-based network embedding in static and temporal networks.  
EPJ Data Science, 9, 30 (2020).
158. Mengqiao Xu, Qian Pan, Haoxiang Xia, [Naoki Masuda](#).  
Estimating international trade status of countries from global liner shipping networks.  
Royal Society Open Science, 7, 200386 (2020).
157. Marinho A. Lopes, Jiaxiang Zhang, Dominik Krzemiński, Khalid Hamandi, Qi Chen, Lorenzo Livi, [Naoki Masuda](#).  
Recurrence quantification analysis of dynamic brain networks.  
European Journal of Neuroscience, 53, 1040–1059 (2021).

156. Irene Malvestio, Alessio Cardillo, [Naoki Masuda](#).  
Interplay between  $k$ -core and community structure in complex networks.  
Scientific Reports, 10, 14702 (2020).
155. Genki Ichinose, Daiki Miyagawa, Junji Ito, [Naoki Masuda](#).  
Winning by hiding behind others: An analysis of speed skating data.  
PLOS ONE, 15, e0237470 (2020).
154. [Naoki Masuda](#), Takayuki Hiraoka.  
Waiting-time paradox in 1922.  
Northeast Journal of Complex Systems, 2, 1 (2020).
153. Alessio Cardillo, [Naoki Masuda](#).  
Critical mass effect in evolutionary games triggered by zealots.  
Physical Review Research, 2, 023305 (2020).
152. [Naoki Masuda](#), Petter Holme.  
Small inter-event times govern epidemic spreading on networks.  
Physical Review Research, 2, 023163 (2020).
151. Takayuki Hiraoka, [Naoki Masuda](#), Aming Li, Hang-Hyun Jo.  
Modeling temporal networks with bursty activity patterns of nodes and links.  
Physical Review Research, 2, 023073 (2020).
150. Gabriele Valentini, [Naoki Masuda](#), Zachary Shaffer, Jake R. Hanson, Takao Sasaki, Sara Imari Walker, Theodore P. Pavlic, Stephen C. Pratt.  
Division of labor promotes the spread of information in colony emigrations by the ant *Temnothorax rugatulus*.  
Proceedings of the Royal Society B: Biological Sciences, 287, 20192950 (2020).
149. Makoto Okada, Kenji Yamanishi, [Naoki Masuda](#).  
Long-tailed distributions of inter-event times as mixtures of exponential distributions.  
Royal Society Open Science, 7, 191643 (2020).
148. [Naoki Masuda](#), Victor M. Preciado, Masaki Ogura.  
Analysis of the susceptible-infected-susceptible epidemic dynamics in networks via the non-backtracking matrix.  
IMA Journal of Applied Mathematics, 85, 214–230 (2020).
147. Takahiro Ezaki, Elohim Fonseca dos Reis, Takamitsu Watanabe, Michiko Sakaki, [Naoki Masuda](#).  
Closer to critical resting-state neural dynamics in individuals with higher fluid intelligence.  
Communications Biology, 3, 52 (2020).
146. Dominik Krzemiński, [Naoki Masuda](#), Khalid Hamandi, Krish D. Singh, Bethany Routley, Jiaxiang Zhang.  
Energy landscape of resting magnetoencephalography reveals fronto-parietal network impairments in epilepsy.  
Network Neuroscience, 4, 374–396 (2020).
145. Sadamori Kojaku, [Naoki Masuda](#).  
Constructing networks by filtering correlation matrices: A null model approach.  
Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 475, 20190578 (2019).

144. Naoki Masuda, Fanlin Meng.  
Dynamical stability of water distribution networks.  
Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 475, 20190291 (2019).
143. Masaki Ogura, Victor M. Preciado, Naoki Masuda.  
Optimal containment of epidemics over temporal activity-driven networks.  
SIAM Journal on Applied Mathematics, 79, 986–1006 (2019).
142. Takamitsu Watanabe, Geraint Rees, Naoki Masuda.  
Atypical intrinsic neural timescale in autism.  
eLife, 8, e42256 (2019).
141. Naoki Masuda, Petter Holme.  
Detecting sequences of system states in temporal networks.  
Scientific Reports, 9, 795 (2019).
140. Sadamori Kojaku, Mengqiao Xu, Haoxiang Xia, Naoki Masuda.  
Multiscale core-periphery structure in a global liner shipping network.  
Scientific Reports, 9, 404 (2019).
139. Naoki Masuda, Sadamori Kojaku, Yukie Sano.  
Configuration model for correlation matrices preserving the node strength.  
Physical Review E, 98, 012312 (2018).
138. Sadamori Kojaku, Giulio Cimini, Guido Caldarelli, Naoki Masuda.  
Structural changes in the interbank market across the financial crisis from multiple core-periphery analysis.  
Journal of Network Theory in Finance, 4, 33–51 (2018).
137. Takuya Sekiguchi, Kohei Tamura, Naoki Masuda.  
Population changes in residential clusters in Japan.  
PLOS ONE, 13, e0197144 (2018).
136. Sadamori Kojaku, Naoki Masuda.  
A generalised significance test for individual communities in networks.  
Scientific Reports, 8, 7351 (2018).
135. Sadamori Kojaku, Naoki Masuda.  
Core-periphery structure requires something else in the network.  
New Journal of Physics, 20, 043012 (2018).
134. Takahiro Ezaki, Michiko Sakaki, Takamitsu Watanabe, Naoki Masuda.  
Age-related changes in the ease of dynamical transitions in human brain activity.  
Human Brain Mapping, 39, 2673–2688 (2018).
133. Naoki Masuda, Michiko Sakaki, Takahiro Ezaki, Takamitsu Watanabe.  
Clustering coefficients for correlation networks.  
Frontiers in Neuroinformatics, 12, 7 (2018).
132. Genki Ichinose, Naoki Masuda.  
Zero-determinant strategies in finitely repeated games.  
Journal of Theoretical Biology, 438, 61–77 (2018).

131. [Naoki Masuda](#), Luis E. C. Rocha.  
A Gillespie algorithm for non-Markovian stochastic processes.  
SIAM Review, 60, 95–115 (2018).
130. Takahiro Ezaki, [Naoki Masuda](#).  
Reinforcement learning account of network reciprocity.  
PLOS ONE, 12, e0189220 (2017).
129. Sadamori Kojaku, [Naoki Masuda](#).  
Finding multiple core-periphery pairs in networks.  
Physical Review E, 96, 052313 (2017).
128. Luis E. C. Rocha, [Naoki Masuda](#), Petter Holme.  
Sampling of temporal networks: Methods and biases.  
Physical Review E, 96, 052302 (2017).
127. Tomokatsu Onaga, James P. Gleeson, [Naoki Masuda](#).  
Concurrency-induced transitions in epidemic dynamics on temporal networks.  
Physical Review Letters, 119, 108301 (2017).
126. [Naoki Masuda](#), Mason A. Porter, Renaud Lambiotte.  
Random walks and diffusion on networks.  
Physics Reports, 716–717, 1–58 (2017).
125. Kohei Tamura, [Naoki Masuda](#).  
Effects of the distant population density on spatial patterns of demographic dynamics.  
Royal Society Open Science, 4, 170391 (2017).
124. Takahiro Ezaki, Takamitsu Watanabe, Masayuki Ohzeki, [Naoki Masuda](#).  
Energy landscape analysis of neuroimaging data.  
Philosophical Transactions of the Royal Society A, 375, 20160287 (2017).
123. Thomas A. O’Shea-Wheller, [Naoki Masuda](#), Ana Sendova-Franks, Nigel R. Franks.  
Variability in individual assessment behaviour and its implications for collective decision-making.  
Proceedings of the Royal Society B: Biological Sciences, 284, 20162237 (2017).
122. Yutaka Horita, Masanori Takezawa, Keigo Inukai, Toshimasa Kita, [Naoki Masuda](#).  
Reinforcement learning accounts for moody conditional cooperation behavior: experimental results.  
Scientific Reports, 7, 39275 (2017).
121. Teruyoshi Kobayashi, [Naoki Masuda](#).  
Fragmenting networks by targeting collective influencers at a mesoscopic level.  
Scientific Reports, 6, 37778 (2016).
120. Luis E. C. Rocha, [Naoki Masuda](#).  
Individual-based approach to epidemic processes on arbitrary dynamic contact networks.  
Scientific Reports, 6, 31456 (2016).
119. Takahiro Ezaki, Yutaka Horita, Masanori Takezawa, [Naoki Masuda](#).  
Reinforcement learning explains conditional cooperation and its moody cousin.  
PLOS Computational Biology, 12, e1005034 (2016).
118. Leo Speidel, Konstantin Klemm, Víctor M. Eguíluz, [Naoki Masuda](#).  
Temporal interactions facilitate endemicity in the susceptible-infected-susceptible epidemic model.  
New Journal of Physics, 18, 073013 (2016).

117. Ryosuke Nishi, Taro Takaguchi, Keigo Oka, Takanori Maehara, Masashi Toyoda, Ken-ichi Kawarabayashi, [Naoki Masuda](#).  
Reply trees in Twitter: data analysis and branching process models.  
Social Network Analysis and Mining, 6, 26 (2016).
116. [Naoki Masuda](#).  
Accelerating coordination in temporal networks by engineering the link order.  
Scientific Reports, 6, 22105 (2016).
115. Yutaka Horita, Masanori Takezawa, Takuji Kinjo, Yo Nakawake, [Naoki Masuda](#).  
Transient nature of cooperation by pay-it-forward reciprocity.  
Scientific Reports, 6, 19471 (2016).
114. Jens Malmros, [Naoki Masuda](#), Tom Britton.  
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## Editorial

1. Teruyoshi Kobayashi, [Naoki Masuda](#).  
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## Commentary

1. [Naoki Masuda](#), Francisco C. Santos.  
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## Articles for Young Adults (Refereed)

1. [Naoki Masuda](#), Mason A. Porter.  
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Frontiers for Young Minds, 8, 582433 (2021).

## Books

4. [Naoki Masuda](#), Christian L. Vestergaard.  
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3. [Naoki Masuda](#), Renaud Lambiotte.  
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(The first edition was published in 2016.)
2. [Naoki Masuda](#), Kwang-Il Goh, Tao Jia, Junichi Yamanoi, Hiroki Sayama. (Editors)  
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1. [Naoki Masuda](#), Petter Holme. (Editors)  
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## Book Chapters

4. Tomokatsu Onaga, James P. Gleeson, [Naoki Masuda](#).  
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1. Naoki Masuda, Taro Takaguchi, Nobuo Sato, Kazuo Yano.  
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### Refereed Conference Papers

10. Masaki Ogura, Junpei Tagawa, Naoki Masuda.  
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[Oral presentation]
9. Xia Cui, Sadamori Kojaku, Naoki Masuda, Danushka Bollegala.  
Solving feature sparseness in text classification using core-periphery decomposition.  
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[Oral presentation; 42% acceptance]
8. Naoki Masuda, Konstantin Klemm, Víctor M. Eguíluz.  
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4th IFAC Conference on Analysis and Control of Chaotic Systems.  
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[Oral presentation]
7. Kodai Saito, Naoki Masuda.  
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[Poster presentation; 36% acceptance (28% oral + 8% poster)]
6. Naoki Masuda, Tetsuya Fujie, Kazuo Murota.  
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[Poster presentation]
5. Naoki Masuda, Hiroshi Kori.  
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4. Naoki Masuda, Shun-ichi Amari.  
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3. Naoki Masuda, Kazuyuki Aihara.  
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2. Naoki Masuda, Kazuyuki Aihara.  
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#### Conference/workshop Invited Presentations (without refereed proceeding papers)

40. Naoki Masuda.  
Modeling and analysis of temporal networks and dynamical processes on them.  
International Conference on Emerging Trends in Mathematical Sciences & Computing (IEMSC-23).  
Online (hosted by IEM Kolkata, India), February 3–5, 2023.  
[Plenary talk]
39. Naoki Masuda.  
Long-tailed distributions of inter-event times as mixtures of exponentials.  
KIAS International Workshop: Theoretical Challenges in Network Science.  
KIAS, Seoul, Korea, September 26–30, 2022.  
[Invited talk]
38. Naoki Masuda.  
State dynamics view of temporal network data: Recurrence and embedding.  
Blockchain Kaigi 2022 (BCK22).  
Tohoku University, Sendai, Miyagi, Japan, August 4–5, 2022.  
[Invited talk]



37. Naoki Masuda.  
 Recurrence view of temporal network data: System-state dynamics, recurrence plot, and embedding.  
 NetSci 2022.  
 Online, July 25–29, 2022.  
 [Invited talk]
36. Naoki Masuda.  
 Recurrence quantification analysis and energy landscape analysis of dynamic brain networks. The  
 BIRS workshop on Multiplex Brain Networks.  
 Banff International Research Station, Banff, Canada, April 22–24, 2022.  
 [Invited talk]
35. Naoki Masuda.  
 System-state dynamics and recurrence of temporal networks.  
 American Physical Society March Meeting, Chicago, IL, USA, March 14–18, 2022.  
 [Invited talk]
34. Naoki Masuda.  
 Network analysis on correlation matrices: Alternatives to threshold networks.  
 International Conference on AI and Data Science: Mathematics and Applications.  
 Suwon, Korea, November 4–5, 2019.  
 [Keynote talk]
33. Naoki Masuda.  
 Network science: Static and temporal networks.  
 2019 Big Data Analysis and Complex Science Management Summer School (translation by NM).  
 Harbin Institute of Technology (Weihai), Weihai, China, July 25–31, 2019.  
 [Invited lectures]
32. Naoki Masuda.  
 Network dynamics: Epidemic processes and energy landscape analysis.  
 2019 Annual Meeting, Society For Mathematical Biology.  
 Université de Montréal, Montreal, Canada, July 22–26, 2019.  
 [Plenary speaker]
31. Naoki Masuda. Networks from correlation matrices: An alternative to thresholding. Threshold  
 Networks. University of Nottingham, Nottingham, UK, July 22–24, 2019.  
 [Invited talk]
30. Naoki Masuda.  
 Lecture 1: Fundamentals of random walks on networks.  
 Lecture 2: Applications of random walks on networks.  
 CCSS School on Computational Social Science.  
 Kobe University, Japan, June 20–22, 2019.  
 [Invited lectures]
29. Naoki Masuda.  
 Contagion processes on temporal networks: Epidemic threshold, commutator, and concurrency.  
 Centre for Business Network Analysis (CBNA) Summer School in Social Network Analysis 2019.  
 University of Greenwich, UK, June 10–14, 2019.  
 [Invited talk]

28. [Naoki Masuda](#).  
A configuration model for correlation matrices.  
4th Workshop on Statistical Physics for Financial and Economic Networks.  
NetSci 2019, University of Vermont, Burlington, VA, USA, May 27–31, 2019  
[Invited talk]
27. [Naoki Masuda](#).  
Opening Symposium of the Dutch Network Science Society.  
TU Delft, Delft, Netherlands, 7 May, 2019.  
[10 min pitch talk]
26. [Naoki Masuda](#).  
Epidemic processes on dynamically switching networks: Effects of commutator and concurrency.  
Young European Probabilists (YEP) XV “Information Diffusion on Random Networks” Workshop.  
TU Eindhoven, Eindhoven, Netherlands, March 25–29, 2019.  
[Invited talk]
25. [Naoki Masuda](#).  
Epidemic processes and random walks on time-varying graphs.  
Fundamentals of complex networks: From static towards evolving.  
University of Duisburg-Essen, Essen, Germany, March 6–8 (2019).  
[Invited mini lecture talks; 4 talks  $\times$  1 hr]
24. [Naoki Masuda](#).  
Random walks on networks.  
Online Winter School on Spectral Methods for Complex Systems.  
Webinar, January 21–30 (2019).  
[Video lecture presentation]
23. [Naoki Masuda](#).  
Directed acyclic graphs in network science.  
International Workshop on Theoretical Perspectives in Network Science.  
Seoul National University, Seoul, Korea, December 7–9 (2018).  
[Invited talk]
22. [Naoki Masuda](#).  
A Gillespie algorithm for simulating interacting non-Markovian point processes.  
2nd Symposium on Spatial Networks.  
University of Oxford, UK. September 13–14 (2017).  
[Invited talk]
21. [Naoki Masuda](#).  
Reinforcement learning behaviour by football managers.  
Push the Envelope of Statistical Physics: Econo, Social, Bio and Beyond.  
POSTECH, Pohang, Korea, December 12–13 (2016).  
[Invited talk]
20. [Naoki Masuda](#).  
Highly heterogeneous performances across human individuals: quantifications and implications.  
Push the Envelope of Statistical Physics: Econo, Social, Bio and Beyond.  
POSTECH, Pohang, Korea, December 12–13 (2016).  
[Ignite talk]

19. Naoki Masuda.  
 Network analysis: An overview.  
 Systems-NET/IDC in Systems Workshop: At the Intersect between Network Science and Systems Engineering.  
 University of Bristol, Bristol, UK, September 12 (2016).  
 [Invited talk]
18. Leo Speidel, Konstantin Klemm, Victor M. Eguíluz, Naoki Masuda.  
 Dynamical switching of networks facilitates endemicity in the susceptible-infected-susceptible epidemic model.  
 Asia-Pacific Econophysics Conference 2016.  
 University of Tokyo, Tokyo, August 24–26 (2016).  
 [Invited talk]
17. Naoki Masuda.  
 Cooperation under indirect reciprocity: evidence from neuroimaging.  
 The Third International Workshop on Market Design Technologies for Sustainable Development.  
 Keio University, Yokohama, Japan, August 21–22 (2015).  
 [Invited talk]
16. Naoki Masuda.  
 Opinion control in the voter model on networks.  
 Satellite Symposium: Information, Self-Organizing Dynamics and Synchronization (ISDOS) on Networks II. NetSci 2015.  
 Zaragoza, Spain, June 1–5 (2015).  
 [Invited talk]
15. Naoki Masuda.  
 Dynamics of opinion formation and cooperation in populations composed of heterogeneous agents.  
 The 3rd Sociophysics Workshop “From Opinion Dynamics to Voting, Conflict and Terrorism”.  
 CEVIPOF, CNRS, Paris, March 30–31 (2015).  
 [Invited talk]
14. Naoki Masuda.  
 Dominance hierarchy of worker ants as directed networks.  
 NetSci 2014.  
 Berkeley, CA, USA, June 2–6 (2014).  
 [Invited talk]
13. Naoki Masuda.  
 Laplacian dynamics slows down on temporal networks.  
 Network Frontier Workshop.  
 Northwestern University, Evanston, IL, USA, Dec. 4–6 (2013).  
 [Invited talk]
12. Naoki Masuda, Konstantin Klemm, Víctor M. Eguíluz.  
 Laplacian dynamics on temporal networks.  
 International Workshop on Phase Transition, Critical Phenomena and Related Topics in Complex Networks.  
 Hokkaido University, Sapporo, Japan, September 9–11 (2013).  
 [Invited talk]

11. Naoki Masuda.  
Laplacian-driven dynamics on temporal networks.  
Workshop: Temporal and Dynamic Networks: From Data to Models. NetSci 2013.  
Danish Technical University, Lyngby, Denmark, June 3–7 (2013).  
[Invited talk]
10. Naoki Masuda.  
Temporal networks: Introduction.  
School. NetSci2013.  
Danish Technical University, Lyngby, Denmark, June 3–7 (2013).  
[Invited lecture]
9. Naoki Masuda.  
Quantifying importance of interaction events in temporal networks.  
Toward Mathematical Foundations of Complex Network Theory.  
Kyoto University, Kyoto, Japan, September 14–16 (2012).  
[Invited speaker]
8. Naoki Masuda.  
Laplacian-based centrality in directed graphs.  
Discrete Geometric Analysis.  
Kyoto University, Kyoto, Japan, August 27–31 (2012).  
[Invited talk]
7. Naoki Masuda.  
Dependence of oscillation regularity on structure of networks.  
Anomalous Statistics, Generalized Entropies and Information Geometry.  
Nara Women's University, Nara, Japan, March 6–10 (2012).  
[Invited talk]
6. Naoki Masuda, Jin Seop Kim, Byungnam Kahng.  
Priority queues with scale-free arrivals of incoming tasks.  
Applications of Physics in Financial Analysis 7th International Conference (APFA).  
Tokyo Institute of Technology, Tokyo, March 1–5 (2009).  
[Invited talk]
5. Naoki Masuda.  
How to set payoff matrices for evolutionary games on heterogeneous networks?  
3rd International Nonlinear Science Conference.  
Tokyo, Japan, March 13–15 (2008).  
[Invited talk]
4. Naoki Masuda.  
Evolutionary game dynamics on networks: cost normalization perspective.  
NSC Winter Workshop 2008: Complex Nonlinear Dynamics Ranging from Biology to Engineering.  
Hokkaido University, Sapporo, Japan, March 8–9 (2008).  
[Invited talk]
3. Naoki Masuda, Norio Konno.  
Multi-state interacting particle systems on scale-free networks.  
International Symposium on Topological Aspects of Critical Systems and Networks.  
Hokkaido University, Sapporo, Japan, February 13–14 (2006).  
In: Proceedings of the International Symposium on Topological Aspects of Critical Systems and

Networks, 11–17.

[Invited talk]

2. Naoki Masuda.

Multi-state epidemic dynamics on complex networks.

International Workshop on Complex Networks.

Seoul National University, Seoul, Korea, June 23–24 (2005).

[Invited talk]

1. Naoki Masuda, Kazuyuki Aihara.

Dependence of neural ergodicity on noise strength.

International Symposium on Nonlinear Theory and its Applications (NOLTA2004).

Fukuoka, Japan, November 29 – December 3 (2004).

In: Proceedings of NOLTA2004, 35–38.

[Invited talk]

## Research Talks in Seminars (external only)

University of Michigan, February 2023.

Yonsei University, Seoul, South Korea, September 2022.

RIKEN Center for Brain Science, Saitama Japan. July 2022.

Okinawa Institute of Science and Technology Graduate University, Okinawa Japan. July 2022.

Purdue University, Joaquín Goñi's lab seminar, online, June 2022

Clarkson University, NY, USA. April, 2022.

Northeastern University, MA, USA. December, 2021.

Binghamton University, NY, USA. September 2021.

University of Pennsylvania, PA, USA. March 2021. [Delivered online]

IMT School For Advanced Studies Lucca, Lucca, Italy. January 2021. [Delivered online]

Waseda University, Japan. July 2020.

University of Rochester, NY, USA. November 2019.

RIKEN Center for Brain Science, Wako, Japan. July 2019.

Graduate School of Information Sciences, Tohoku University, Japan. July 2019.

Department of Public Health and Primary Care, Imperial College London, UK. June 2019.

Faculty of Electrical Engineering, Mathematics and Computer Science Intelligent Systems, TU Delft, Netherlands. May 2019.

Disease Ecology Seminar, Center for the Ecology of Infectious Diseases, University of Georgia, GA, USA. March 2019.

Department of Mathematics, Imperial College London, UK. November 2018.

Computer Science, University of Exeter, UK. October 2018.

Faculty of Management and Economics, Dalian University of Technology, Dalian, China. September 2018.

Nanyang Technological University, Singapore. June 2018.

Northeastern University, Boston, MA, USA. March 2018.

School of Biological Sciences Research Seminar Series, University of Reading, UK. January 2018.

Centre for Water Systems, University of Exeter, UK. October 2017.

EPSRC Centre for Predictive Modelling in Healthcare, University of Exeter, UK. April 2017.

Department of Computer Science, University of Liverpool, UK. March 2017.

Department of Mathematics, University of Sussex, UK. February 2017.

Complex Systems Seminar, School of Mathematical Sciences, Queen Mary University of London, UK. February 2017.

MACSI seminar, Department of Mathematics and Statistics, University of Limerick, Ireland. January 2017.

Math Colloquium, Dartmouth College, USA. November 2016.

Networks and Collective Behaviour seminar series, University of Bath, UK. February 2016.

Networks Journal Club, Mathematical Institute, University of Oxford, UK. February 2016.

LAND Seminar, School of Mathematics, University of Leeds, UK. June 2015.

Cambridge Networks Network Seminar, University of Cambridge, UK. December 2014.

Centre for Neuroimaging Sciences, King's College London, UK. September 2014.

School of Computing Science, Newcastle University, UK. May 2014.

Department of Energy Science, Sungkyunkwan University, Korea. August 2012.

### **Contributed Conference/Workshop Oral Presentations (excluding those listed above)**

110. Yiding Cao, Suraj Rajendran, Prathic Sundararajan, Royal Law, Sarah Bacon, Steven Sumner, [Naoki Masuda](#).  
Twitter following networks of individuals with adverse childhood experiences.  
NERCCS2023: Sixth Northeast Regional Conference on Complex Systems.  
Clarkson University, Potsdam, NY, March 22–24, 2023.
109. Ruodan Liu, [Naoki Masuda](#).  
Fixation probability on hypergraphs.  
NERCCS2023: Sixth Northeast Regional Conference on Complex Systems.  
Clarkson University, Potsdam, NY, March 22–24, 2023.
108. Neil Maclaren, Baruch Barzel, [Naoki Masuda](#).  
Low-dimensional approximations to nonlinear dynamics on networks: A sentinel node approach.  
NERCCS2023: Sixth Northeast Regional Conference on Complex Systems.  
Clarkson University, Potsdam, NY, March 22–24, 2023.
107. Jnanajyoti Bhaumik, [Naoki Masuda](#).  
Fixation probability of switching networks.  
11th International Conference on Complex Networks and Their Applications.  
Palermo, Italy, November 8–10 (2022).
106. Prosenjit Kundu, Hiroshi Kori, [Naoki Masuda](#).  
Validity of a one-dimensional reduction of dynamical systems on networks.  
11th International Conference on Complex Networks and Their Applications.  
Palermo, Italy, November 8–10 (2022).

105. Neil Maclaren, Prosenjit Kundu, [Naoki Masuda](#).  
Early warning signals of multistage state transitions on complex networks.  
11th International Conference on Complex Networks and Their Applications.  
Palermo, Italy, November 8–10 (2022).
104. Kazuki Nakajima, Kazuyuki Shudo, [Naoki Masuda](#).  
Random hypergraph models preserving degree correlation and local clustering.  
11th International Conference on Complex Networks and Their Applications.  
Palermo, Italy, November 8–10 (2022).
103. Maisha Islam Sejunti, [Naoki Masuda](#), Dane Taylor.  
Floquet theory for spreading dynamics over periodically switching networks.  
11th International Conference on Complex Networks and Their Applications.  
Palermo, Italy, November 8–10 (2022).
102. Qiong Zhang, Noha Abdel-Mottaleb, Kashin Sugishita, [Naoki Masuda](#).  
Bio-inspired design to enhance water distribution network performance.  
Symposium Honoring John Crittenden at ACS Fall National Meeting, George Pullman (Marriott Marquis Chicago), Chicago, IL, August 21–25 (2022).
101. [Naoki Masuda](#).  
A state-dynamics view of bursts in contact networks, with applications to epidemic processes and metapopulation models.  
Special Session for Mathematical Methods for Ecology and Evolution in Structured Populations,  
Spring Eastern Virtual Sectional Meeting.  
American Mathematical Society Spring Eastern Virtual Sectional Meeting. Online. March 19–20, 2022.
100. Elohim Fonseca dos Reis, [Naoki Masuda](#).  
Emergent non-Poissonian statistics of interevent times from metapopulation models.  
NERCCS2022: Fifth Northeast Regional Conference on Complex Systems.  
Buffalo, March 30 – April 1, 2022.
99. Ruodan Liu, Masaki Ogura, Elohim Fonseca Dos Reis, [Naoki Masuda](#).  
Impacts of concurrency on epidemic spreading in Markovian temporal networks.  
NERCCS2022: Fifth Northeast Regional Conference on Complex Systems.  
Buffalo, March 30 – April 1, 2022.
98. Neil Maclaren, Siobhán Mattison, [Naoki Masuda](#).  
A maximum entropy approach to the multivariate “space” of social networks.  
NERCCS2022: Fifth Northeast Regional Conference on Complex Systems.  
Buffalo, March 30 – April 1, 2022.  
[Honorable Mention of the Best Oral Presentation Award]
97. Kazuki Nakajima, Kazuyuki Shudo, [Naoki Masuda](#).  
Higher-order rich-club phenomenon in research funding.  
NERCCS2022: Fifth Northeast Regional Conference on Complex Systems.  
Buffalo, March 30 – April 1, 2022.
96. Maisha Islam Sejunti, [Naoki Masuda](#), Dane Taylor.  
Floquet theory for spreading dynamics over periodically switching networks.  
NERCCS2022: Fifth Northeast Regional Conference on Complex Systems.  
Buffalo, March 30 – April 1, 2022.

95. Ruodan Liu, Masaki Ogura, Elohim Fonseca dos Reis, [Naoki Masuda](#).  
Modeling effects of concurrency on epidemic spreading in Markovian temporal networks.  
Networks 2021: A Joint Sunbelt and NetSci Conference.  
Online, July 5–10, 2021.
94. Chanon Thongprayoon, Lorenzo Livi, [Naoki Masuda](#).  
Continuous-time trajectory of tie-decay temporal networks.  
Networks 2021: A Joint Sunbelt and NetSci Conference.  
Online, July 5–10, 2021.
93. Noha Abdel-Mottaleb, Qiong Zhang, Kashin Sugishita, [Naoki Masuda](#).  
Can bio-inspired network design improve the performance of water distribution networks (WDNs)?  
2021 World Environmental & Water Resources Congress.  
Online, June 7–11, 2021.
92. Alessio Cardillo, [Naoki Masuda](#).  
Tipping point in evolutionary games on networks triggered by zealots.  
CompleNet Live 2021, Online, May 24–26, 2021.
91. Irene Malvestio, Alessio Cardillo, [Naoki Masuda](#).  
Interplay between k-core and communities in networks.  
CompleNet Live 2021, Online, May 24–26, 2021.
90. [Naoki Masuda](#), Victor M. Preciado, Masaki Ogura.  
Analysis of the susceptible-infected-susceptible model in finite networks using the non-backtracking matrix.  
Minisymposium on Latest Advances in Spectral Linear Algebra in Network Science, the SIAM Conference on Applied Linear Algebra (LA21).  
Online, May 17–21, 2021.
89. Hang-Hyun Jo, [Naoki Masuda](#).  
Finite-size effects on the convergence time in continuous-opinion dynamics.  
2021 Korean Physical Society Spring Meeting. Online, April 21–23, 2021.
88. Lingqi Meng, [Naoki Masuda](#).  
Epidemic threshold for metapopulation model networks with a second-order mobility rule.  
NERCCS2021: Fourth Northeast Regional Conference on Complex Systems.  
Online, March 31 – April 2, 2021.
87. Mengyuan J. Sun, [Naoki Masuda](#).  
COVID-19 impacts on domestic airlines via multilayer network analysis.  
NERCCS2021: Fourth Northeast Regional Conference on Complex Systems.  
Online, March 31 – April 2, 2021.
86. Chanon Thongprayoon, Lorenzo Livi, [Naoki Masuda](#).  
Visualizing trajectory of tie-decay temporal networks.  
NERCCS2021: Fourth Northeast Regional Conference on Complex Systems.  
Online, March 31 – April 2, 2021.
85. Lingqi Meng, [Naoki Masuda](#).  
Diffusion Speed of the Node2vec Random Walk on Networks



COMPLEX20 (Conference on Complex Systems 2020).  
Online, December 4–11, 2020.

84. Xiuxiu Zhan, Ziyu Li, [Naoki Masuda](#), Petter Holme, Huijuan Wang.  
Susceptible-infected-spreading-based network embedding in static and temporal networks.  
9th International Conference on Complex Networks and their Applications.  
Online, December 1–3, 2020.
83. Sadamori Kojaku, Giacomo Livan, [Naoki Masuda](#).  
Detecting citation cartels in journal citation networks.  
NetSci 2020.  
Online (due to COVID-19), September 17–25, 2020.
82. Irene Malvestio, Alessio Cardillo, [Naoki Masuda](#).  
Interplay between  $k$ -core and community structure in networks.  
NetSci 2020.  
Online (due to COVID-19), September 17–25, 2020.
81. Kashin Sugishita, [Naoki Masuda](#).  
Structural evolution of US airline networks.  
NetSci 2020.  
Online (due to COVID-19), September 17–25, 2020.
80. jilȳ Hang-Hyun Jo, Takayuki Hiraoka, jUȳNaoki Masudaj/Uȳ, Aming Li.jbrȳ Modeling temporal networks with bursty activity patterns of nodes and links.  
2020 Korean Physical Society Spring Meeting.  
Online, July 13–15, 2020.
79. Marinho A. Lopes, Jiaxiang Zhang, Dominik Krzemiński, Khalid Hamandi, Qi Chen, Lorenzo Livi, [Naoki Masuda](#).  
Recurrence analysis of dynamic functional brain networks.  
Third Northeast Regional Conference on Complex Systems.  
Online, April 1–3, 2020.
78. Elohim Fonseca dos Reis, Aming Li, [Naoki Masuda](#).  
Interacting human dynamics as a mixture of Poisson processes.  
Third Northeast Regional Conference on Complex Systems.  
Online, April 1–3, 2020.
77. Alessio Cardillo, [Naoki Masuda](#).  
Critical mass effect in evolutionary games on networks triggered by zealots.  
NetSci-X 2020.  
Tokyo, Japan, January 20–23, 2020.
76. Kashin Sugishita, Mason A. Porter, Mariano Beguerisse-Díaz, [Naoki Masuda](#). Opinion dynamics in tie-decay networks.  
NetSci-X 2020.  
Tokyo, Japan, January 20–23, 2020.
75. Marinho A. Lopes, Jiaxiang Zhang, Dominik Krzemiński, Khalid Hamandi, Lorenzo Livi, [Naoki Masuda](#).  
Recurrence analysis of dynamic brain networks: Characterisation of the spatio-temporal dynamics of magnetoencephalographic recordings.  
8th International Conference on Complex Networks and their Applications.  
Lisbon, Portugal, December 10–12, 2019.

74. J. Miyata, A. Sasamoto, T. Ezaki, N. Masuda, Y. Mori, M. Isobe, T. Aso, T. Murai, H. Takahashi.  
Conservative and hasty decision styles are differently associated with static and dynamic functional connectivity in healthy and schizophrenia people.  
Society for Neuroscience, Chicago, IL, October 19–23, 2019.
73. Elohim Fonseca dos Reis, Mark Viney, Naoki Masuda.  
Network structure of wild and laboratory mice immune states.  
International Conference on AI and Data Science: Mathematics and Applications.  
Suwon, Korea, November 4–5, 2019.
72. Aoi Naito, Naoki Masuda, Tatsuya Kameda.  
Social network and collective intelligence under nonstationary uncertain environment.  
7th International Conference on Cognitive Neurodynamics.  
Alghero, Italy, September 29 – October 2, 2019.
71. Takayuki Hiraoka, Naoki Masuda, Aming Li, Hang-Hyun Jo.  
Modeling temporal networks with bursty node and link activity.  
Conference on Complex Systems 2019.  
Nanyang Technological University, Singapore, September 30 – October 4, 2019.
70. Elohim Fonseca dos Reis, Naoki Masuda, Mark Viney.  
Immune networks in wild mice, *Mus musculus domesticus*.  
Parasitic Helminths: New Perspectives in Biology and Infection.  
Hydra, Greece, September 1–6, 2019.
69. Sadamori Kojaku, Giulio Cimini, Guido Caldarelli, Naoki Masuda.  
Structural changes in an interbank market across the financial crisis: A multiple core-periphery analysis.  
NetSci 2019, University of Vermont, Burlington, VA, USA, May 27–31, 2019
68. Jun Miyata, Akihiko Sasamoto, Takahiro Ezaki, Naoki Masuda, Yasuo Mori, Masanori Isobe, Toshihiko Aso, Toshiya Murai, Hidehiko Takahashi.  
Is jumping to conclusions bias associated with frequent “jumping” to salience-related functional brain states?  
2019 Congress of the Schizophrenia International Research Society, Orlando, Florida, US, April 10–14, 2019.
67. Elohim Fonseca dos Reis, Mark Viney, Naoki Masuda.  
Immune state networks of wild and laboratory mice.  
10th International Conference on Complex Networks (COMPLNET’19).  
Tarragona, Spain, March 18–21, 2019.
66. Naoki Masuda.  
Energy landscape analysis of multivariate time series data.  
New Trends in Statistical Physics.  
Lucca, Italy, March 15 (2019).
65. Sadamori Kojaku, Mengqiao Xu, Haoxiang Xia, Naoki Masuda.  
Multiscale core-periphery structure in a global liner shipping network.  
The 7th International Conference on Complex Networks and Their Applications.  
University of Cambridge, Cambridge, UK, December 11–13 (2018).
64. Takamitsu Watanabe, Geraint E. Rees, Naoki Masuda.  
Neural retainability in autism.

Society for Neuroscience 2018.  
San Diego, CA, November 3–7 (2018).

63. Takahiro Ezaki, Michiko Sakaki, Takamitsu Watanabe, Naoki Masuda.  
Energy landscape analysis of age-related changes in human brain activity.  
Conference on Complex Systems (CCS 2018).  
Thessaloniki, Greece, September 23–28 (2018).
62. Genki Ichinose, Naoki Masuda.  
Zero-determinant strategies in repeated prisoner’s dilemma games.  
ALIFE.  
Tokyo, Japan, July 23–27 (2018).
61. Tomokatsu Onaga, James P. Gleeson, Naoki Masuda.  
Concurrency-induced transitions in epidemic processes on temporal networks.  
NetSci 2018.  
Paris, June 11–15 (2018).
60. Naoki Masuda.  
Reinforcement learning explains conditional cooperation and its moody cousin in games on networks.  
Sattelle meeting: GAMENET: Games on Networks, NetSci 2018.  
Paris, June 11–15 (2018).
59. Naoki Masuda.  
Detecting sequences of system states in temporal networks.  
Symposium on Networks, Time and Causality.  
ETH, Zurich, Switzerland, April 13 (2018).
58. Anne-Lene Sax, Liz Coulthard, Naoki Masuda.  
Epidemic dynamics of disease progression in dementia – A numerical study.  
Brain Networks and Neurological Disorders: from Theory to Clinic.  
University of Exeter, Exeter, UK, April 10 (2018).
57. Naoki Masuda, Michiko Sakaki, Takahiro Ezaki, Takamitsu Watanabe.  
Clustering coefficients for correlation matrices and their application to neuroimaging data.  
NetSci-X.  
Hangzhou, China, Jan 5–8 (2018).
56. Sadamori Kojaku, Naoki Masuda.  
Core-periphery structure in degree-heterogeneous networks.  
NetSci-X.  
Hangzhou, China, Jan 5–8 (2018).
55. Naoki Masuda.  
How do people sense population density to make migration decisions?  
Maths and the City Workshop.  
University of Bristol, Bristol, UK, January 19 (2017).
54. Sadamori Kojaku, Naoki Masuda.  
Finding multiple core/periphery structure with random walks.  
The 5th International Workshop on Complex Networks and Their Applications.  
Milan, Italy, November 30 – December 2 (2016).

53. Kohei Tamura, Naoki Masuda.  
Effects of spatial interaction on migration flows.  
Asia-Pacific Econophysics Conference 2016.  
University of Tokyo, Tokyo, August 24–26 (2016).
52. Teruyoshi Kobayashi, Naoki Masuda.  
A community-based collective influence algorithm for immunizing networks.  
Asia-Pacific Econophysics Conference 2016.  
University of Tokyo, Tokyo, August 24–26 (2016).
51. Naoki Masuda, Luis E. C. Rocha.  
Exact simulation of interacting non-Markovian renewal processes using the Laplace transform.  
NetSci 2016.  
Seoul Korea, May 30 – June 3 (2016).
50. Naoki Masuda.  
Immunizing networks by targeting collective influencers at a community level.  
Satellite workshop: When complex networks meet complex data: Higher-order models in network science. NetSci 2016.  
Seoul, Korea, May 30 – June 3 (2016).
49. Naoki Masuda.  
Ranking professional tennis players using a temporal network centrality measure.  
Satellite workshop: Competition networks and centrality, NetSci 2016.  
Seoul, Korea, May 30 – June 3 (2016).
48. Naoki Masuda.  
Reinforcement learning explains conditional cooperation and its moody cousin.  
GW4 Game Theory Workshop: Incentives for Conflict and Cooperation.  
University of Bristol, Bristol, UK, May 9–10 (2016).
47. Naoki Masuda.  
Individual-based approach to the susceptible-infected-recovered epidemic processes on arbitrary dynamic networks.  
Dynamical Networks and Network Dynamics.  
International Centre for Mathematical Sciences, Edinburgh, UK. January 18–22 (2016).
46. Luis E. C. Rocha, Naoki Masuda.  
Individual-based approximation to the susceptible-infected-recovered model on temporal networks.  
NetSci-X 2016.  
Wroclaw, Poland, January 11–13 (2016).
45. Naoki Masuda, Konstantin Klemm, Víctor M. Eguíluz.  
Laplacian dynamics on temporally switching networks.  
IEEE International Meeting on Analysis and Applications of Nonsmooth Systems (AANS2014).  
Como, Italy, September 10–12 (2014).
44. Hiroyuki Shimoji, Masato S. Abe, Kazuki Tsuji, Naoki Masuda.  
Dominance hierarchy networks of ant workers.  
The Joint Annual Meeting of the Japanese Society for Mathematical Biology and the Society for Mathematical Biology.  
Osaka, Japan, July 28 – August 1 (2014).

43. Naoki Masuda.  
Neural underpinning of cooperation under indirect reciprocity.  
Making of Humanities: Biological Roots of Mathematics and Cooperation.  
Hokkaido University, Sapporo, Japan, July 28 (2014).
42. Naoki Masuda.  
Analysis of diffusive processes on temporal networks.  
The 3rd International Symposium on Innovative Mathematical Modelling.  
University of Tokyo, Tokyo, Japan, November 12–15 (2013).
41. Naoki Masuda.  
Indirect reciprocity and ingroup favoritism: mathematical models.  
International Workshop on Social Computing 2013 – Perspectives in Socio-Cultural Complexity.  
Graduate School's Seoul Office, Seoul, Korea, July 27 (2013).
40. Naoki Masuda.  
Social spike trains: where computational neuroscience and computational social science can meet.  
Modeling Neural Activity: Statistics, Dynamical Systems, and Networks.  
Lihue, Hawaii, June 26–28 (2013).
39. Naoki Masuda.  
Suicide ideation in online social networks.  
Workshop: NetSciEd2. NetSci2013.  
Danish Technical University, Lyngby, Denmark, June 3–7 (2013).
38. Mitsuhiro Nakamura, Naoki Masuda.  
Sharing information in groups yields ingroup favoritism in indirect reciprocity.  
Modelling Biological Evolution 2013: Recent Progress, Current Challenges and Future Directions.  
University of Leicester, UK, May 1–3 (2013).
37. Hiroshi Kori, Yoji Kawamura, Naoki Masuda.  
Network structure dependence of collective enhancement of temporal precision in coupled noisy oscillators.  
The First Annual Winter q-bio Meeting.  
Waikiki, Hawaii, February 18–21 (2013).
36. Hiroshi Kori, Yoji Kawamura, Naoki Masuda.  
Dependence of oscillation regularity on network structure in coupled noisy oscillators.  
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## Professional Service

### Editorial Work

#### Regular

10/2022–present	Associate Editor, Frontiers in Complex Systems, Complex Networks section
10/2020–present	Academic Editor, Complexity
06/2020–present	Associate Editor, Frontiers in Physics, Social Physics section
06/2019–present	Editor, Journal of Computational Social Science
01/2019–present	Associate Editor, Journal of Complex Networks
05/2014–present	Editorial Board, PLOS ONE
01/2014–present	Editorial Board, Scientific Reports
03/2018–02/2023	Editorial Board, Journal of Physics Communications
06/2013–12/2019	Review Editor, Frontiers in Physics, Interdisciplinary Physics section

#### Ad-hoc

2020	Guest Editor, Japanese Economic Review Special Issue: Economics and Complex Networks (co-edited with Teruyoshi Kobayashi)
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### Organization of Conferences and Workshops

#### Program Committee Member

NetSci 2023

Vienna, Austria, July 10–14 (2023).

#### Program Committee Member

CompleNet 2023

Aveiro, Portugal, April 25–28 (2023).

#### Program Committee Member

NetSci-X 2023

Buenos Aires, Argentina, February 7–10 (2023).

#### Vice Chair

2022 IEEE International Conference on Big Data

Osaka, Japan, December 17–20, (2022).

#### Program Committee Member

Conference on Complex Systems (CCS2022)

Palma de Mallorca, Spain, October 17–21 (2022).

#### Program Committee Member

NetSci 2022

Online, July 25–29 (2022).

#### International Advisory Committee Member

28th IUPAP International Conference on Statistical Physics (STATPHYS28)

Tokyo, Japan, August 7–11 (2023).

Organizer (Coorganized with Tomomi Kito and Kazuki Nakajima)

Socioeconomic Networks and Network Science Workshop 2022

Online, August 1–2 (2022).

#### Program Committee Member

NetSci 2022

Online, July 25–29 (2022).

General Co-Chair

Fifth Northeast Regional Conference on Complex Systems  
Buffalo and other satellite locations, March 30 – April 1 (2022).

Program Committee Member

NetSci-X 2022

Porto Portugal, February 8–11 (2022).

Organizer (Coorganized with Tomomi Kito and Kazuki Nakajima)

Science of Innovation and Success Workshop

Waseda University, Japan (hybrid format), August 2–3 (2021).

Program Committee Member

2021 Online Conference on Complex Networks (CompleNet Live 2021)

Online, May 24–26 (2021).

General Co-Chair

Fourth Northeast Regional Conference on Complex Systems

Online, March 31 – April 2 (2021).

Senior Program Committee Member

The 12th International Conference on Social Informatics

Pisa, Italy, October 6–9 (2020).

Program Committee Member

NetSci 2020

Rome, Italy (held online due to COVID-19), September 17–25 (2020).

Poster Chair

Tenth International Conference on Complex Systems (ICCS 2020)

Online, July 27–31 (2020).

Organizer (Coorganized with Tomomi Kito and Yuka Fujiki)

Socioeconomic Networks and Network Science Workshop

Waseda University, Japan (held online due to COVID-19), July 3–4 (2020).

Program Committee Member

6th Annual International Conference on Computational Social Science (IC2S2 2020)

Cambridge, MA, USA (held online due to COVID-19), July 17–20 (2020).

Program Committee Member

8th Annual SIAM Workshop on Network Science (NS20)

Toronto, Ontario, Canada, July 9–10 (2020).

Poster Chair and Program Committee Member

Third Northeast Regional Conference on Complex Systems

University at Buffalo, USA (held online due to COVID-19), April 1–3 (2020).

Program Committee Member

11th International Conference on Complex Networks (CompleNet 2020)

Exeter, UK, March 31 – April 3 (2020).

Program Chair

NetSci-X 2020

Tokyo, Japan, January 20–23 (2020).

Organizer (Coorganized with Guido Caldarelli, Hiroyasu Inoue, and Carolina Mattsson)

NetSci-X Special Workshop on Economic & Financial Networks.

Tokyo, Japan, January 23 (2020).

Program Committee Member

Eighth International Conference on Complex Networks and Their Applications  
Lisbon, Portugal, December 10–12 (2019).

Program Committee Member

The 11th International Conference on Social Informatics  
Doha, Qatar, November 18–21 (2019).

Program Committee Member

5th Annual International Conference on Computational Social Science (IC2S2 2019)  
Amsterdam, the Netherlands, July 17–20 (2019).

Program Committee Member

NetSci 2019  
Burlington, VT, USA, May 27–31 (2019).

Program Committee Member

11th International Conference on Complex Networks (CompleNet 2019)  
Tarragona, Spain, March 18–21 (2019).

Program Committee Member

Seventh International Conference on Complex Networks and Their Applications  
Cambridge, UK, December 11–13 (2018).

Organizer (Coorganized with Nicola Perra and Vincenzo Nicosia)

2nd UK Network Science Workshop  
University of Greenwich, London, UK, October 26 (2018).

Program Committee Member

The 10th International Conference on Social Informatics  
St. Petersburg, Russia, September 24–27 (2018).

Program Committee Member

Workshop on Social Influence 2018 (SI 2018)  
Barcelona, Spain, August 28 (2018).

Program Committee Member

The 4th Annual International Conference on Computational Social Science (IC2S2 2018)  
Northwestern University, Evanston, USA, July 12–15 (2018).

Program Committee Member

SIAM Workshop on Network Science 2018 (SIAMNS 2018)  
Portland, OR, USA, July 12–13 (2018).

Program Committee Member

Integration of Empirical Data in Network Epidemiology (iodine)  
A satellite symposium in NetSci 2018, Paris, France, June 12 (2018).

Senior Program Committee Member

NetSci 2018  
Paris, France, June 11–15 (2018).

Organizer

UK Network Science Workshop  
University of Bristol, Bristol, UK, May 11 (2018).

Program Committee Member

NetSci-X 2018

Hangzhou, China, January 5–8 (2018).

Program Committee Member

Sixth International Workshop on Complex Networks and their Applications

Lyon, France, November 29 – December 1 (2017).

Organizer

Engineering Applications of Networks Workshop

University of Bristol, Bristol, UK, November 1 (2017).

Program Committee Member

Workshop on Social Influence 2017 (SI 2017)

Sydney, Australia, July 31 (2017).

Program Committee Member

CCS2017 Satellite Meeting Modeling of Disease Contagion Processes 6th Edition

Cancun, Mexico, September 17–22 (2017).

Program Committee Member

The 9th International Conference on Social Informatics

Oxford, UK, September 13–15 (2017).

Program Committee Member

NetSci 2017

Indianapolis, Indiana, USA, June 19–23 (2017).

Program Committee Member

4th European Network Intelligence Conference 2017 (ENIC'17)

Duisburg, Germany, September 11–12 (2017).

Program Committee Member

NetSci-X 2017

Tel-Aviv, Israel, January 15–18 (2017).

Program Committee Member

Fifth International Workshop on Complex Networks and their Applications

Milan, Italy, November 30 – December 2 (2016).

Program Committee Member

Workshop on Social Influence 2016 (SI 2016) San Francisco, USA, August 18 (2016).

Organizer (coorganized with Juyong Park)

Satellite workshop: Competition networks and centrality

NetSci 2016

Seoul, Korea, May 30 (2016).

Organizer (coorganized with Byungnam Kahng and Zengru Di)

Satellite workshop: Network science research in Asia: Fundamentals and applications

NetSci 2016

Seoul, Korea, May 30–31 (2016).

Program Co-chair

NetSci 2016

Seoul, Korea Republic, May 30 – June 3 (2016).

Program Committee Member

NetSci-X 2016

Wroclaw, Poland, January 11–13 (2016).

Program Committee Member

Fourth International Workshop on Complex Networks and their Applications  
Bangkok, Thailand, November 23–27 (2015).

Coorganizer

Special Session: Epidemic dynamics: mathematical modeling and data analysis  
4th IFAC Conference on Analysis and Control of Chaotic Systems  
Tokyo, Japan, August 26–28 (2015).

Program Committee Member

NetSci-X 2015  
Rio de Janeiro, Brazil, January 14–16 (2015).

Program Committee Member

Third International Workshop on Complex Networks and their Applications  
Marrakesh, Morocco, November 23–27 (2014).

Program Committee Member

Workshop on Social Influence (SI 2014)  
Barcelona, Spain, November 10 (2014).

Program Committee Member

Second International Workshop on Complex Networks and their Applications  
Kyoto, Japan, December 2–5 (2013).

Program Committee Member

NetSci 2013  
Copenhagen, Denmark, June 3–7 (2013).

Program Committee Member

First Workshop on Rational, Secure and Private Ad-hoc Networks (RASEP'11)  
Crete, Greece, October 16–21 (2011).

Program Committee Member

The 9th Asia-Pacific Complex Systems Conference (Complex'09)  
Tokyo, Japan, November 4–7 (2009).

Program Committee Member

Special Session: Evolutionary Games on Complex Networks  
IEEE Congress on Evolutionary Computation (CEC 2009)  
Trondheim, Norway, May 18–21 (2009).

Coorganizer

NSC Winter Workshop 2008: Complex Nonlinear Dynamics ranging from Biology to Engineering  
Sapporo, Japan, March 8–10 (2008).

Organizer (Coorganized with Martin Hasler, Kazuyuki Aihara, and Oscar De Feo)

Special Session: Nonlinear Analysis and Modeling of Neural Signal Processing and Coding  
International Symposium on Nonlinear Theory and its Applications (NOLTA2004)  
Fukuoka, Japan, November 29 – December 3 (2004)

## Award Judge

Japanese Society for Mathematical Biology Early Career Award, 2022.

10/2020–09/2022 Judge for Akira Okubo Prize,

jointly administered by the Society for Mathematical Biology and the Japanese Society for Mathematical Biology.

Member of Erdős-Rényi Prize Committee, 2020, Network Science Society.

Young Scientist Award (YSA) in Socio- and Econophysics 2020,  
Division of socio-economic physics, German Physical Society.

Japanese Society for Mathematical Biology Early Career Award, 2019. (Head of the committee)

### **Referee for Grant Applications**

National Science Foundation (panelist)

Research Foundation Flanders (FWO), Belgium, including FWO Review College panel membership in 2023–2025

Austrian Science Fund (FWF)

Swiss National Science Foundation

Engineering and Physical Sciences Research Council (EPSRC), UK

National Science Centre, Poland

Fund for Scientific Research-FNRS, Belgium

Programma per Giovani Ricercatori – Rita Levi Montalcini, Italy

Japan Society for the Promotion of Science, Japan

National Science Foundation, USA

MATH AmSud, cooperation between France and Latin America

### **Referee for Peer-Reviewed Journals**

More than 90 journals including Biology Letters, Nature Communications, Nature Physics, Physical Review Letters, Physical Review X, PLOS Biology, Proceedings of the National Academy of Sciences of the United States of America, Proceedings of the Royal Society B, and SIAM Review.

For a full list, see [www.naokimasuda.net/publ.html](http://www.naokimasuda.net/publ.html).

### **Membership in Invitation-Based Organizations**

10/2012–present Faculty Opinions (former F1000 Faculty) Member

### **Membership in Other Professional Organizations**

Network Science Society

Society for Industrial and Applied Mathematics (SIAM)

American Mathematical Society

Society for Mathematical Biology

American Physical Society

Japanese Society for Mathematical Biology

**Enterprise Partnership**

- 3/2023–12/2023    Subject Matter Expert, Freelancer Technology Pty Limited  
(Project with Logistic Management Institute (LMI),  
Center for Disease Control and Prevention (CDC), and  
National Aeronautics and Space Administration (NASA))
- 10/2021–6/2022    Subject Matter Expert, Freelancer Technology Pty Limited  
(Project with Center for Disease Control and Prevention (CDC) and  
National Aeronautics and Space Administration (NASA))
- 4/2020–present    Lecture speaker on academic writing, Enago
- 12/2018–present    Technical Advisor, Nodes & Links Limited

**Evaluator for Promotion and Tenure**

- One university in Japan
- Four universities in the US

**University Service****State University of New York at Buffalo**

- 2023–: faculty advisor, American Mathematical Society graduate student chapter at University at Buffalo.
- 2022–2023: Hiring Committee for the External Chair, Applied Mathematics
- 7/2022–present: Graduate School Director, Department of Mathematics
- 2022–2023: Executive Committee, Department of Mathematics
- 1/2022–2/2022: Ad-hoc Committee for graduate student admission for Computational and Data Enabled Science and Engineering (CDSE) Program
- 2021–2022: Hiring Committee, Applied Mathematics
- 2021: Ad-hoc Committee for the Creation of a Departmental Disciplinary Excellence Proposal
- 2020, 2021: Graduate Studies Awards Committee
- 2020: Ad-hoc Committee for Faculty's Reappointment, Department of Mathematics
- 2020: Chairmanship Committee, Department of Mathematics
- 2019: Hiring Committee, Applied Mathematics
- 2019–: Department of Mathematics Area Committee in Applied Mathematics
- 2019–: Department of Mathematics Graduate Studies Committee

**University of Bristol, UK**

- 10/2018–8/2019: Year 2 (Undergraduate) Tutor
- 10/2016–8/2019: Study Abroad Academic Director
- 9/2014–8/2019: Personal Tutor ( $\approx 20$  undergraduate and master course students each year)

**University of Tokyo, Japan** (all roles are officially in Japanese; translation by NM)

- 2012: Curriculum Coordinator (Graduate)

2012: Coordinator for Departmental Blochures  
 2011: Committee Member for the Tenth Anniversary Event of the Graduate School  
 2008-2011: Curriculum Coordinator (Undergraduate)  
 2008-2011: Library Committee Member  
 2007, 2008, 2010, 2012: Organizer, Colloquium on Mathematical Informatics  
 2007: Minute taker  
 2007: Coordinator of Factory Tours (Undergraduate)

## Teaching

### State University of New York at Buffalo, USA

Network Theory (for graduate students, MTH 550), also listed as MTH 463 for undergraduate students  
 3 credit hours  
 Spring 2021, Fall 2022  
 Topics in Applied Math: Stochastic Processes on Networks (for graduate students, MTH 563)  
 3 credit hours  
 Spring 2020, Spring 2022, Spring 2023  
 Introduction to Differential Equations (for undergraduate students, MTH 306)  
 4 credit hours  
 Spring 2020, Spring 2021, Spring 2022  
 Introduction to Numerical Analysis I (for graduate students, MTH 537)  
 3 credit hours  
 Fall 2019, Fall 2020, Fall 2021

### University of Bristol, UK

Numerical Methods in MATLAB (for second year undergraduate, EMAT 20920)  
 10 CPs  
 Autumn 2014, Autumn 2015, Autumn 2016, Autumn 2017  
 Nonlinear Dynamics and Chaos (for third year undergraduate, EMAT 33100)  
 10 CPs  
 Autumn 2015, Autumn 2016 (50% of teaching)  
 Advanced Nonlinear Dynamics and Chaos (for masters, EMATM001)  
 10 CPs  
 Autumn 2018 (50% of teaching)  
 Optimisation Theory and Applications (for third year undergraduate, EMAT 30670)  
 10 CPs  
 Autumn 2016 (50% of teaching), Autumn 2017 (50%), Autumn 2018 (100%)  
 Mathematical and Data Modelling 2 (for second year undergraduate, EMAT 22220)  
 20 CPs  
 Autumn 2014, Autumn 2015, Autumn 2016, Autumn 2017, Autumn 2018  
 Role: supervision and marking of 3–4 group projects of 4 weeks  
 Mathematical and Data Modelling 3 (for third year undergraduate, EMAT 30005)  
 30 CPs  
 2017/18, 2018/19 (25% of teaching) Role: organisation, supervision, and marking of group projects



for a semester with other teaching staff

### **University of Tokyo, Japan**

4860-1005: Mathematical Structures in Informatics (for Ph.D. and M.Sc students)

2 credit hours, 1 semester

Spring 2013 (in English), Spring 2011, and Spring 2009 (in Japanese)

Role: sole unit organiser

03-541530: Topology (3rd year undergrad. Originally in Japanese. Translation by NM)

1.5 credit hours, 1 semester

Autumn 2007–2013.

Role: sole unit organiser

03-541620 Group Journal Club (4th year undergrad. Originally in Japanese. Translation by NM)

1.5 credit hours (co-taught with another faculty), 1 semester

Spring 2007, 2008, 2010, 2011, 2013

Role: sole unit organiser

### **Other**

Lecturing (on temporal networks)

“Advanced Complex Networks” in the Master of Physics of Complex Systems.

Programa d’Impuls i Internacionalització per a Estudis de Postgrau.

University of Balearic Islands, Spain, 29 May – 2 June, 2017

Part-time Lecturer

7735: Social Simulations (3rd year undergrad. Originally in Japanese. Translation by NM)

Tokyo Institute of Technology, Japan

Spring 2008–2013. 2 credit hours

### **Research Advising**

PhD thesis supervision — current

- 08/2022–present Katherine Betz, University at Buffalo  
Department of Mathematics  
(sole supervision by NM; doing a Reading Course under my supervision)
- 08/2021–present Saiful Islam, University at Buffalo  
Computational and Data Enabled Science and Engineering (CDSE) Program  
(sole supervision by NM)
- 08/2021–present Maisha Islam Sejunti, University at Buffalo  
Department of Mathematics  
(co-supervision with Dane Taylor)
- 08/2021–present Madison Russell, University at Buffalo  
Department of Mathematics  
(sole supervision by NM)
- 04/2021–present Jnanajyoti Bhaumik, University at Buffalo  
Department of Mathematics  
(sole supervision by NM)
- 07/2020–present Chanon Thongprayoon, University at Buffalo  
Department of Mathematics  
(sole supervision by NM)
- 02/2020–present Ruodan Liu, University at Buffalo  
Department of Mathematics  
(sole supervision by NM)

PhD thesis supervision — completed

- 08/2019–05/2022 Lingqi Meng, University at Buffalo  
Department of Mathematics  
(sole supervision by NM)
- 01/2018–05/2022 Elohim Fonseca dos Reis, University at Buffalo  
(transferred from University of Bristol, 08/2019)  
Department of Mathematics  
(sole supervision by NM)
- 04/2019–08/2019 Maximilian Kloucek, University of Bristol (2nd/3rd supervisor)  
Co-supervised with Paddy Royall  
(terminated because of NM's move to the USA)
- 09/2017–08/2019 Robert Eyre, University of Bristol (2nd supervisor, 20%)  
Co-supervised with Filippo Simini  
(terminated because of NM's move to the USA)
- 09/2016–08/2019 Alfie Wearn, University of Bristol (2nd supervisor)  
Co-supervised with Elizabeth Coulthard and Risto Kauppinen  
(terminated because of NM's move to the USA)
- 09/2015–08/2019 Simon Godwin, University of Bristol (2nd supervisor, 50%)  
Co-supervised with Lucia Marucci
- 09/2015–11/2018 Christelle Langley, University of Bristol (2nd supervisor, 20%)  
Co-supervised with Jade Thai
- 04/2010–03/2013 Taro Takaguchi, University of Tokyo (sole supervision by NM)
- 04/2010–03/2013 Mitsuhiro Nakamura, University of Tokyo (sole supervision by NM)

## Master and Bachelor thesis supervision

- 08/2021–05/2022 Yanyan Li, Senior Thesis (undergraduate), University at Buffalo  
(sole supervision by NM)
- 07/2020–05/2021 Mengyuan (Jason) Sun, Senior Thesis (undergraduate), University at Buffalo  
(sole supervision by NM)
- 01/2018–08/2019 3 MSc students, University of Bristol (from January to summer)
- 09/2014–05/2019 6 MEng students, University of Bristol (one year project)
- 09/2016–05/2019 1 BEng students, University of Bristol (one year project)
- 04/2007–02/2014 13 M.Sc students, University of Tokyo (two year project)
- 10/2006–02/2013 17 B.Sc students, University of Tokyo (one semester project)

## Rotation project supervision:

## PhD in Neural Dynamics, University of Bristol

- 01/2019–04/2019 Arthur Spencer (co-supervised with Ela Chakkarapani and Jon Brooks)
- 05/2018–08/2018 Oscar Davy (co-supervised with Jade Thai)
- 01/2018–04/2018 Anne-Lene Sax (co-supervised with Elizabeth Coulthard)
- 01/2016–04/2016 Alfie Wearn (cosupervised with Elizabeth Coulthard and Risto Kauppinen)
- 05/2015–08/2015 Felicity Inkpen (cosupervised with Risto Kauppinen)

## Junior faculty mentor

- 01/2021–12/2022 Prosenjit Kundu  
Visiting Assistant Professor (full time), University at Buffalo

## Fellowship sponsor

- 04/2017–03/2019 Dr. Christos Ellinas  
“Application of complex networks to project robustness and resilience”  
EPSRC Doctoral Prize Fellowship, hosted at University of Bristol

## Postdoc supervision

## University at Buffalo

01/2022– Neil G. MacLaren (funded by Japan Science and Technology Agency)  
 12/2021– Pitambar Khanra (funded by Japan Science and Technology Agency)  
 08/2020–05/2021 Rupam Acharyya (funded by JP Morgan Chase)  
 04/2019–03/2021 Kashin Sugishita (funded by Japan Society for the Promotion of Science;  
 transferred from University of Bristol, 08/2019)

## University of Bristol

09/2019–02/2020 Irene Malvestio (funded by Cookpad Limited)  
 06/2019–01/2020 Marinho Antunes Lopes (funded by GW4, UK)  
 07/2018–07/2019 Alessio Cardillo (funded by Cookpad Limited)  
 04/2016–03/2019 Sadamori Kojaku (funded by CREST, Japan Science and Technology Agency (JST))  
 05/2015–03/2016 Kohei Tamura (funded by CREST, JST)

## University of Tokyo

04/2013–02/2014 Takuya Machida (funded by Research Fellowships for Young Scientists (PD)  
 Japan Society for the Promotion of Science (JSPS))  
 04/2012–10/2012 Ryosuke Nishi (funded by Kakenhi, Japan)  
 04/2011–03/2012 Jun Nakabayashi (funded by Kakenhi, Japan)  
 04/2011–03/2012 Etsuo Segawa (funded by JST, Presto)  
 04/2011–03/2012 Shuhei Furuya (funded by Research Fellowships for Young Scientists (PD), JSPS)  
 04/2009–03/2011 Yoshimi Yoshino (funded by Kakenhi, Japan)  
 03/2009–03/2011 Takehisa Hasegawa (funded by JST, Presto)

As host researcher (at least 1 month)

## State University of New York at Buffalo

- 01/2023–02/2023 Prof. Jiyoung Kang (Assistant Professor,  
Pukyong National University, South Korea)
- 08/2021–04/2022 Kazuki Nakajima (PhD student, Tokyo Institute of Technology, Japan)
- & 09/2022–03/2022

## University of Bristol

- 05/2019–08/2019 Bruna Campos Guedes (undergraduate student,  
Polytech Marseille — Aix-Marseille Université, France)
- 09/2018–03/2019 Shun Kodate (PhD student, Tohoku University, Japan)  
visit funded by Graduate Program in Data Science, Tohoku University
- 03/2018–04/2018 Jorge P. Rodríguez (PhD student, University of Balearic Islands, Spain)  
visit funded by Short Term Scientific Mission (STSM), COST Action: CA15109,  
EU Framework Programme Horizon 2020 on  
European Cooperation for Statistics of Network Data Science
- 01/2017–03/2017 Elohim Fonseca dos Reis (PhD student, University of Campinas, Brazil)  
visit funded by EPSRC, UK

## University of Tokyo

- 07/2013–08/2013 Yanru Chen (undergraduate student, Tsinghua University, China)  
visit funded by Tsinghua University
- 06/2013–08/2013 Friederike Greb (postdoc, Georg-August-Universität Göttingen, Germany)  
visit funded by Summer Program, Japan Society for the Promotion of Science
- 02/2012–03/2012 Paul Expert (postdoc, Imperial College, UK)  
visit funded by Postdoctoral Fellowships for Foreign Researchers (short-term),  
Japan Society for the Promotion of Science
- 05/2009–02/2010 Toshihiro Tanizawa (Associate Professor,  
Kochi National College of Technology, Japan)  
visit funded by KOSEN National Institute of Technology, Japan

**PhD Thesis Examiner (except for students under my supervision)**

11/2021	Internal PhD examiner, Zhao Song, State University of New York at Buffalo, USA
05/2021	External PhD examiner, Pitambar Khanra, National Institute of Technology Durgapur, India
04/2021	External PhD examiner, Xingru Chen, Dartmouth College, USA
05/2019	External PhD examiner, Prateek Verma, Indian Institute of Science Education and Research (IISER) Kolkata, India
01/2019	External PhD examiner, Jeroen van Lidth de Jeude, IMT School of Advanced Studies, Italy also serving as member (secretary) of the Graduation Committee for Jeroen van Lidth de Jeude, Federica Parisi, and Giacomo Rapisardi, 03/2019
09/2018	External PhD examiner (president), Jorge P. Rodríguez, University of Balearic Islands, Spain
05/2018	External PhD examiner, Neil Sherborne, University of Sussex
12/2017	External PhD examiner, Se-Wook Oh, University of Oxford
10/2017	External PhD examiner, Balasundaram Kadirvelu, University of Reading
07/2016	Internal PhD examiner, Christopher John McWilliams, University of Bristol
04/2016	Internal PhD examiner, Holly Silk, University of Bristol
2008–2014	PhD examiner for 20 candidates University of Tokyo, Department of Mathematical Informatics NB: By convention, no notion of internal/external examiner
2011–2014	PhD examiner for 6 candidates, University of Tokyo (other departments)

**Miscellaneous**

Languages: Japanese (native), English (fluent), and Spanish (fluent).

Herd member: Saving Endangered Species Int'l Playwriting Prize (winning plays announced 02/2016)

Hobbies: Piano (Beethoven, Chopin etc.), salsa (dance), jogging (half marathon: 1h43m), swimming.

Last updated: March 20, 2023