

# Naoki Masuda

## Contact Information

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Department of Engineering Mathematics, University of Bristol  
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Website: [www.naokimasuda.net](http://www.naokimasuda.net)

## Employment

03/2014–present	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
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)

## Citation Statistics

[Naoki Masuda at Google Scholar Citations](#)

Number of citations: 3785 (Google Scholar Citations)

h-index: 33 (Google Scholar Citations)

**Grants**

03/2018–06/2018

Jean Golding Institute: Seed Corn Funding, University of Bristol

Subject: Immune state networks in wild mice

Amount: £2,600

Role PI (CoI: Mark Viney, University of Bristol)

02/2018–06/2018

GW4 Data Science Seed Corn Funding

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

Amount: £5,000

Role PI (CoI: Lorenzo Livi, University of Exeter; Jiaxiang Zhang, Cardiff University)

12/2017–06/2018

Faculty of Engineering: Research Pump Priming, University of Bristol

Subject: Immune response networks in wild mice

Amount: £5,000

Role PI (CoI: Mark Viney, University of Bristol)

09/2016–03/2017

EPSRC Institutional Sponsorship

Subject: Phase transitions in neuroimaging data

Amount: £7,234

Role PI (CoI: Elohim Fonseca dos Reis, University of Campinas, Brazil)

10/2013–03/2019

CREST, Japan Science and Technology Agency

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

Amount: JPY 53,450,000 (to my group)

Role: CoI (PI: Kenji Yamanishi, University of Tokyo, Japan)

04/2013–02/2014

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

Subject: TempoNet: theoretical foundations of temporal networks

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

Role: CoPI (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

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

Amount: JPY 1,000,000

Role: Sole PI

04/2011–02/2014

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

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

Amount: JPY 10,100,000

Role: Sole PI

11/2008–03/2013

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

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

Amount: JPY 33,930,000

Role: PI (CoI: Jun Ohkubo)

10/2008–03/2012

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

Subject: Modeling of epidemic dynamics on networks with group structure

Amount: JPY 49,332,600

Role: Sole PI

04/2008–03/2011

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

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

Amount: JPY 4,030,000

Role: Sole PI

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

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

Amount: JPY 1,787,269

Role: Sole PI

26/04/2007–26/05/2007

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

Subject: 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)

04/2004–09/2006

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

Subject: 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

Subject: 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

Subject: 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

## Professional Activities

### Referee for Peer-Reviewed Journals

More than 70 journals including *Biology Letters*, *Journal of Neurophysiology*, *Journal of the Royal Society Interface*, *Nature Communications*, *Nature Physics*, *Physical Review Letters*, *Physical Review X*, *PLOS Biology*, *PLOS Computational Biology*, *Proceedings of the Royal Society B*, and *Trends in Neurosciences*. For a full list, see [www.naokimasuda.net/publ.html](http://www.naokimasuda.net/publ.html).

**Editorial Work**

05/2014–present Editorial Board, PLOS ONE  
 01/2014–present Editorial Board, Scientific Reports  
 06/2013–present Review Editor for Frontiers Interdisciplinary Physics

**Referee for Grant Applications**

Engineering and Physical Sciences Research Council (EPSRC), UK  
 National Science Centre, Poland  
 Fund for Scientific Research-FNRS, Belgium  
 Japan Society for the Promotion of Science, Japan  
 National Science Foundation, USA

**Academic Services**

Program Committee Member  
 Seventh International Conference on Complex Networks and Their Applications  
 Cambridge, UK, December 11-13 (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).

Senior Program Committee Member  
 NetSci 2018  
 Paris, France, June 11-15 (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).

Organiser  
 Engineering Applications of Networks Workshop  
 NetSci 2016  
 University of Bristol, Bristol, UK, Nov 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).

Organiser (coorganised with Juyong Park)  
Satellite workshop: Competition networks and centrality  
NetSci 2016  
Seoul, Korea, May 30 (2016).

Organiser (coorganised 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).

Coorganiser  
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

Kopenhagen, 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, Hokkaido, March 8-10 (2008).

Coorganizer

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)

## Membership

17/10/2012–present F1000 Faculty Member

## Teaching

University of Bristol

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)

Optimisation Theory and Applications (for third year undergraduate, EMAT 30670) 10 CPs  
Autumn 2016, Autumn 2017 (50% of teaching)

Mathematical and Data Modelling 2 (for second year undergraduate, EMAT 22220) 20 CPs  
Autumn 2014, Autumn 2015, Autumn 2016, Autumn 2017

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 (25% of teaching)

Role: organisation, supervision, and marking of group projects for a semester with other teaching staff

University of Tokyo

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

Spring 2013 (in English), Spring 2011, and Spring 2009 (in Japanese). 2 credit hours, 1 semester, role: sole unit organiser

03-541530: Topology (3rd year undergrad. Originally in Japanese. Translation by NM): Autumn 2007–2013. 1.5 credit hours, 1 semester, role: sole unit organiser

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

Spring 2007, 2008, 2010, 2011, 2013. 1.5 credit hours (co-taught with another faculty), 1 semester, 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

#### Thesis supervision

01/2018–present	Elohim Fonseca dos Reis, University of Bristol (sole supervision by NM)
09/2016–present	Alfie Wearn, University of Bristol (co-supervision with Elizabeth Coulthard and Risto Kauppinen and I am technically co-first supervisor)
09/2015–present	Simon Godwin, University of Bristol (co-supervision with Lucia Marucci, 50% supervision and I am second supervisor)
09/2015–present	Christelle Van Anterpen, University of Bristol (20% co-supervision; supervised 80% by 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)
09/2014–05/2017	4 MEng students, University of Bristol (one year project)
09/2016–05/2017	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)

#### As host researcher

Dr. Friederike Greb (Georg-August-Universität Göttingen, Germany), June 11–August 21, 2013, hosted at University of Tokyo

Summer Program, Japan Society for the Promotion of Science

Dr. Paul Expert (Imperial College, UK), February 3–March 2, 2012, hosted at University of Tokyo

Postdoctoral Fellowships for Foreign Researchers (short-term), Japan Society for the Promotion of Science

### Honors and Awards

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

International Neural Network Society Young Investigator Award, The International Neural Network Society, August 15, 2007.

**Refereed Journal Papers**

1. Takahiro Ezaki, [Naoki Masuda](#).  
Reinforcement learning account of network reciprocity.  
PLOS ONE, 12, e0189220 (2017).
2. Genki Ichinose, [Naoki Masuda](#).  
Zero-determinant strategies in finitely repeated games.  
Journal of Theoretical Biology, 438, 61–77 (2017).
3. Sadamori Kojaku, [Naoki Masuda](#).  
Finding multiple core-periphery pairs in networks.  
Physical Review E, 96, 052313 (2017).
4. Luis E. C. Rocha, [Naoki Masuda](#), Petter Holme.  
Sampling of temporal networks: Methods and biases.  
Physical Review E, 96, 052302 (2017).
5. Tomokatsu Onaga, James P. Gleeson, [Naoki Masuda](#).  
Concurrency-induced transitions in epidemic dynamics on temporal networks.  
Physical Review Letters, 119, 108301 (2017).
6. [Naoki Masuda](#), Mason A. Porter, Renaud Lambiotte.  
Random walks and diffusion on networks.  
Physics Reports, 716–717, 1–58 (2017).
7. Kohei Tamura, [Naoki Masuda](#).  
Effects of the distant population density on spatial patterns of demographic dynamics.  
Royal Society Open Science, 4, 170391 (2017).
8. Takahiro Ezaki, Takamitsu Watanabe, Masayuki Ohzeki, [Naoki Masuda](#).  
Energy landscape analysis of neuroimaging data.  
Philosophical Transactions of the Royal Society A, 375, 20160287 (2017).
9. [Naoki Masuda](#), Luis E. C. Rocha.  
A Gillespie algorithm for non-Markovian stochastic processes.  
SIAM Review, in press (2018).
10. 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).
11. 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).
12. Teruyoshi Kobayashi, [Naoki Masuda](#).  
Fragmenting networks by targeting collective influencers at a mesoscopic level.  
Scientific Reports, 6, 37778 (2016).
13. Luis E. C. Rocha, [Naoki Masuda](#).  
Individual-based approach to epidemic processes on arbitrary dynamic contact networks.  
Scientific Reports, 6, 31456 (2016).
14. Takahiro Ezaki, Yutaka Horita, Masanori Takezawa, [Naoki Masuda](#).  
Reinforcement learning explains conditional cooperation and its moody cousin.  
PLOS Computational Biology, 12, e1005034 (2016).



15. 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).
16. 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).
17. [Naoki Masuda](#).  
Accelerating coordination in temporal networks by engineering the link order.  
Scientific Reports, 6, 22105 (2016).
18. Yutaka Horita, Masanori Takezawa, Takuji Kinjo, Yo Nakawake, [Naoki Masuda](#).  
Transient nature of cooperation by pay-it-forward reciprocity.  
Scientific Reports, 6, 19471 (2016).
19. Jens Malmros, [Naoki Masuda](#), Tom Britton.  
Random walks on directed networks: Inference and respondent-driven sampling.  
Journal of Official Statistics, 32, 433–459 (2016).
20. Leo Speidel, Taro Takaguchi, [Naoki Masuda](#).  
Community detection in directed acyclic graphs.  
European Physical Journal B, 88, 203 (2015).
21. Kohei Tamura, [Naoki Masuda](#).  
Win-stay lose-shift strategy in formation changes in football.  
EPJ Data Science, 4, 9 (2015).
22. Nigel Franks, Jonathan Stuttard, Carolina Doran, Julian Esposito, Maximillian Master, Ana Sendova-Franks, [Naoki Masuda](#), Nicholas Britton.  
How ants use quorum sensing to estimate the average quality of a fluctuating resource.  
Scientific Reports, 5, 11890 (2015).
23. [Naoki Masuda](#), Thomas A. O'Shea-Wheller, Carolina Doran, Nigel R. Franks.  
Computational model of collective nest selection by ants with heterogeneous acceptance thresholds.  
Royal Society Open Science, 2, 140533 (2015).
24. [Naoki Masuda](#), Feng Fu.  
Evolutionary models of in-group favoritism.  
F1000Prime Reports, 7, 27 (2015).
25. [Naoki Masuda](#).  
Opinion control in complex networks.  
New Journal of Physics, 17, 033031 (2015).
26. Petter Holme, [Naoki Masuda](#).  
The basic reproduction number as a predictor for epidemic outbreaks in temporal networks.  
PLOS ONE, 10, e0120567 (2015).
27. Víctor M. Eguíluz, [Naoki Masuda](#), Juan Fernández-Gracia.  
Bayesian decision making in human collectives with binary choices.  
PLOS ONE, 10, e0121332 (2015).
28. Leo Speidel, Renaud Lambiotte, Kazuyuki Aihara, [Naoki Masuda](#).  
Steady state and mean recurrence time for random walks on stochastic temporal networks.  
Physical Review E, 91, 012806 (2015).

29. Yohei Nakajima, [Naoki Masuda](#).  
Evolutionary dynamics in finite populations with zealots.  
*Journal of Mathematical Biology*, 70, 465–484 (2015).
30. Takamitsu Watanabe, [Naoki Masuda](#), Fukuda Megumi, Ryota Kanai, Geraint Rees.  
Energy landscape and dynamics of brain activity during human bistable perception.  
*Nature Communications*, 5, 4765 (2014).
31. Hiroyuki Shimoji, Masato S. Abe, Kazuki Tsuji, [Naoki Masuda](#).  
Global network structure of dominance hierarchy of ant workers.  
*Journal of the Royal Society Interface*, 11, 20140599 (2014).
32. Ryosuke Nishi, [Naoki Masuda](#).  
Dynamics of social balance under temporal interaction.  
*EPL*, 107, 48003 (2014).
33. Yuni Iwamasa, [Naoki Masuda](#).  
Networks maximizing the consensus time of voter models.  
*Physical Review E*, 90, 012816 (2014).
34. [Naoki Masuda](#).  
Voter model on the two-clique graph.  
*Physical Review E*, 90, 012802 (2014).
35. Takamitsu Watanabe, Shigeyuki Kan, Takahiko Koike, Masaya Misaki, Seiki Konishi, Satoru Miyauchi, Yasushi Miyashita, [Naoki Masuda](#).  
Network-dependent modulation of brain activity during sleep.  
*NeuroImage*, 98, 1–10 (2014).
36. Luis E. C. Rocha, [Naoki Masuda](#).  
Random walk centrality for temporal networks.  
*New Journal of Physics*, 16, 063023 (2014).
37. Takamitsu Watanabe, Masanori Takezawa, Yo Nakawake, Akira Kunimatsu, Hidenori Yamasue, Mitsuhiro Nakamura, Yasushi Miyashita, [Naoki Masuda](#).  
Two distinct neural mechanisms underlying indirect reciprocity.  
*Proceedings of the National Academy of Sciences of the United States of America*, 111, 3990–3995 (2014).
38. [Naoki Masuda](#).  
Evolution via imitation among like-minded individuals.  
*Journal of Theoretical Biology*, 349, 100–108 (2014).
39. Koji Oishi, Manuel Cebrian, Andres Abeliuk, [Naoki Masuda](#).  
Iterated crowdsourcing dilemma game.  
*Scientific Reports*, 4, 4100 (2014).
40. Takamitsu Watanabe, Satoshi Hirose, Hiroyuki Wada, Yoshio Imai, Toru Machida, Ichiro Shirouzu, Seiki Konishi, Yasushi Miyashita, [Naoki Masuda](#).  
Energy landscapes of resting-state brain networks.  
*Frontiers in Neuroinformatics*, 8, 12 (2014).
41. Kodai Saito, [Naoki Masuda](#).  
Two types of well followed users in the followership networks of Twitter.  
*PLOS ONE*, 9, e84265 (2014).
42. Shoma Tanabe, [Naoki Masuda](#).  
Complex dynamics of a nonlinear voter model with contrarian agents.  
*Chaos*, 23, 043136 (2013).

43. [Naoki Masuda](#), Konstantin Klemm, Víctor M. Eguíluz.  
Temporal networks: slowing down diffusion by long lasting interactions.  
*Physical Review Letters*, 111, 188701 (2013).
44. [Naoki Masuda](#).  
Voter models with contrarian agents.  
*Physical Review E*, 88, 052803 (2013).
45. Takehisa Hasegawa, Taro Takaguchi, [Naoki Masuda](#).  
Observability transitions in correlated networks.  
*Physical Review E*, 88, 042809 (2013).
46. Makoto Hiroi, Masamichi Ohkura, Junichi Nakai, [Naoki Masuda](#), Koichi Hashimoto, Kiichi Inoue, André Fiala, Tetsuya Tabata.  
Principal component analysis of odor coding at the level of third order olfactory neurons in *Drosophila*.  
*Genes to Cells*, 18, 1070–1081 (2013).
47. Ryosuke Nishi, [Naoki Masuda](#).  
A collective opinion formation model under Bayesian updating and confirmation bias.  
*Physical Review E*, 87, 062123 (2013).
48. Taro Takaguchi, [Naoki Masuda](#), Petter Holme.  
Bursty communication patterns facilitate spreading in a threshold-based epidemic dynamics.  
*PLOS ONE*, 8, e68629 (2013).
49. [Naoki Masuda](#), Issei Kurahashi, Hiroko Onari.  
Suicide ideation of individuals in online social networks.  
*PLOS ONE*, 8, e62262 (2013).
50. Masayoshi Ito, [Naoki Masuda](#), Kazunori Shinomiya, Keita Endo, Kei Ito.  
Systematic analysis of neural projections reveals clonal composition of the *Drosophila* brain.  
*Current Biology*, 23, 644–655 (2013).
51. [Naoki Masuda](#), Petter Holme.  
Predicting and controlling infectious disease epidemics using temporal networks.  
*F1000Prime Reports*, 5, 6 (2013).
52. Shun-ichi Amari, Hiroyasu Ando, Taro Toyozumi, [Naoki Masuda](#).  
State concentration exponent as a measure of quickness in Kauffman-type networks.  
*Physical Review E*, 87, 022814 (2013).
53. Takamitsu Watanabe, Satoshi Hirose, Hiroyuki Wada, Yoshio Imai, Toru Machida, Ichiro Shirouzu, Seiki Konishi, Yasushi Miyashita, [Naoki Masuda](#).  
A pairwise maximum entropy model accurately describes resting-state human brain networks.  
*Nature Communications*, 4, 1370 (2013).
54. Ryo Fujie, Kazuyuki Aihara, [Naoki Masuda](#).  
A model of competition among more than two languages.  
*Journal of Statistical Physics*, 151, 289–303 (2013).
55. Shoma Tanabe, Hideyuki Suzuki, [Naoki Masuda](#).  
Indirect reciprocity with trinary reputations.  
*Journal of Theoretical Biology*, 317, 338–347 (2013).
56. Mitsuhiro Nakamura, [Naoki Masuda](#).  
Groupwise information sharing promotes ingroup favoritism in indirect reciprocity.  
*BMC Evolutionary Biology*, 12, 213 (2012).

57. Shun Motegi, [Naoki Masuda](#).  
A network-based dynamical ranking system for competitive sports.  
Scientific Reports, 2, 904 (2012).
58. [Naoki Masuda](#).  
Evolution of cooperation driven by zealots.  
Scientific Reports, 2, 646 (2012).
59. Taro Takaguchi, Nobuo Sato, Kazuo Yano, [Naoki Masuda](#).  
Importance of individual events in temporal networks.  
New Journal of Physics, 14, 093003 (2012).
60. [Naoki Masuda](#), Mitsuhiro Nakamura.  
Coevolution of trustful buyers and cooperative sellers in the trust game.  
PLOS ONE, 7(9), e44169 (2012).
61. [Naoki Masuda](#).  
Ingroup favoritism and intergroup cooperation under indirect reciprocity based on group reputation.  
Journal of Theoretical Biology, 311, 8–18 (2012).
62. Taro Ueno, [Naoki Masuda](#), Shoen Kume, Kazuhiko Kume.  
Dopamine modulates the rest period length without perturbation of its power law distribution in *Drosophila melanogaster*.  
PLOS ONE, 7(2), e32007 (2012).
63. Hiroshi Kori, Yoji Kawamura, [Naoki Masuda](#).  
Structure of cell networks critically determines oscillation regularity.  
Journal of Theoretical Biology, 297, 61–72 (2012).
64. Shoma Tanabe, [Naoki Masuda](#).  
Evolution of cooperation facilitated by reinforcement learning with adaptive aspiration levels.  
Journal of Theoretical Biology, 293, 151–160 (2012).
65. [Naoki Masuda](#).  
Clustering in large networks does not promote upstream reciprocity.  
PLOS ONE, 6(10), e25190 (2011).
66. Taro Takaguchi, [Naoki Masuda](#).  
Voter model with non-Poissonian inter-event intervals.  
Physical Review E, 84, 036115 (2011).
67. Takehisa Hasegawa, [Naoki Masuda](#).  
Robustness of networks against propagating attacks under vaccination strategies.  
Journal of Statistical Mechanics, P09014 (2011).
68. Taro Takaguchi, Mitsuhiro Nakamura, Nobuo Sato, Kazuo Yano, [Naoki Masuda](#).  
Predictability of conversation partners.  
Physical Review X, 1, 011008 (2011).
69. Mitsuhiro Nakamura, [Naoki Masuda](#).  
Indirect reciprocity under incomplete observation.  
PLOS Computational Biology, 7(7), e1002113 (2011).
70. C. -K. Yun, [N. Masuda](#), B. Kahng.  
Diversity and critical behavior in prisoner's dilemma game.  
Physical Review E, 83, 057102 (2011).

71. [Naoki Masuda](#), Mitsuhiro Nakamura.  
Numerical analysis of a reinforcement learning model with the dynamic aspiration level in the iterated Prisoner's Dilemma.  
*Journal of Theoretical Biology*, 278, 55–62 (2011).
72. Takehisa Hasegawa, Norio Konno, [Naoki Masuda](#).  
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## Books

1. Naoki Masuda, Petter Holme. (Editors)  
Temporal Network Epidemiology.  
Springer (2017).
2. Naoki Masuda, Renaud Lambiotte.  
A Guide to Temporal Networks.  
World Scientific, Singapore (2016).

## Book Chapters

1. Naoki Masuda, Petter Holme.  
Introduction to temporal network epidemiology.  
In: Temporal Network Epidemiology, Naoki Masuda and Petter Holme (Eds.), Springer, Singapore (2017), pp. 1–16.
2. Leo Speidel, Konstantin Klemm, Víctor M. Eguíluz, Naoki Masuda.  
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In: Temporal Network Epidemiology, Naoki Masuda and Petter Holme (Eds.), Springer, Singapore (2017), pp. 161–177.
3. Naoki Masuda, Taro Takaguchi, Nobuo Sato, Kazuo Yano.  
Self-exciting point process modeling of conversation event sequences.  
In: Temporal Networks, P. Holme and J. Saramäki (Eds.), Springer-Verlag, Berlin (2013), pp. 245–264.

## Conference Presentations

Summary: more than 80 presentations in international conferences including poster presentations. The following is the list of presentations in conferences with the acceptance ratio being less than 50%.

1. Kodai Saito, [Naoki Masuda](#).  
Two types of Twitter users with equally many followers.  
The 2013 IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM 2013).  
Niagara Falls, Canada, August 25-28 (2013). [poster. Acceptance ratio = 36%]
2. [Naoki Masuda](#), Shun-ichi Amari.  
Modeling memory transfer and savings in cerebellar motor learning.  
Neural Information Processing Systems (NIPS) 2005.  
Vancouver, Canada, December 5-10 (2005). [poster. Acceptance ratio = 25%]  
In: Advances in Neural Information Processing Systems (Eds. Y. Weiss, B. Scholkopf, J. Platt), 18, 859-866 (2006).

## Research Talks in Seminars (invited and in English only)

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.  
DOES seminar, Sungkyunkwan University, Korea. August 2012.

## 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.