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## **PERSONAL INFORMATION**

Gender: Male

Date of birth: 25/Nov/1984 (Age: 29)

Nationality: Japanese

Computer languages: C++, java, matlab, R

Mathematical and statistical languages: Mathematica (stability analysis), R (stochastic model and ODE model as well as hypothesis testing and estimation)

## **PRESENT ADDRESS (Working address)**

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## **MAJOR RESEARCH INTERESTS**

--- Quantification of the impact of vertical transmission of obesity on demography

--- Quantification of the transmission potential of obesity based on the empirical data

## **ACADEMIC BACKGROUND**

Apr.2011-March.2014

Ph.D. in Information Science and Technology, Department of Mathematical Informatics, Graduate School of Information Science and Technology, The University of Tokyo, Thesis: "**Mathematical Modeling of Disease Transmission Dynamics with Data Generating Processes**" (supervisor: Professor Kazuyuki Aihara)

Aug.2012-April.2013

Research post graduate exchange student, School of Public Health, The University of Hong Kong (principal supervisor: Dr. Hiroshi Nishiura, co-supervisor: Dr. Benjamin J Cowling)

Apr.2009-March.2011

Master of Information Science and Technology, Department of Mathematical Informatics, Graduate School of Information Science and Technology, The University

of Tokyo, Thesis: "**Modeling and Analysis of Spreads of Infectious Diseases on the Basis of Human Behavior**" (supervisor: Professor Kazuyuki Aihara )

Apr.2004-March.2009

Bachelor of Economics, Department of Business Administration, Faculty of Economics, University of Tokyo

## **WORK EXPERIENCE**

September.2014-present

Post-Doctoral Fellow, The University of Alabama at Birmingham (This fellowship is financially supported by The Uehara Memorial Foundation.)

April.2014-August.2014

Research Assistant, Health and Labor Sciences Research Grants

July.2010-Feb.2011

Technical Assistant, Funding Program for World-Leading Innovative R&D on Science and Technology (FIRST Program)

## **RESEARCH EXPERIENCE**

- a) Individual-based simulation of an influenza epidemic using human mobility data.
- b) Maximum likelihood estimation of the vaccine efficacy and the reproduction number of measles based on structured temporal epidemic data.
- c) Validity and reliability assessment of the real time estimation of the case fatality ratio.
- d) Modeling and analysis of the social contagion model: obesity epidemic.
- e) Mathematical comparison of the symptom-based and contagious-dependent epidemic model.

## **PUBLICATIONS**

- [1] Ejima K, Omori R, Cowling BJ, Aihara K, Nishiura H. The time required to estimate the case fatality ratio of influenza using only the tip of an iceberg: Joint estimation of the virulence and the transmission potential. *Computational and Mathematical Methods in Medicine*. 978901 2012
- [2] Ejima K, Omori R, Aihara K, Nishiura H. Real-time investigation of measles epidemics with estimate of vaccine efficacy. *International Journal of Biological Sciences*. 8:620-9 2012
- [3] Ejima K, Aihara K, Nishiura H. The impact of model building on the transmission dynamics under vaccination: Observable (symptom-based) versus unobservable (contagiousness-dependent) approaches. *PLoS ONE*. 8:4:e62062, 2013
- [4] Ejima K, Aihara K, Nishiura H. Modeling the obesity epidemic: Social contagion

and its implications for control. *Theoretical Biology and Medical Modelling*. 10:17 2013

- [5] Ejima K, Aihara K, Nishiura H. On the use of chance-adjusted agreement statistic to measure the assortative transmission of infectious diseases. *Computational & Applied Mathematics*. 32(2):303-313 2013
- [6] Mizumoto K, Ejima K, Yamamoto T, Nishiura H. Vaccination and clinical severity: Is the effectiveness of contact tracing and case isolation hampered by past vaccination? *International Journal of Environmental Research and Public Health*. 10(3):816-829 2013
- [7] Nishiura H, Mizumoto K, Ejima K, Zhong Y, Cowling BJ, Omori R. Incubation period as part of the case definition of severe respiratory illness caused by a novel corona virus. *Eurosurveillance*. 17:pii=20296 2012
- [8] Nishiura H, Mizumoto K, Ejima K. How to interpret the transmissibility of novel influenza A(H7N9): an analysis of initial epidemiological data of human cases from China. *Theoretical Biology and Medical Modelling*. 10:30 2013
- [9] Ejima K, Aihara K, Nishiura H. Probabilistic differential diagnosis of Middle East respiratory syndrome (MERS) using the time from immigration to illness onset among imported cases. *Journal of Theoretical Biology*. 346:47-53 2014
- [10] Nishiura H, Ejima K, Mizumoto K. Missing information in animal surveillance of MERS-CoV. *Lancet Infectious Diseases*. 14(2):100 2014
- [11] Nishiura H, Ejima K, Mizumoto K, Nakaoka S, Inaba H, Imoto S, Yamaguchi R, Saito MM. Cost-effective length and timing of school closure during an influenza pandemic depend on the severity. *Theoretical Biology and Medical Modelling*. 11(1):5 2014

## **PRESENTATIONS**

- [1] Ejima K, Aihara K. Consideration on HPV vaccine policy. The First International Symposium on Innovative Mathematical Modelling, P-125, Institute of Industrial Science, The University of Tokyo, Tokyo, Japan, 28 February 2011
- [2] Ejima K, Aihara K, Nishiura H. Distinguishing the virulence of novel influenza using limited case data: a case study of the avian influenza A(H7N9). EPIDEMICS4, Amsterdam, Netherland, 19-22 November 2013
- [3] Ejima K. Real-time estimation of the next-generation matrix of the pandemic influenza H1N1-2009. Session 3: Modeling of infectious diseases, The Fourth Conference on Computational and Mathematical Population Dynamics (CMPD4), North University of China, Taiyuan, Shanxi Province, China, 29 May-2 June 2013
- [4] Ejima K, Aihara K, Nishiura H. Modeling the social contagion: The obesity

epidemic and its control. CS23 Epidemiology 6, 2013 Annual Conference & Meeting for the Society for Mathematical Biology, Tempe, Arizona State University, USA, 10-13 June 2013

- [5] Ejima K. Real time investigation of measles epidemics with estimate of vaccine efficacy. IDE seminar, School of Public Health, The University of Hong Kong, Hong Kong, China, 12 March 2012
- [6] Ejima K. Dependent happening in epidemiology: Part II: Application to social contagion of obesity. Special NORC Seminar, Nutrition Obesity Research Center, University of Alabama at Birmingham, Birmingham, The United States, 12 June 2013

### **SERVICE**

Reviewer: PLOS ONE, Journal of Theoretical Biology, Theoretical Biology and Medical Modelling, Nonlinear Theory and Its Application (IEICE)

### **ACTIVE GRANTS**

Japan Society for the Promotion of Science for Young Scientists (DC1), 2011.4-2014.3  
(Yearly direct cost: 700,000 Japanese Yen)

Post-doctoral Fellowship for study abroad, The Uehara memorial Foundation,  
2014.9-2015.8

### **TEACHING EXPERIENCE**

Basic Mathematics, School of Science and Technology, Meiji University (Tokyo),  
2014.4-2014.8