

# León Illanes

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[CV compiled on 2020-03-17]

## EDUCATION

**University of Toronto**, Toronto, ON, Canada

- Ph.D. in Computer Science Sep 2014 – Present
  - Supervisor: Professor Sheila McIlraith
  - Research areas: Artificial Intelligence, Automated Planning, Knowledge Representation, Reinforcement Learning

**Pontificia Universidad Católica de Chile**, Santiago, Chile

- Master of Engineering Sciences, Department of Computer Science Jul 2011 – Dec 2013
  - Thesis: Reconnection with the ideal tree: a new approach to real-time search
  - Supervisor: Professor Jorge Baier
  - Research areas: Artificial Intelligence, Automated Planning, Real-time Search
  - Graduated with Maximum Distinction
- Degree in Computer Engineering Mar 2006 – Dec 2013
  - Six year engineering program. Four year Bachelor's Degree and two years of specialization.

## RESEARCH EXPERIENCE

**University of Toronto**, Department of Computer Science, Toronto, ON, Canada

- Graduate Research Assistant Sep 2014 – Present
  - Projects: Abstractions for Automated Planning, Numeric Planning, Generalized Planning, Planning and Reinforcement Learning
  - Supervisor: Professor Sheila McIlraith
  - Research areas: Artificial Intelligence, Automated Planning, Knowledge Representation

**Pontificia Universidad Católica de Chile**, School of Engineering, Department of Computer Science

- Graduate Research Assistant Jul 2011 – Dec 2013
  - Projects: Automated Planning with Preferences, Real-time Heuristic Search
  - Supervisor: Professor Jorge Baier
  - Research areas: Artificial Intelligence, Automated Planning, Real-time Search.
- Undergraduate Research Assistant Mar 2011 – Jun 2011
  - Project: Automated Planning with Preferences
  - Supervisor: Professor Jorge Baier
  - Research areas: Artificial Intelligence, Automated Planning.

## PUBLICATIONS

### JOURNALS

- [1] N. Rivera, L. Illanes, J.A. Baier, and C. Hernández, “Reconnection with the Ideal Tree: A New Approach to Real-Time Search,” *Journal of Artificial Intelligence Research*, vol. 50, pp. 235–264, Jun 2014.

### CONFERENCES

- [2] L. Illanes, X. Yan, R. Toro Icarte, and S. A. McIlraith, “Symbolic Plans as High-Level Instructions for Reinforcement Learning,” in *The 30th International Conference on Automated Planning and Scheduling (ICAPS)*, Nancy, France, Jul 2020. **(To appear)**
- [3] R. Toro Icarte, L. Illanes, M. P. Castro, A. A. Cire, S. A. McIlraith, J. C. Beck, “Training Binarized Neural Networks with MIP and CP,” in *Principles and Practice of Constraint Programming - 25th International Conference (CP)*, Stamford, Connecticut, USA, Sep 2019. An abridged version of this paper also appeared on the NeurIPS 2019 Workshop on Machine Learning with Guarantees.
- [4] L. Illanes, X. Yan, R. Toro Icarte and S. A. McIlraith, “Symbolic Planning and Model-Free Reinforcement Learning: Training Taskable Objects,” in *The 4th Multidisciplinary Conference on Reinforcement Learning and Decision Making (RLDM)*, Montréal, Québec, Canada, Jul 2019.
- [5] L. Illanes, and S. A. McIlraith, “Generalized Planning via Abstraction: Arbitrary Numbers of Objects,” in *Proceedings of the 33rd AAAI Conference on Artificial Intelligence (AAAI)*, Honolulu, Hawaii, USA, Jan 2019.
- [6] L. Illanes, and S. A. McIlraith, “Numeric Planning via Abstraction and Policy Guided Search,” in *Proceedings of the 26th International Joint Conference on Artificial Intelligence (IJCAI)*, Melbourne, Victoria, Australia, Aug 2017.
- [7] L. Illanes, and S. A. McIlraith, “Numeric Planning via Search Space Abstraction (Extended Abstract),” in *Proceedings of the 9th Annual Symposium on Combinatorial Search (SoCS)*, Tarrytown, New York, USA, Jul 2016.
- [8] N. Rivera, L. Illanes, and J. A. Baier, “Real-Time Pathfinding in Unknown Terrain via Reconnection with an Ideal Tree,” in *Proceedings of the 14th Ibero-American Conference on Artificial Intelligence (IBERAMIA)*, Santiago, Chile, Nov 2014.
- [9] N. Rivera, L. Illanes, J. A. Baier, and C. Hernández, “Reconnecting with the Ideal Tree: An Alternative to Heuristic Learning in Real-Time Search,” in *Proceedings of the 6th Annual Symposium on Combinatorial Search (SoCS)*, Leavenworth, Washington, USA, Jul 2013. **Best Student Paper Award.**

## WORKSHOPS

- [10] L. Illanes, X. Yan, R. Toro Icarte, and S. A. McIlraith, “Leveraging Symbolic Planning Models in Hierarchical Reinforcement Learning,” in *Knowledge Representation & Reasoning Meets Machine Learning Workshop (KR2ML@NeurIPS)*, Vancouver, British Columbia, Canada, Dec 2019.
- [11] L. Illanes, and S.A. McIlraith, “Numeric Planning via Search Space Abstraction,” in *Proceedings of the Workshop on Knowledge-based Techniques for Problem Solving and Reasoning (KnowProS@IJCAI)*, New York City, New York, USA, Jul 2016.

## ACADEMIC AWARDS

- Best Teaching Assistant Team**, University of Toronto, Department of Computer Science 2016  
For exceptional support of student learning and development in *Introduction to Artificial Intelligence*.
- Departmental Entrance Scholarship (DES)**, University of Toronto 2014 – 2016  
Awarded to select students on their first two years at the University of Toronto.
- Best Student Paper Award** at *6th Symposium on Combinatorial Search* 2013  
For “Reconnecting with the Ideal Tree: An Alternative to Heuristic Learning in Real-Time Search.”

## TEACHING EXPERIENCE

- University of Toronto**, Department of Computer Science  
  - Teaching Assistant: *Introduction to Artificial Intelligence, Topics in Knowledge Representation & Reasoning.* 2015 – 2019
- Pontificia Universidad Católica de Chile**, School of Engineering, Department of Computer Science  
  - Teaching Assistant: *Introduction to Programming, Discrete Mathematics, Automata Theory and Formal Languages, Artificial Intelligence.* 2009 – 2013

## SERVICE

- Program Committee Member:  
  - AAAI 2019, AAAI 2020.
  - AAAI 2019 Student Abstract and Poster Program.
  - GenPlan at ICAPS 2017 and AAAI 2020.
- Sub-reviewer:  
  - AAAI 2015, AAAI 2016, AAAI 2017.
  - ICAPS 2015, ICAPS 2017, ICAPS 2019.
  - SoCS 2016.

## PROFESSIONAL EXPERIENCE

- Synopsys**, Santiago, Chile  
  - Research & Development Engineer Jan 2014 – Jun 2014  
Worked on semiconductor photomask manufacturing software (CATS).
- Apella**, Santiago, Chile  
  - Co-founder and CTO Mar 2012 – Jan 2013
    - Think tank web-platform for increasing citizen participation in politics
    - Medical platform for communication of physicians and patients
- Nimbic**, Santiago, Chile  
  - Software Engineering Intern Dec 2011 – Jan 2012  
Worked on billing scheme for cloud based Electronic Design Automation platform.

## LANGUAGES

- Spanish: Native language.
- English: Fluent, native level (speaking, reading, writing). *Bilingual Diploma, IBO 2005*

## OTHER SKILLS

- Programming Languages**  
Fluent in C, C++, Python. Proficient in Matlab, Java. Dabbled in Clojure, C#, ELisp, Haskell, Prolog, Rust, and more.
- Operating Systems**  
Linux, Windows, OS X
- Other**  
L<sup>A</sup>T<sub>E</sub>X, HTML