

Inference & Learning Inoue Laboratory

Principles of Informatics Research Division

National Institute of Informatics

The 10th Inoue Lab's Anniversary Symposium

March 18, 2014

Statistics – Past 10 Years

Katsumi Inoue

The 10th Inoue Lab's Anniversary Symposium

March 18, 2014

History 1/2

- 2004 Mar 16: *Katsumi Inoue* arrived at a professor post of “Foundations of Informatics Research Division”, NII (with 3 Master students at Kobe University)
- 2005 Apr 1: *Katsumi Inoue*, professor at Department of Informatics, School of Multidisciplinary Science, The Graduate University for Advanced Studies
- 2006 May: *Andrei Doncescu*, JSPS Researcher (until Feb 2007)
- 2006 Oct: *Yoshitaka Yamamoto* (the 1st PhD student) joined
- 2007 Feb: *Oliver Ray*, JSPS Postdoc (until May 2007)
- 2007 Feb: JST-CNRS Strategic International Cooperative Program (Franco-Japanese), "Knowledge-Based Discovery in Systems Biology" (until Mar 2010)
- 2007 Aug: *Ohori-san* (the 1st secretary) joined
- 2008 Apr: *Taisuke Sato*, Coordinate Professor → Visiting Prof (Apr 2012)
- 2008 Apr: *Takehide Soh* (the 2nd PhD student) joined
- 2009 Feb: *Gabriel Synnaeve* (the 1st NII Internship student) joined
- 2009 Apr: *Gauvain Bourgne*, JSPS postdoc → NII postdoc (Apr 2010)
- 2010 Apr: *Andrei Doncescu*, Visiting Assoc. Prof.
- 2010 Oct: *Lena Wiese*, DAAD postdoc
- 2011 Mar 11: 2011 Earthquake off the Pacific coast of Tōhoku

History 2/2

- 2012 Apr: *Nicolas Schwind*, NII postdoc
- 2012 Apr: TRIC Project “Systems Resilience” started
- 2012 Apr: *Tomoya Tanjo*, TRIC postdoc
- 2012 May: *Hei Chan*, TRIC postdoc
- 2012 Aug: *Tenda Okimoto*, TRIC postdoc
- 2012 Oct: *Tony Ribeiro* (the 3rd PhD student)
- 2014 Mar 18: **10th Anniversary**



Students (1/2)

● SOKENDAI

- *Yoshitaka Yamamoto* (2006.10-2010.09)
- *Takehide Soh* (2008.04-2011.09)
- *Tony Ribeiro* (2012.10-)

● French Master Students

- *Gabriel Synnaeve* (Master of Informatics, ENSIMAG, Université Joseph Fourier, Grenoble, France, 2009.02-2009.06)
- *Tony Ribeiro* (Master of Computer Science, Département Informatique, Université d'Angers, France, 2012.02-2012.08)
- *Alexandre Medi Dippah Lobe* (Master Informatique Optimisation en Recherche Opérationnelle, Faculté des Sciences et Techniques, l'Université de Nantes, France, 2013.03-2013.08)
- *Alexandre Rocca* (Master of Informatics, École Nationale Supérieure d'Informatique et de Mathématiques Appliquées de Grenoble (ENSIMAG), Institut Polytechnique de Grenoble, France, 2013.03-2013.08)
- *Maxime Clément* (Master of Computer Science, Laboratoire d'Informatique de Paris 6 (LIP6), Université Pierre et Marie Curie, France, 2013.04-2013.09)

Students (2/2)

● Kobe University Master Students

- *Eiji Iwauchi* (2004.4-2005.3)
- *Takayuki Okamoto* (2004.4-2005.3)
- *Yoshitaka Yamamoto* (2004.4-2005.3)

● NII Internship Students

- 2009: (2) TIMC-IMAG, Czech Technical University in Prague
- 2010: (7) Czech Technical University in Prague, McGill Univ., UPMC (x 2), Imperial College London (x 2), Université Paul Sabatier, Vienna University of Technology
- 2011: (5) AIT (x 2), Ho Chi Minh City University of Information Technology, Université d'Angers, École Centrale de Nantes
- 2012: (5) Université Pierre et Marie Curie, Indiana University Bloomington, INRIA Saclay, Grenoble INP Ensimag, Université de Nantes
- 2013: (6) Université Pierre et Marie Curie, Indiana University Bloomington, RWTH Aachen University, University of Oxford, University of Southern California, Grenoble INP ESISAR, Université Paul Sabatier

Visitors

Prof. *Luc De Raedt*, Katholieke Universiteit Leuven, Belgium (2014.1); Prof. *Sébastien Konieczny*, CRIL - CNRS, France (2014.1); Prof. *Pierre Marquis*, CRIL - CNRS/Université d'Artois, France (2014.1); Dr. *Gauvain Bourgne*, LIP6, Université Pierre et Marie Curie, France (2013.12-2014.1, 2013.8, 2012.7-8, 2008.7-8); Prof. *Esra Erdem*, Sabanci University, Turkey (2013.11); Prof. *Morgan Magnin*, École Centrale de Nantes, France (2013.9, 2013.3-5, 2013.1); Prof. *Ádamo Lima de Santana*, UFPA - Federal University of Pará, Brazil (2013.6); Prof. *Andrei Doncescu*, LAAS-CNRS, France (2014.2-3, 2013.2-3, 2012.2-3, 2011.11, 2010.3, 2009.3-5); Dr. *Dalal Alrajeh*, Imperial College London, UK (2012.12); Prof. *Torsten Schaub*, Universität Potsdam, Germany (2012.10, 2011.11); Dr. *Nicolas Stefanovitch*, Université Pierre et Marie Curie, France (2012.7-8); Prof. *Chitta Baral*, Arizona State University, USA (2012.5); Prof. *Luis Fariñas del Cerro*, IRIT, France (2011.12); Dr. *Nicolas Schwind*, CRIL, Université d'Artois, France (2012.1, 2011.12); Prof. *Laurent Simon*, LRI, Université Paris-Sud 11, France (2011.11); Dr. *Oliver Ray*, University of Bristol, UK (2011.11, 2009.11-12, 2008.10-11, 2007.9-10); Prof. *Stephen Muggleton*, Imperial College London, UK (2011.11, 2009.2, 2007.2); Prof. *M. Sriram Iyengar*, University of Texas, US (2011.11); Dr. *Patrick Grüneberg*, Technische Universität Berlin, Germany (2011.6); Prof. *Rina Dechter*, University of California, Irvine, USA (2010.3); Dr. *Hiroaki Watanabe*, Imperial College London, UK (2010.2, 2009.2, 2008.2, 2007.2); *Dianhuan Lin*, Imperial College London, UK (2010.1); Prof. *Narendra Jussien*, École des Mines de Nantes, France (2009.12); Prof. *Randy Goebel*, University of Alberta, Canada (2009.9); Prof. *Thomas Eiter*, Technische Universität Wien, Austria (2009.6); Prof. *Alexander Bochman*, Holon Institute of Technology, Israel (2009.6); Prof. *Ross King*, University of Wales, UK (2008.11); Dr. *Ateet Bhalla*, Technical University of Lisbon, Portugal (2008.10-11); Prof. *Tran Cao Son*, New Mexico State University, USA (2008.7); Dr. *Martin Camidana*, University of Luxembourg, Luxembourg (2007.4); Prof. *Gilles Richard*, IRIT, France (2006.11)

Projects & Grants (1/3)

● Kakenhi (Grant-in-Aid for Scientific Research)

■ 2002 - 2004 (B)(2) "*Research on Knowledge Discovery Based on Consequence Finding*" (No.14380164; Principal Investigator)

■ 2005 - 2007 (B) "*Research on Advanced Systems of Efficient Hypothesis Finding*" (No.17300051; Principal Investigator)

■ 2008 – 2011 (A) "*Inference-Based Hypothesis-Finding and its Application to Systems Biology*" (No.20240016; Principal Investigator)

■ 2008 – 2011 (A) "*Research on Efficient and Practical SAT-Based Techniques for Constraint Optimization Problems*" (No.20240003; co-Investigator), Principal Investigator: Prof. Naoyuki Tamura (Kobe Univ.)

■ 2012 – 2014 (B) "*Realization of High-Performance and Flexible Constraint Programming Systems Using Propositional Inference Techniques [CSPSAT2]*" (No.24300007; co-Investigator), Principal Investigator: Prof. Naoyuki Tamura (Kobe Univ.)

Projects & Grants (2/3)

● JST

- 2007—2009 JST-CNRS Strategic International Cooperative Program (Franco-Japanese): "*Knowledge-Based Discovery in Systems Biology*"

● TRIC Projects

- 2011: "*Functional Genetics Systems*"

- 2012—2015: "*Systems Resilience*"

● TRIC Seeds

- 2010 2nd: "*Construction of a New Platform for Knowledge Discovery Based on Inference with Causal Relations in Metabolic Pathways*"

- 2011 2nd: "*Knowledge Discovery on Global Regulation Networks Based on Inference with Causal Relations*"

- 2013 1st: "*Modeling and Solutions of the Cyber Security Problem based on Multi-Objective Distributed Constraint Optimization*"

Projects & Grants (3/3)

● NII Grand Challenges

- 2012: “Feasibility Study on of Dynamic Constraint Networks”
- 2013: “Inference and Learning of Dynamic Constraint Networks”

● NII Collaborative Researches

- 2004: 3 (Kobe Univ. x 2, Osaka Univ.)
- 2005: 5 (Kobe Univ., JAIST, Wakayama Univ., Imperial College, Tokyo Joho)
- 2006: 3 (Yamanashi Univ., Wakayama Univ., Imperial College London)
- 2007: 2 (Yamanashi Univ., Wakayama Univ.)
- 2008: 1 (Kobe Univ.)
- 2009: 1 (Kobe Univ.)
- 2010: 2 (Kobe Univ., Keio Univ.)
- 2011: 2 (Kobe Univ., NII [Bourgne])
- 2012: 3 (Kobe Univ. x 2, Wakayama Univ.)
- 2013: 5 (Kobe Univ. x 2, Univ. Yamanashi, TRIC [Chan], NII [Schwind])

Publications

- Over 160 peer-reviewed papers since 2004

- Journals

 - 8 *Machine Learning Journal* papers

 - AMAI, JIIS, DAM, Logic J. IGPL (x 2), ACM Trans. Comp. Logic, J. Appl. Logic (2), AI Communications, Fundamenta Informaticae, TPLP (x 3)

- International Conferences

 - IJCAI (x 3), AAI, AAMAS (x 4), ECAI (x 3), ICAPS, ICLP (x 2), ILP (x 13), ICSE

 - JELIA (x 2), FQAS (x 2), CLIMA (x 3), LOPSTR, LPAR, LPNMR (x 2), BIOINFORMATICS , ICAART (x 2), CMSB

 - IEA/AIE, INAP (x 2), ISDA, LADS, DALI, ANB, MIWAI (x 2), PRIMA

Awards (1/2)

- Session Best Presentation Award at *SCIS & ISIS 2006* ([Andrei Doncescu](#))
- JSAI Annual Conference Award 2009 ([Takehide Soh](#))
- The SOKENDAI President's Award 2010 ([Takehide Soh](#))
- The Best Student Paper Award at *The 20th International Conference on Inductive Logic Programming (ILP 2010)* ([Yoshitaka Yamamoto](#))
- The Best Student Paper Award at *The 2011 International Conference on Bioinformatics Models, Methods and Algorithms (BIONINFORMATICS 2011)* ([Gabriel Synnaeve](#))
- The 1st Prize in UNSAT and 2nd Prizes in SAT+UNSAT and UNSAT WC Time at *SAT 2011 Competition* (SAT Solver glueminisat by [Hidetomo Nabeshima](#))
- Takahasi Award at *The 28th Conference of Japan Society for Software Science and Technology 2011* ([Hidetomo Nabeshima](#))
- IEEE Computer Society Japan Chapter JAWS Young Researcher Award 2012 ([Tenda Okimoto](#))

Awards (2/2)

- The 3rd Prize of Best Challenges and Visions Papers at *The 12th International Conference on Autonomous Agents and Multi-Agent Systems* (AAMAS 2013) ([Nicolas Schwind](#), [Tenda Okimoto](#), [Katsumi Inoue](#), [Hei Chan](#), [Tony Ribeiro](#))
- The 2nd prize at *SAT Competition 2013* (Application, Certified UNSAT) (SAT Solver glueminisat developed by [Hidetomo Nabeshima](#))
- The 2013 NII Best Student Award ([Tony Ribeiro](#))
- Excellent Paper Award at *Joint Agent Workshops and Symposia 2013* (JAWS 2013) ([Alexandre Medi](#), [Tenda Okimoto](#), [Katsumi Inoue](#))
- *The 7th International Workshop on Multi-Disciplinary Trends in Artificial Intelligence* (MIWAI 2013), Best Presentation Award ([Tenda Okimoto](#))

Organized International Workshops

- *The 7th International Workshop on Computational Logic in Multi-Agent Systems (CLIMA-VII), Hakodate, Japan (May 2006)*
- *International Symposium on Symbolic Systems Biology (ISSSB 2011), Shonan, Hayama, Japan (October 2011)*
- *ECML/PKDD 2012 Workshop on Learning and Discovery in Symbolic Systems Biology (LDSSB 2012), Bristol, UK (September 2012)*
- *1st International Workshop on Learning and Nonmonotonic Reasoning (LNMR 2013), Corunna, Spain (2September 2013)*

(Inter)national Collaborations

- *Franco-Japanese Symposium on Knowledge Discovery in Systems Biology*
 - 2007 (Aix-en-Provence), 2008 (Takayama), 2009 (Bastia)
- *KUBIC-NII Joint Seminar on Bioinformatics* with Bioinformatics Center, Kyoto University (2009, 2010, 2011, 2012, 2013)
- *(JFLI-)LRI-NII Meeting on Consequence Finding and Satisfiability Testing in Distributed Environments and Systems Biology* (2009, 2010, 2011, 2012, 2013)
- *(JFLI-)LIP6-NII Meeting on Efficient Methods for Reasoning and Problem Solving* (2009, 2011, 2012, 2013)
- *CRIL-NII Collaborative Meeting on Reasoning about Dynamic Constraint Networks*, CRIL, Lens, France (2012)
- Visit to University of Melbourne (February 2013)
- Visit to University of Freiburg (February 2014)

Research Details

- Will be presented by former and current members.
 - Hypothesis Finding (Yoshitaka Yamamoto)
 - Systems Biology (Andrei Doncescu)
 - CSPSAT (Takehide Soh)
 - Systems Resilience (Hei Chan)
 - DCOP (Tenda Okimoto)
 - Knowledge Representation (Nicolas Schwind)

Hanami

- Since 2007, we have been enjoying Sakura at Chidoriga-fuchi except 2011.

