Welcome

The LICS Symposium is an annual international forum on theoretical and practical topics in computer science that relate to logic, broadly construed. LICS 2016 will be hosted at Columbia University in New York City during July 5–8 2016, with affiliated workshops July 9–10.

On the following pages please find the program of the conference along with a list of the workshops. Moreover, a map of the campus and food options near the campus are given.

The symposium is sponsored by ACM SIGLOG and the IEEE Technical Committee on Mathematical Foundations of Computing, in cooperation with the Association for Symbolic Logic and the European Association for Theoretical Computer Science.
Tuesday, July 5th

08:45–08:55  12 – Welcome Session (Room SCH501)

08:30–09:00  Coffee (Room SCH501)

09:00–10:40  1A – Probabilistic Models of Computation (Room SCH501)

09:00  Stochastic mechanics of graph rewriting
   Nicolas Behr, Vincent Danos and Ilias Garnier

09:25  On the Satisfiability of Some Simple Probabilistic Logics
   Souymodip Chakraborty and Joost-Pieter Katoen

09:50  Distinguishing Hidden Markov Chains
   Stefan Kiefer and A. Prasad Sistla

10:15  Quantitative Automata under Probabilistic Semantics
   Krishnendu Chatterjee, Thomas Henzinger and Jan Otop

09:00–10:40  1B – Decidability (Room NWC501)

09:00  Deciding First-Order Satisfiability when Universal and Existential Variables are Separated
   Marco Voigt, Christoph Weidenbach and Thomas Sturm

09:25  The diagonal problem for higher-order recursive schemes is decidable
   Lorenzo Clemente, Paweł Parys, Sylvain Salvati and Igor Walukiewicz

09:50  Two-variable logic with a between relation
   Andreas Krebs, Kamal Lodaya, Paritosh Pandya and Howard Straubing

10:15  Decidability and Complexity for Quiescent Consistency
   Brijesh Dongol and Rob Hierons

10:40–11:10  Coffee (Room SCH501)
11:10–12:10 2 – Invited Talk: Pedro Domingoes
(Room SCH501)
11:10 Unifying Logical and Statistical AI
Pedro Domingoes

12:10–13:40 Lunch Break

13:40–15:20 3A – Proof Theory
(Room SCH501)
13:40 From positive and intuitionistic bounded arithmetic to proof complexity
Anupam Das
14:05 Goedel’s functional interpretation and the concept of learning
Thomas Powell
14:30 Understanding Gentzen and Frege Systems for QBF
Olaf Beyersdorff and Jan Pich
14:55 Unified Semantics and Proof System for Classical, Intuitionistic and
Affine Logics
Chuck Liang

13:40–15:20 3B – Model Checking
(Room NWC501)
13:40 Data Communicating Processes with Unreliable Channels
Parosh Aziz Abdulla, C. Aiswarya and Mohamed Faouzi Atig
14:05 A New Perspective on FO Model Checking of Dense Graph Classes
Jakub Gajarský, Petr Hlineny, Daniel Lokshtanov, Jan Obdrzalek
and M. S. Ramanujan
14:30 Proving Liveness of Parameterized Programs
Azadeh Farzan, Zachary Kincaid and Andreas Podelski
14:55 Model and Objective Separation with Conditional Lower Bounds:
Disjunction is Harder than Conjunction
Krishnendu Chatterjee, Wolfgang Dvořák, Monika Henzinger
and Veronika Loitzenbauer

15:20–15:50 Coffee (Room SCH501)
15:50–17:05  4A – Automata Theory
(Room SCH501)
15:50 Complexity of regular abstractions of one-counter languages
   Mohamed Faouzi Atig, Dmitry Chistikov, Piotr Hofman,
   K. Narayan Kumar, Prakash Saivasan and Georg Zetzsche
16:15 Two-Way Visibly Pushdown Automata and Transducers
   Luc Dartois, Emmanuel Filiot, Pierre-Alain Reynier and
   Jean-Marc Talbot
16:40 Automata on Infinite Trees with Equality and Disequality Constraints
   Between Siblings
   Arnaud Carayol, Christof Löding and Olivier Serre

15:50–17:05  4B – Games and Logic
(Room NWC501)
15:50 Plays as Resource Terms via Non-idempotent Intersection Types
   Takeshi Tsukada and Luke Ong
16:15 Perfect-information Stochastic Games with Generalized Mean-Payoff
   Objectives
   Krishnendu Chatterjee and Laurent Doyen
16:40 Games with bound guess actions
   Thomas Colcombet and Stefan Göller
17:15 History of LICS (Room SCH501)
18:00 Reception (Faculty House)

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Wednesday, July 6th

08:30–09:00  Coffee (Room SCH501)
09:00–10:40  5A – Model Theory
(Room SCH501)
09:00 Near-Optimal Lower Bounds on Quantifier Depth and Weisfeiler-Leman Refinement Steps
Christoph Berkholz and Jakob Nordström
09:25 Hanf normal form for first-order logic with unary counting quantifiers
Lucas Heimberg, Dietrich Kuske and Nicole Schweikardt
09:50 Upper Bounds on the Quantifier Depth For Graph Differentiation in First Order Logic
Sandra Kiefer and Pascal Schweitzer
10:15 Querying Visible and Invisible Information
Michael Benedikt, Pierre Bourhis, Gabriele Puppis and Balder Ten Cate

09:00–10:40  5B – Induction/Coinduction
(Room NWC501)
09:00 Coinduction All the Way Up
Damien Pous
09:25 Denotational semantics of recursive types in synthetic guarded domain theory
Rasmus Ejlers Møgelberg and Marco Paviotti
09:50 Type Theory based on Dependent Inductive and Coinductive Types
Henning Basold and Herman Geuvers
10:15 Program Equivalence is Coinductive
Dirk Pattinson and Lutz Schröder

10:40–11:10  Coffee (Room SCH501)

11:10–12:10  6 – Invited Tutorial: Mai Gehrke
(Room SCH501)
11:10 Duality in Computer Science
Mai Gehrke

12:10–13:40  Lunch Break
13:40–15:20  7A – Semantics
(Room COSTAENG)

13:40  Fixed Points in Quantitative Semantics
      James Laird

14:05  Ability to Count Messages Is Worth $\Theta(\Delta)$ Rounds in Distributed Computing
      Tuomo Lempiäinen

14:30  The Definitional Side of the Forcing
      Guilhem Jaber, Gabriel Lewertowski, Pierre-Marie Pédrot, Matthieu Sozeau and Nicolas Tabareau

14:55  Towards Completeness via Proof Search in the Linear Time Mu-calculus
      Amina Doumane, David Baelde, Lucca Hirschi and Alexis Saurin

13:40–15:20  7B – Monadic Second-Order Logic
(Room NWC501)

13:40  First-order definability of rational transductions: An algebraic approach
      Emmanuel Filiot, Olivier Gauwin and Nathan Lhote

14:05  Order Invariance on Decomposable Structures
      Michael Elberfeld, Marlin Frickenschmidt and Martin Grohe

14:30  Definability equals recognizability for graphs of bounded treewidth
      Mikołaj Bojańczyk and Michał Pilipczuk

14:55  Monadic second order logic as the model companion of temporal logic
      Silvio Ghilardi and Samuel J. van Gool

15:20–15:50  Coffee (Room SCH501)

15:50–17:05  8A – Linear Logic
(Room COSTAENG)

15:50  Interaction Graphs: Full Linear Logic
      Thomas Seiller

16:15  Conflict nets: locally canonical P-time proof nets for MALL
      Dominic Hughes and Willem Heijltjes

16:40  Infinitary Lambda Calculi from a Linear Perspective
      Ugo Dal Lago
15:50–17:05  8B – Reachability
(Room NWC501)

15:50 First-order logic with reachability for infinite-state systems
Emanuele D’Osualdo, Roland Meyer and Georg Zetzsche

16:15 The Complexity of Coverability in v-Petri Nets
Ranko Lazic and Sylvain Schmitz

16:40 Reachability in Two-Dimensional Unary Vector Addition Systems with
States is NL-Complete
Matthias Englert, Ranko Lazic and Patrick Totzke

Thursday, July 7th

08:30–09:00  Coffee (Room SCH501)

09:00–10:40  9A – Hybrid Systems
(Room SCH501)

09:00 Comparing Chemical Reaction Networks: A Categorical and
Algorithmic Perspective
Luca Cardelli, Mirco Tribastone, Max Tschaikowski and Andrea
Vandin

09:25 A categorical approach to open and interconnected dynamical systems
Brendan Fong, Paolo Rapisarda and Pawel Sobocinski

09:50 Differential Refinement Logic
Sarah Loos and André Platzer

10:15 On Recurrent Reachability for Continuous Linear Dynamical Systems
Ventsislav Chonev, Joel Ouaknine and James Worrell

09:00–10:40  9B – Category Theory
(Room NWC501)

09:00 Semantics for probabilistic programming: higher-order functions,
continuous distributions, and soft constraints
Sam Staton, Hongseok Yang, Chris Heunen, Ohad Kammar and
Frank Wood
09:25 Interacting Frobenius Algebras are Hopf.  
Ross Duncan and Kevin Dunne

09:50 Semi-galois Categories I: The Classical Eilenberg Variety Theory  
Takeo Uramoto

10:15 A bifibrational reconstruction of Lawvere’s presheaf hyperdoctrine  
Paul-André Melliès and Noam Zeilberger

10:40–11:10 Coffee (Room SCH501)

11:10–12:10 10 – Invited Talk: Maurice Herlihy  
(Room SCH501)

11:10 Blockchains and the Logic of Accountability  
Maurice Herlihy

12:10–13:40 Lunch Break

13:40–15:45 11A – Type Theory  
(Room SCH501)

13:40 A Mechanization of the Blakers-Massey Connectivity Theorem in Homotopy Type Theory  
Kuen-Bang Hou, Eric Finster, Daniel R. Licata and Peter Lumsdaine

14:05 Hybrid realizability for intuitionistic and classical choice  
Valentin Blot

14:30 Trace semantics for polymorphic references  
Guilhem Jaber and Nikos Tzevelekos

14:55 Constructions with Non-Recursive Higher Inductive Types  
Nicolai Kraus

15:20 A constructive function-theoretic approach to topological compactness  
Iosif Petrakis

13:40–15:45 11B – Constraint Solving  
(Room NWC501)

13:40 The algebraic dichotomy conjecture for infinite domain Constraint Satisfaction Problems  
Libor Barto and Michael Pinsker
14:05 *Reducts of finitely bounded homogeneous structures, and lifting tractability from finite-domain constraint satisfaction*
Manuel Bodirsky and Antoine Mottet

14:30 *Weak consistency notions for all the CSPs of bounded width*
Marcin Kozik

14:55 *Graphs of relational structures: restricted colours*
Andrei Bulatov

15:20 *The Power of Arc Consistency for CSPs Defined by Partially-Ordered Forbidden Patterns*
Martin C. Cooper and Stanislav Živný

15:20–15:50 **Coffee (Room SCH501)**

15:50–17:15 **12 – Awards Session (Room SCH501)**

17:15–18:00 **Break**

18:00 **LICS Business Meeting (Room SCH501)**

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Friday, July 8th

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08:30–09:00 **Coffee (Room SCH501)**

09:00–10:40 **13A – Probabilistic Models of Computation (Room SCH501)**

09:00 *Reasoning about Recursive Probabilistic Programs*
Federico Olmedo, Benjamin Lucien Kaminski, Joost-Pieter Katoen and Christoph Matheja

09:25 *Healthiness from Duality*
Wataru Hino, Hiroki Kobayashi, Ichiro Hasuo and Bart Jacobs

09:50 *Kolmogorov Extension, Martingale Convergence, and Compositionality of Processes*
Dexter Kozen

10:15 *Quantitative Algebraic Reasoning*
Radu Mardare, Prakash Panangaden and Gordon Plotkin
09:00–10:40 13B – Algebraic Methods
(Room NWC501)

09:00 Rewriting modulo symmetric monoidal structure
Filippo Bonchi, Fabio Gadducci, Aleks Kissinger, Pawel Sobocinski and Fabio Zanasi
09:25 Effective Brenier’s Theorem: Applications to Computable Analysis and Algorithmic Randomness
Alex Galicki
09:50 Quantifier Free Definability on Infinite Algebras
Bakh Khoussainov
10:15 Factor Varieties and Symbolic Computation
Antonino Salibra, Giulio Manzoni and Giordano Favro

10:40–11:10 Coffee (Room SCH501)

11:10–12:10 14 – Invited Tutorial: Joost Pieter-Katoen
(Room SCH501)

11:10 The Probabilistic Model Checking Landscape
Joost Pieter-Katoen

12:10–13:40 Lunch Break

13:40–15:20 15A – Logics of Programs
(Room COSTAENG)

13:40 Proving Differential Privacy via Probabilistic Couplings
Gilles Barthe, Marco Gaboardi, Benjamin Grégoire, Justin Hsu and Pierre-Yves Strub
14:05 On Thin Air Reads: Towards an Event Structures Model of Relaxed Memory
Alan Jeffrey and James Riely
14:30 Towards Compositional Feedback in Non-Deterministic and Non-Input-Receptive Systems
Viorel Preoteasa and Stavros Tripakis
14:55 Divide and Congruence II: Delay and Weak Bisimilarity
Wan Fokkink and Rob Van Glabbeek
13:40–15:20  15B – Decidability  
(Room NWC501)

13:40  How unprovable is Rabin’s decidability theorem?  
Leszek Aleksander Kołodziejczyk and Henryk Michalewski

14:05  Solvability of Matrix-Exponential Equations  
Joel Ouaknine, Amaury Pouly, Joao Sousa-Pinto and James Worrell

14:30  Order-Invariance of Two-Variable Logic is Decidable  
Thomas Zeume and Frederik Harwath

14:55  A step up in expressiveness of decidable fixpoint logics  
Michael Benedikt, Pierre Bourhis and Michael Vanden Boom

15:20–15:50  Coffee (Room NWC501)

15:50–17:05  16A – Complexity  
(Room COSTAENG)

15:50  Church Meets Cook and Levin  
Damiano Mazza

16:15  Complexity Theory of (Functions on) Compact Metric Spaces  
Akitoshi Kawamura, Florian Steinberg and Martin Ziegler

16:40  Semantically Acyclic Conjunctive Queries under Functional Dependencies  
Diego Figueira

15:50–17:05  16B – Automata Theory  
(Room NWC501)

15:50  A Generalised Twinning Property for Minimisation of Cost Register Automata  
Laure Daviaud, Pierre-Alain Reynier and Jean-Marc Talbot

16:15  Invisible Pushdown Languages  
Eryk Kopczynski

16:40  Minimization of Symbolic Tree Automata  
Loris D’Antoni and Margus Veanes
Schedule of Workshops

Details about the workshops, their sessions, and rooms are given. All of them take place in the Mudd Building. For the programs of the workshops, please see the corresponding webpages.

Saturday, July 9th

08:30–09:00   Coffee (Room MUDD644)
09:00–12:10   LSB – Workshop on Logic and Systems Biology  
              (Room MUDD627)  Web: http://perso.ens-lyon.fr/russell.harmer/lsb6.html
09:00–12:10   LMW – Logic Mentoring Workshop  
              (Room MUDD633)  Web: http://lics.rwth-aachen.de/lics16/lmw.html

12:10–13:40   Lunch Break

13:40–17:15   LSB – Workshop on Logic and Systems Biology  
              (Room MUDD627)
13:40–17:15   LMW – Logic Mentoring Workshop  
              (Room MUDD633)
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<td>09:00–12:10</td>
<td>NLCS – <em>Workshop on Natural Language and Computer Science</em></td>
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<td><a href="http://www.indiana.edu/~iulg/nlcs.html">http://www.indiana.edu/~iulg/nlcs.html</a></td>
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<td>09:00–12:10</td>
<td>SR – <em>International Workshop on Strategic Reasoning</em></td>
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<td><a href="http://www.strategicreasoning.net/">http://www.strategicreasoning.net/</a></td>
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<td>09:00–12:10</td>
<td>LOLA – <em>Syntax and Semantics of Low-Level Languages</em></td>
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<td><a href="http://lola.cse.buffalo.edu/">http://lola.cse.buffalo.edu/</a></td>
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<td>12:10–13:40</td>
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Lunch options

Please note that we have not been to all the restaurants and grocery stores listed below. We only listed those that are located in Morningside Heights and have a 4 Yelp star rating and more than 50 reviews.

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<th>Name</th>
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<td>960 Amsterdam Ave</td>
<td>Thai with lunch specials</td>
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<td>Flat Top</td>
<td>1241 Amsterdam Ave</td>
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