Masaaki Nagahara

Full Professor
Institute of Environmental Science and Technology
The University of Kitakyushu
Fukuoka 808-0135, Japan
Phone: (+81) 93-695-3364
Fax: (+81) 93-695-3301
Email: nagahara@kitakyu-u.ac.jp

Summary

Masaaki Nagahara's research interests are in the broad area of applied mathematics, in particular for automatic control, signal processing, sparse modelling, and artificial intelligence. He is author or co-author of many publications in journals and refereed conference proceedings, including A* or A ranked journals (e.g. IEEE Transactions on Automatic Control and IEEE Transactions on Signal Processing) and conferences (e.g. IEEE CDC) using the ERA 2010 ranking. He holds three international patents on signal processing, and electric power systems.

His research efforts have been supported by 9 research grants from government agencies and private financial groups. Dr. Nagahara has an extensive research network with colleagues in Japan, Australia, India, the United States, and Europe, not only from universities but also from companies such as SANYO Semiconductor and Panasonic Corporation.

Dr. Nagahara received an international award, Transition to Practice Award, from IEEE Control Systems Society in 2012 for the introduction and development of sound-processing technology with SANYO Semiconductor. He also received three research awards in 1999, 2012, 2014, and three service awards in 2014 and 2015. He is a senior member of the IEEE and a member of SIAM and three Japanese research societies.

Acronyms used in this document

IEEE (The Institute of Electrical and Electronics Engineers), **SIAM** (Society for Industrial and Applied Mathematics), **IFAC** (International Federation of Automatic Control), **SICE** (The Society of Instrument and Control Engineers, Japan), **ISCIE** (The Institute of Systems, Control and Information Engineers, Japan), **IEICE** (The Institute of Electronics, Information and Communication Engineers, Japan), **MEXT** (Ministry of Education, Culture, Sports, Science and Technology, Japan), **JSPS** (Japan Society for Promotion of Science, Japan), **ERA**(The Excellence in Research for Australia).

Education and Qualifications

March 2003: **PhD**, *Informatics, Kyoto University, Japan*

Thesis Title: Multirate digital signal processing via sampled-data H^∞ optimization, Advisor: Prof. Yutaka Yamamoto

March 2000: **Master Degree**, *Informatics, Kyoto University, Japan*

Thesis Title: Multirate digital signal processing based on sampled-data H^∞ control theory, Advisor: Prof. Yutaka Yamamoto

March 1998: **Bachelor Degree**, *Engineering, Kobe University, Japan*

Thesis Title: On the computation of value sets, Advisor: Prof. Yuzo Ohta

Positions held

Since April 2016: **Full Professor**, Institute of Environmental Science and Technology, The University of Kitakyushu, Japan. Responsibilities: leader of three research projects, teaching of four undergraduate classes (discrete mathematics, data structure and algorithms, computer programming, first-year seminar), one postgraduate class (advanced image processing).

October 2012–March 2016: **Senior Lecturer**, Graduate School of Informatics, Kyoto University, Japan. Responsibilities: leader of four research projects, teaching of four undergraduate classes (control theory, experiment, and two seminars), two postgraduate classes (advanced control theory and applied mathematics), co-supervision of 10 master course students.

April 2007–October 2012: **Assistant Professor**, Graduate School of Informatics, Kyoto University, Japan. Responsibilities: leader of one research project, teaching of three undergraduate classes (control theory, experiment, and seminar), co-supervision of 7 master course students.

April 2005–August 2012: **Part-time Instructor**, School of Engineering Science, Osaka University, Japan. Responsibilities: teaching of one undergraduate class (numerical computation).

April 2003–March 2007: **Associate Researcher**, Graduate School of Informatics, Kyoto University, Japan. Responsibilities: leader of one research project, teaching of two undergraduate classes (experiment and seminar), co-supervision of 5 master course students.

Short-term Positions

As a visiting researcher, I have visited the following universities: **University of Newcastle** (Australia), **Paderborn University** (Germany), **Aalborg University** (Denmark), **Texas Tech University** (USA), and **Indian Institute of Technology Bombay** (India).

Selected Honours and Awards

Transition to Practice Award in 2012 from the IEEE Control Systems Society for the introduction and development of the sound-processing technology incorporated in a large number of LSI chips by SANYO Semiconductor. This is an international award, which is annually presented to a distinguished contributor to the transition of control and systems theory to practical, industrial, or commercial systems.

Best Tutorial Paper Award in 2014 from the IEICE Communications Society for the quality of a tutorial paper, "A User's Guide to Compressed Sensing for Communications Systems," published in IEICE Transactions on Communications. This award is annually presented to the best-quality tutorial paper published in the journal.

Best Paper Award in 2012 from the SICE for the quality of a research paper , "H^∞ design of periodically nonuniform interpolation and decimation for non-band-limited signals," published in SICE Journal of Control, Measurement, and System Integration. This award is annually presented to high-quality papers published in the journal.

Senior member of IEEE in 2014 presented by the IEEE. Senior member is the highest grade for which IEEE members can apply.

Recent Externally Funded Research Grants

April 2015–March 2017: **Project Leader**, *Control of Multi-agent systems for disaster investigation*, Grant-in-Aid for Exploratory Research, Japan (2 years, JPY3,900,000)

April 2015–March 2019: **Project Leader**, *Sparse Optimal Control Theory for Energy Conservation*, MEXT Grant-in-Aid for Scientific Research (B), Japan (4 years, JPY13,000,000)

April 2014–March 2016: **Project Leader**, *Sparse Modelling for Biomechanics by Sparse Optimal Control Theory*, MEXT Grant-in-Aid for Scientific Research on Innovative Areas, Japan (2 years, JPY4420,000)

March 2014–March 2015: **Project Leader**, *Low-power and Reliable Communications for Radio Control based on Sparse Optimisation*, Okawa Foundation for Information and Telecommunications, Research Grant, Japan (1 year, JPY1000,000)

April 2013–May 2014: **Project Leader**, *Phonetic Analysis and Learning System Design for Utai of Noh Music*, KAWAI Foundation for Sound Technology & Music, Research Grant, Japan (1 year, JPY500,000)

April 2012–March 2015: **Project Leader**, *Efficient Data Transmission in Networked Control by Sparse Signal Representations*, MEXT Grant-in-Aid for Scientific Research (C), Japan (3 years, JPY5590,000)

Professional Activities

- Secretary of IEEE Signal Processing Society (SPS) Kansai Chapter
- Committee Chair of SICE Research Committee on Control and Signal Processing on Networks
- Associate Editor of SICE Journal of Control, Measurement, and System Integration (JCMSI)
- Associate Editor for Conference Editorial Board, IEEE Control Systems Society, IEEE
- Member of
  - Editorial Board of Systems, Control and Information, ISCIE
  - IFAC Technical Committee 2.1 Control Design
  - IEEE Signal Processing Society, Signal Processing Theory and Methods (SPTM) Technical Committee (Affiliate Member)
  - Technical Committees on Reliable Communication and Control (RCC), Reliable Robust Radio Control (RRRC), and Technical Group on Signal Processing (SIP), IEICE
  - Organizing and Program Committees of international conferences (SWARM 2015, CISP'13-BMEI'13, CISP'12, MTNS'10, YYfest'10, CACS IACC'09, MTNS'06)

Collaborators from Outside Japan

Australia: Prof. Dragan Nešić (The University of Melbourne), Prof. Brian D. O. Anderson (Australian National University)

India: Dr. Dabasish Chatterjee (Indian Institute of Technology Bombay), Dr. K. S. Mallikarjuna Rao (Indian Institute of Technology Bombay)

United States: Prof. Pramod P. Khargonekar (University of Florida), Prof. Clyde F. Martin (Texas Tech University), Dr. Jingyong Su (Texas Tech University), Prof. Anuj Srivastava (Florida State University), Prof. Stephen P. Boyd (Stanford University), Dr. Masaki Ogura (University of Pennsylvania)

Europe: Prof. Daniel E. Quevedo (University of Paderborn, Germany), A/Prof. Jan Østergaard (Aalborg University, Denmark), A/Prof. Thomas Arildsen (Aalborg University, Denmark)

Five Selected Publications over the last 5 Years

1. **M. Nagahara** and Y. Yamamoto, Digital repetitive controller design via sampled-data delayed signal reconstruction, *Automatica*, (**A* using the ERA 2010 ranking**), Vol. 65, pp. 203–209, 2016.
2. **M. Nagahara**, D. E. Quevedo, and D. Nesic, Maximum hands-off control: a paradigm of control effort minimization, *IEEE Transactions on Automatic Control* (**A* using the ERA 2010 ranking**), Vol. 61, No. 3, pp. 735–747, 2016.
3. **M. Nagahara**, D. E. Quevedo, and J. Østergaard, Sparse Packetized Predictive Control for Networked Control over Erasure Channels, *IEEE Transactions on Automatic Control* (**A* using the ERA 2010 ranking**), Vol. 59, No. 7, pp. 1899–1905, July 2014.
4. **M. Nagahara** and Y. Yamamoto, H^∞-optimal fractional delay filters, *IEEE Transactions on Signal Processing* (**A* using the ERA 2010 ranking**), Vol. 61, No. 18, pp. 4473–4480, 2013.
5. **M. Nagahara** and Y. Yamamoto, Frequency domain min-max optimization of noise-shaping delta-sigma modulators, *IEEE Transactions on Signal Processing* (**A* using the ERA 2010 ranking**), Vol. 60, No. 6, pp. 2828–2839, 2012.

Languages

Japanese: **Native** English: **Fluent**

Citizenship

Japanese

Last updated: August 25, 2016
`https://nagahara-masaaki.github.io/`