

# Sophia KNIGHT

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EDUCATION	<b>Ecole Polytechnique</b> <i>Ph.D. in Computer Science</i>	Palaiseau, France September 2013
	<b>McGill University</b> <i>M.Sc. in Computer Science</i>	Montréal, Québec October 2009
	<b>McGill University</b> <i>B.A. in Computer Science and Philosophy with a Minor in Mathematics</i>	Montréal, Québec October 2006
HONOURS & AWARDS	<b>Prix de Thèse de l'École Polytechnique</b> (Thesis Prize), for thesis "The Epistemic View of Concurrency Theory," 2014.	
PUBLICATIONS	S. Knight, B. Maubert and F. Schwarzentruher. <i>Reasoning about Knowledge and Messages in Asynchronous Multi-agent Systems</i> . Mathematical Structures in Computer Science, pp. 1-42, November 2017. <a href="http://doi.org/10.1017/S0960129517000214">http://doi.org/10.1017/S0960129517000214</a>	
	H. van Ditmarsch, S. Knight and A. Özgün. <i>Private Announcements on Topological Spaces</i> . Studia Logica, Springer, pp. 1-33, 2017. <a href="https://doi.org/10.1007/s11225-017-9750-z">https://doi.org/10.1007/s11225-017-9750-z</a> .	
	H. van Ditmarsch, S. Knight and A. Özgün. <i>Announcement as Effort on Topological Spaces</i> . Synthese, Springer, pp. 1-43, 2017. <a href="https://doi.org/10.1007/s11229-017-1592-8">https://doi.org/10.1007/s11229-017-1592-8</a>	
	S. Knight, B. Maubert and F. Schwarzentruher. <i>Asynchronous Announcements in a Public Channel</i> . ICTAC 2015, Springer, LNCS 9399, pp. 272-289, 2015.	
	S. Knight and B. Maubert. <i>Dealing with Imperfect Information in Strategy Logic</i> . Proceedings of the 3rd International Workshop on Strategic Reasoning 2015.	
	H. van Ditmarsch, S. Knight and A. Özgün. <i>Announcement as Effort on Topological Spaces</i> . TARK 2015, EPTCS 215, pp. 283-297, 2015.	
	H. van Ditmarsch, S. Knight and A. Özgün. <i>Arbitrary Announcements on Topological Subset Spaces</i> . Proceedings of EUMAS '14, Springer, LNCS 8953, pp. 252-266, 2014.	
	H. van Ditmarsch and S. Knight. <i>Partial Information and Uniform Strategies</i> . Proceedings of CLIMA '14, Springer, LNCS 8624, pp. 183-194, 2014.	
	N. Ferns, D. Precup and S. Knight. <i>Bisimulation for Markov Decision Processes through Families of Functional Expressions</i> . Horizons of the Mind. A Tribute to Prakash Panangaden, Springer, LNCS 8464, pp. 319-342, 2014.	
	S. Knight, C. Palamidessi, P. Panangaden and F. Valencia. <i>Spatial and Epistemic Modalities in Constraint-Based Process Calculi</i> . Proceedings of CONCUR '12, Springer, LNCS 7454, pp. 317-332, 2012.	

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K. Chatzikokolakis, S. Knight, C. Palamidessi and P. Panangaden. *Epistemic Strategies and Games on Concurrent Processes*. ACM Transactions on Computational Logic, 13(4): 28:1-28:35, 2012.

S. Knight, R. Mardare and P. Panangaden. *Combining Epistemic Logic and Hennessy-Milner Logic*, in Dexter Kozen's Festschrift published as Logic and Program Semantics, Springer, LNCS 7230, eds. Robert Constable and Alexandra Silva, pp. 219-243, 2012.

K. Chatzikokolakis, S. Knight and P. Panangaden. *Epistemic Strategies and Games on Concurrent Processes*. Proceedings of SOFSEM '09, Springer, LNCS 5404, pp. 153-166, 2009.

## WORK EXPERIENCE

**Postdoctoral Researcher** March 2016-*present*  
**Uppsala University**, Uppsala, Sweden

- Establishing an axiomatization and completeness proof for an infinitary modal logic, particularly in the setting of nominal transition systems
- Developing epistemic extensions of the Psi-calculus
- Teaching assistant for Artificial intelligence course, working with students in labs and homework sessions, lecturing and grading
- Chair for ICE workshop 2016- 2018, PC member, subreviewer for other conferences
- Co-supervising PhD student Michell Guzmàn on topic "Distributed Knowledge in Spatial Constraint Systems," with Professor Frank Valencia at École Polytechnique, Palaiseau, France
- Parental leave: June 2017-present

**Postdoctoral Researcher** September 2013-January 2016  
**Université de Lorraine**, Nancy, France  
**CNRS**

- Developed logics for epistemic and strategic reasoning in multi-agent systems
- Informal supervisor for PhD student Aybüke Özgün on topic "Topological Semantics for Dynamic Epistemic Logics"
- Created an epistemic logic for asynchronous communication in concurrent systems
- Formulated an epistemic strategy logic
- Vice chair for ICE workshop, PC member and subreviewer for other conferences
- Parental leave: December 2014-April 2015

**Ph.D. Student** September 2010-September 2013  
**Ecole Polytechnique**, Palaiseau, France  
**LIX, INRIA**

- Developed a process calculus with spatial and epistemic modalities for reasoning about information flow in multi-agent distributed systems
- Supervised a masters student on an implementation of this process calculus
- Co-supervision of Masters student Andrés Felipe Barco Santa on topic "A Spatial and Epistemic Concurrent Constraint Interpreter"
- Worked on a complete axiomatization for a temporal epistemic logic
- Reviewed conference papers
- Funded by three year INRIA PhD grant

**Research Assistant** May 2006 - September 2010  
**McGill University**, Montréal, Québec  
**School of Computer Science**

- Developed a game semantics to understand and analyse the flow of information between interacting agents in security protocols
- Designed a temporal, epistemic logic to reason about the effects of actions on knowledge in multiagent settings
- Gave presentations on my work and wrote papers intended for publication

## **Teaching Assistant**

September 2006 - April 2009

**McGill University**, Montréal, Québec

- Courses: Theoretical Aspects of Computer Science, Intermediate Logic, History and Philosophy of Computing
- Prepared and delivered lectures during course instructor's absence
- Guided students during regular office hours and in writing
- Coordinated activities with professor and with other teaching assistants
- Graded students' work, prepared solutions, and provided feedback to students

## **Undergraduate Teaching Assistant**

September 2003 - April 2006

**McGill University**, Montréal, Québec

- Courses: Mathematical Logic, History and Philosophy of Mathematics, Discrete Mathematics
- Graded students' work, prepared solutions, and met with course professor regularly

## STUDENT SUPERVISION

April 2016-September 2017: Cosupervisor for PhD student Michell Guzmán on topic "Distributed Knowledge in Spatial Constraint Systems," with Professor Frank Valencia at École Polytechnique, Palaiseau, France

January 2014 - December 2015: Cosupervisor for PhD student Aybüke Özgün on topic "Topological Semantics for Dynamic Epistemic Logics" with Professor Hans van Ditmarsch at Université de Lorraine, Nancy, France

Spring 2012: Cosupervisor for Masters student Andrés Felipe Barco Santa on topic "A Spatial and Epistemic Concurrent Constraint Interpreter" with Professor Frank Valencia at École Polytechnique, Palaiseau, France

## SERVICE

Co-chair, 11th Interaction and Concurrency Experience (ICE), 2018.

Program committee member, 25th Workshop on Logic, Language, Information and Computation (WOLLIC), 2018.

Program committee member, Student Session, European Summer School in Logic, Language and Information, Logic and Computation track (ESSLLI StuS LoCo), 2018.

Editor, I. Lanese, A. Lluch-Lafuente, S. Knight, H. Torres Vieira: Special issue on Interaction and Concurrency Experience 2015. JLAMP. 86(1): 1 (2017).

Editor, M. Bartoletti, L. Bocchi, L. Henrio, S. Knight: Proceedings 10th Interaction and Concurrency Experience, ICE 2017, Neuchâtel, Switzerland, 21-22 June 2017. EPTCS 261, 2017.

Co-chair, 10th Interaction and Concurrency Experience (ICE), 2017.

Program committee member, Formal Techniques for Distributed Objects, Components and Systems (FORTE) 2017.

Program committee member, Student Session, European Summer School in Logic, Language and Information, Logic and Computation track (ESLLI StuS LoCo), 2017.

Editor, M. Bartoletti, L. Henrio, S. Knight, H. Torres Vieira: Proceedings 9th Interaction and Concurrency Experience, ICE 2016, Heraklion, Greece, 8-9 June 2016. EPTCS 223, 2016.

Co-chair, 9th Interaction and Concurrency Experience (ICE), 2016.

Program committee member, Student Session, European Summer School in Logic, Language and Information, Logic and Computation track (ESLLI StuS LoCo), 2016.

Editor, S. Knight, I. Lanese, A. Lluch-Lafuente, H. Torres Vieira: Proceedings 8th Interaction and Concurrency Experience, ICE 2015, Grenoble, France, 4-5th June 2015. EPTCS 189, 2015.

Co-chair, 8th Interaction and Concurrency Experience (ICE), 2015.

Program committee member, Young Researchers Workshop on Concurrency Theory (YR-CONCUR), 2015.

Program committee member, Student Session, European Summer School in Logic, Language and Information, Logic and Computation track (ESLLI StuS LoCo), 2014.

Program committee member, 7th Interaction and Concurrency Experience (ICE), 2014.

Reviewer for Journal of Applied Non-Classical Logics, CONCUR 2017, SR 2017, TARK 2017, CONCUR 2016, AAMAS 2016, ISMVL 2016, ESLLI student session 2016, IC-TAC 2015, JLAMP special issue for ICE 2014, CLIMA 2014 special issue, AAI 2014, AiML 2014, CSL-LICS 2014, FSTTCS 2014, KR 2014, CONCUR 2013, CONCUR 2012, MSCS special issue for EXPRESS 2011, Studia Logica, and CONCUR 2010.

## GRANTS

Workshop grant from Microsoft Research-INRIA Joint Centre to support 8th Interaction and Concurrency Experience workshop, June 2015, €1000.

Aide à la mobilité grant for the project “Common knowledge in systems of multiple computing agents,” July-August 2013, €1100.

Aide à la mobilité grant for the project “A formalism for reasoning about knowledge in systems of multiple computing agents,” November 2011, €1200.

## TRAINING

**Academic Teacher Training Course**, full time five week pedagogics course, Uppsala University, Jan.-Feb. 2017.

**VR Grant Workshop**, one day workshop on applying for grants from the Swedish Research Council, Uppsala University, March 2017.

**Marie Curie Grant Seminar**, half day workshop on Marie Curie grants from the EU, Uppsala University, August 2017.

**Uppsala University Grants Day**, one day workshop about different scientific grants and principles for successful grant applications, Uppsala University, November 2017.

**French courses, Ecole Polytechnique**, individual tutoring, two hours per week, Ecole Polytechnique, Palaiseau, France, January 2011 through December 2012.

**Cours de français niveau B2, Immigration Québec**, French courses, 15 hours per week, January through June 2010.

## PRESENTATIONS

*Modal Logics for Artificial Intelligence: Logics of Knowledge and Strategic Behavior.* Guest lecture for Artificial Intelligence course, Uppsala University, Uppsala, Sweden, October 2017.

*Knowledge and Distributed Knowledge in a Constraint-based Process Calculus.* Seminar for Theory Group, Queen Mary University, London, United Kingdom, April 2017.

*Epistemic Strategy Logic.* Invited talk, Workshop on Formal Methods in Artificial Intelligence, University of Naples Federico II, Naples, Italy, February 2017.

*Modal Logics for Artificial Intelligence: Logics of Knowledge and Strategic Behavior.* Guest lecture for Artificial Intelligence course, Uppsala University, Uppsala, Sweden, October 2016.

*Partial Information and Uniform Strategies: Developing an Epistemic Logic of Strategic Abilities.* Seminar for Concurrency Group, Uppsala University, Uppsala, Sweden, August 2015.

*A Strategic Epistemic Logic for Bounded Memory Agents.* Workshop on Logics for Resource-Bounded Agents, ESSLLI. Barcelona, Spain, August 2015.

*Partial Information and Uniform Strategies: Epistemic Issues in ATL.* 15th International Workshop on Computational Logic in Multi-Agent Systems (CLIMA). Prague, Czech Republic, August 2014.

*Asynchronous Public Announcement Logic.* Prakashfest. Oxford, United Kingdom, May 2014.

*Spatial and Epistemic Modalities in Constraint-Based Process Calculi.* Seminar at Institut de Recherche en Informatique et Systèmes Aléatoires (IRISA). Rennes, France, March 2014.

*Spatial and Epistemic Modalities in Constraint-Based Process Calculi.* Seminar for Preuves, Programmes et Systèmes (PPS) group at Université Paris-Diderot-Paris 7. Paris, France, February 2014.

*The Epistemic View of Concurrency Theory.* Forum des Jeunes Mathématicien-ne-s. Lyon, France, November 2013.

*The Epistemic View of Concurrency Theory*. Presentation for Computational Epistemic Logic in Lorraine (CELLO) group at Université de Lorraine. Nancy, France, October 2013.

*Spatial and Epistemic Modalities in Constraint-Based Process Calculi*. Highlights of Logic, Games and Automata (Highlights). Paris, France, September 2013.

*The Epistemic View of Concurrency Theory*. PhD Defense, Palaiseau, France, September 2013.

*Spatial and Epistemic Modalities in Constraint-Based Process Calculi*. Seminar for Theory for Mobile Processes group at Uppsala University. Uppsala, Sweden, May 2013.

*Spatial and Epistemic Modalities in Constraint-Based Process Calculi*. 23rd International Conference on Concurrency Theory (CONCUR). Newcastle, United Kingdom, September 2012.

*Game Semantics and Epistemic Strategies for Concurrent Processes*. Workshop on Games, Logic and Security (GIPSy). Rennes, France, November 2010.

*Branching-time Temporal Epistemic Logic*. 26th Conference on the Mathematical Foundations of Programming Semantics (MFPS). Ottawa, Canada, May 2010.

*Epistemic Strategies and Games on Concurrent Processes*. 35th International Conference on Current Trends in Theory and Practice of Computer Science (SOFSEM). Špindlerův Mlýn, Czech Republic, February 2009.

*Games on Concurrent Processes: Epistemic Strategies*. 6th International Workshop on Security Issues in Concurrency (SecCo). Toronto, Canada, August 2008.

*A Logic of Anonymity*. McGill University School of Computer Science Undergraduate Student Research Symposium, Montréal, Québec, August 2006.

*A Probabilistic Logic*. McGill INRIA Workshop for PRINTEMPS Project: Probability and Information Theory for modelling Security, Privacy and Secrecy. Montréal, Québec, June 2006.

MASTER'S THESIS S. Knight. *Epistemic Strategies and Games on Concurrent Processes*. McGill University, June 2009.

ACTIVITIES Nordic Logic Summer School, August 2017, Stockholm

Member, Concurrency group, Uppsala University

Member, Gender Equality group, Uppsala University

Former member, CELLO team, LORIA, Université de Lorraine

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Former member, Comète Team, Ecole Polytechnique

European Summer School in Logic, Language and Information, August 2012, Opole, Poland

European Summer School in Logic, Language and Information, August 2011, Ljubljana, Slovenia

Former member, Reasoning and Learning Laboratory at McGill University

Former member, Printemps collaborative project (Probability and Information Theory for modelling Security, Privacy and Secrecy)

LANGUAGES English, native speaker.

French, proficient, C1 level.

## REFERENCES

**Catuscia Palamidessi**

*Director of Research (Directeur de Recherche)*  
INRIA

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Ecole Polytechnique,  
Palaiseau, France

**Prakash Panangaden**

*Full Professor*

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Montréal, Québec

**Hans van Ditmarsch**

*Director of Research (Directeur de Recherche)*

hans.van-ditmarsch@loria.fr  
LORIA, Université de Lorraine  
Nancy, France

**Larry Moss**

*Full Professor*

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Indiana University  
Bloomington, United States

**Frank Valencia**

*Research Scientist (Chargé de Recherche)*  
CNRS  
*Associate Professor*

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Ecole Polytechnique  
Palaiseau, France  
Pontificia Universidad Javeriana  
Cali, Colombia

**Joachim Parrow**

*Professor in Computing Science*

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Uppsala University  
Uppsala, Sweden

**Kostas Chatzikokolakis**

*Research Scientist (Chargé de Recherche)*  
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Palaiseau, France