

# MAURICIO ALEJANDRO ARAYA LÓPEZ, Ph.D.

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## GENERAL INFORMATION

|                 |                     |
|-----------------|---------------------|
| Birthday        | January 29th, 1983  |
| Nationality     | Chilean             |
| Passport Number | 15.098.618-4        |
| Place of Birth  | Viña del Mar, Chile |
| Marital Status  | Married             |

## LANGUAGES

|         |   |
|---------|---|
| Spanish | Native  |
| English | Advanced<br>Test of English for International Communication, ETS 2008.<br>Result: 930 of 990<br>English Test for Academic and Professional Purposes, TIE 2008.<br>Result: 80% |
| French  | Intermediate  |

## EDUCATION

|             |   |
|-------------|---|
| 2009 - 2013 | Ph.D. in Computer Science<br><i>Equipe MAIA</i> of INRIA<br><b>Laboratoire LORIA / Université de Lorraine</b> , Nancy, France.          |
| 2006 - 2008 | Master of Science in Informatics Engineering<br><b>Universidad Técnica Federico Santa María</b> , Valparaíso, Chile.<br>Rank # 1 of 17. |
| 2001 - 2008 | Informatics Engineering<br><b>Universidad Técnica Federico Santa María</b> , Valparaíso, Chile.<br>Rank # 19 of 97.                     |
| 2001 - 2005 | Bachelor in Informatics Engineering<br><b>Universidad Técnica Federico Santa María</b> , Valparaíso, Chile.                             |
| 1987 - 2000 | School and High-School<br><b>The Mackay School</b> , Reñaca, Chile.   |

## EXPERIENCE

- 2014– **Full-time Researcher** at the ICHAA-CONICYT 79130008 Project, Departamento de Informática, Universidad Técnica Federico Santa María. *Strengthening Research and Teaching on Astroinformatics*.
- 2014 **Part-Time Lecturer** at Departamento de Informática, Pontificia Universidad Católica de Valparaíso. *Operating Systems* lecture.
- 2012–2013 **Part-Time Lecturer** at IUT-Charlemagne, Université de Lorraine, *Data Structures*, *Computer Architecture* and *Introduction to Databases* lectures.
- 2008–2009 **Part-Time Lecturer** at Departamento de Informática, Universidad Técnica Federico Santa María. *Programming Paradigms and Languages*, *Networking Workshop* and *Programming Workshop* lectures.
- 2008–2009 **Researcher** at the ALMA-CONICYT 31060008 Project, Departamento de Informática, Universidad Técnica Federico Santa María. Generic telescope control system design for professional telescopes. A time system for complex control with real-time constraints.
- 2008 **Part-Time Lecturer** at Departamento de Informática, Pontificia Universidad Católica de Valparaíso. *Computer Networks* lecture.
- 2007–2008 **Research Assistant** at the ALMA-CONICYT 31060008 Project, Departamento de Informática, Universidad Técnica Federico Santa María.
- 2007 **Internship** at the at Software Engineering Team, Garching bei München headquarters, European Southern Observatory.
- 2004–2007 **Undergraduate Team Leader** at the Computer Systems Research Group, Departamento de Informática, Universidad Técnica Federico Santa María.
- 2003–2006 **Training Courses Teacher** at Summer and Winter Informatics Training School, Universidad Técnica Federico Santa María. *Advanced Networks*, *Basic Linux* and *Advanced Linux* courses.
- 2004–2006 **Lecture Assistant** at Departamento de Informática, Universidad Técnica Federico Santa María. *Programming Languages*, *Computers Architecture* and *Operating Systems* lectures .
- 2004 **Internship** at Software Engineering Team, La Silla Observatory, European Southern Observatory.
- 2003 **Internship** at Central Services, Departamento de Informática, Universidad Técnica Federico Santa María.
- 2003–2004 **System Administrator** at Central Services, Departamento de Informática, Universidad Técnica Federico Santa María.
- 2002–2003 **Laboratory Assistant** at Computing Laboratory, Departamento de Informática, Universidad Técnica Federico Santa María.

## PUBLICATIONS

### Theses

- [1] Mauricio Araya-López. *Des algorithmes presque optimaux pour les problèmes de décision séquentielle à des fins de collecte d'information*. These, Université de Lorraine, February 2013.

- [2] Mauricio Araya-López. Verifying real-time periodic properties on the ALMA Common Software time system. Master's thesis, Departamento de Informática, Universidad Técnica Federico Santa María, May 2008.

## To Appear

- [3] Mauricio Araya-López, Olivier Buffet, and Vincent Thomas. Approximate belief-lookahead information gathering. *Journal of Artificial Intelligence Research*, 2015. [Conditional acceptance under major revisions][ISI IF=1.691].
- [4] Mauricio Araya-López, Mauricio Solar, and Jonathan Antognini. A survey on the virtual observatory. *New Astronomy*, 2015. [Accepted][ISI IF=1.244].

## Indexed Publications

- [5] Jonathan Antognini, Mauricio Solar, Jorge Ibsen, Mauricio Araya-López, Diego Mardones Lars Nyman, Camilo Valenzuela, Patricio Ramirez, Christopher Fernandez, and Mario Garces. Chilean virtual observatory services implementation for the alma public data. In *Proceedings of SPIE 2014, Montréal, Canada.*, volume 9152. SPIE, 2014. [SCOPUS][ISI-Proceedings].
- [6] Mauricio Araya-López, Olivier Buffet, and Vincent Thomas. Near-optimal BRL using optimistic local transitions. In *Proceedings of the 29th International Conference on Machine Learning (ICML-12)*, volume 1, pages 97–104, 2012. [SCOPUS][Acceptance rate 27%][CORE=A\*].
- [7] Mauricio Araya-López, Olivier Buffet, Vincent Thomas, and François Charpillet. Active learning of MDP models. In *Lecture Notes in Artificial Intelligence (EWRL/ECML-11)*, volume 7188, pages 42–53. Springer, 2011. [SCOPUS][CORE=A].
- [8] Mauricio Araya-López, Olivier Buffet, Vincent Thomas, and François Charpillet. A POMDP extension with belief-dependent rewards. In *Advances in Neural Information Processing Systems 23 (NIPS-10)*, 2010. [SCOPUS][Acceptance rate 24%][CORE=A\*].
- [9] Mauricio Araya-López, Vincent Thomas, Olivier Buffet, and François Charpillet. A closer look at MOMDPs. In *Proceedings of the Twenty-Second IEEE International Conference on Tools with Artificial Intelligence (ICTAI-10)*, volume 2, pages 197–204, 2010. [SCOPUS][Acceptance rate 27.5%][CORE=B].
- [10] Matias Mora, Jorge Ibsen, Gianluca Chiozzi, Nicolas Troncoso, Rodrigo Tobar, Mauricio Araya, Jorge Avarias, and Arturo Hoffstadt. Integrating a university team in the ALMA software development process: a successful model for distributed collaborations. In *Proceedings of SPIE 2010, San Diego, California, USA*. SPIE, 2010. [SCOPUS][ISI-Proceedings].
- [11] Nicolas Barriga, Mauricio Araya-López, and Mauricio Solar. Combining a probabilistic sampling technique and simple heuristics to solve the dynamic path planning problem. In *Proceedings of the XXVIII International Conference of the Chilean Computer Science Society (SCCC)*, pages 43–50, 2009. [SCOPUS].
- [12] Mauricio Araya-López, Rodrigo J. Tobar, Jorge A. Avarias, and Horst H. von Brand. Towards a distributed control framework with real-time support. In *XXXVI Conferencia Latinoamericana de Informática*. CLEI, 2008. [CORE=C].
- [13] Rodrigo J. Tobar, Horst H. von Brand, Mauricio Araya-López, and Joao S. López. An amateur telescope control system: Towards a generic telescope control model. In *Proceedings of SPIE 2010*, volume 7019. SPIE, 2008. [SCOPUS][ISI-Proceedings].

## National Congresses and Workshops

- [14] Mauricio Araya-López, Mauricio Solar, Diego Mardones, and Teodoro Hochfärber. Exorcising the ghost in the machine: Synthetic spectral data cubes for assessing big data algorithms. In *Astronomical Data Analysis Software & Systems*. ADASS, 2014.
- [15] Jonathan Antognini, Mauricio Araya-López, Mauricio Solar, Camilo Valenzuela, and Francisco Lira. Evaluating nosql alternative for chilean virtual observatory services. In *Astronomical Data Analysis Software & Systems*. ADASS, 2014.
- [16] Kenji Kawaguchi and Mauricio Araya-López. A greedy approximation of bayesian reinforcement learning with probably optimistic transition model. In *Proceedings of the Adaptive Learning Agents Workshop (ALA-13)*, 2013.
- [17] Rodrigo Tobar, Mauricio Araya-López, Thomas Juerges, and Horst H. von Brand. Adding support to acs for real-time operations through the usage of a posix-compliant rtos. In *Astronomical Data Analysis Software & Systems (ADASS)*, 2008.
- [18] Joao López, Rodrigo Tobar, Tomas Staig, Daniel Bustamante, Camilo Menay, Mauricio Araya-López, and Horst H. von Brand. A reference architecture specification of a generic telescope control system. In *Astronomical Data Analysis Software & Systems (ADASS)*, 2009.
- [19] Tomás Staig, Rodrigo Tobar, Mauricio Araya-López, Carlos Guajardo, and Horst H. von Brand. A reference implementation of a generic automatic pointing system. In *Astronomical Data Analysis Software & Systems (ADASS)*, 2008.
- [20] Mauricio Araya-López, Olivier Buffet, and Vincent Thomas. Brl quasi-optimal à l'aide de transitions locales optimistes. In *Actes des septièmes journées francophones planification, décision, apprentissage pour la conduite de systèmes (JFPDA'12)*, 2012.
- [21] Mauricio Araya-López, Vincent Thomas, Olivier Buffet, and François Charpillet. Une extension des pomdp avec des récompenses dépendant de l'état de croyance. In *Conférence Francophone d'Apprentissage 2011*, May 2011. [Best Paper Award].
- [22] Mauricio Araya-López, Vincent Thomas, Olivier Buffet, and François Charpillet. Apprentissage actif de modèle de mdp. In *Actes des sixièmes journées francophones planification, décision, apprentissage pour la conduite de systèmes (JFPDA'11)*, 2011.
- [23] Mauricio Araya-López, Vincent Thomas, Olivier Buffet, and François Charpillet. Des pomdps avec des variables d'état visibles. In *Actes des cinquièmes journées francophones planification, décision, apprentissage pour la conduite de systèmes (JFPDA'10)*, 2010.
- [24] Horst von Brand, Mauricio Araya-López, and Jorge Avarias. Desarrollo de memorias y tesis usando herramientas colaborativas. In *II Congreso Internacional de Información del Norte de Chile*, page 5, November 2010.
- [25] Horst H. von Brand, Mauricio Araya-López, and Jorge Ibsen. ACS Workshop — An experience teaching a complex framework. In *Congreso de Educación Superior en Educación*, page 18, November 2008.
- [26] Rodrigo Tobar, Joao López, Mauricio Araya-López, and Horst H. von Brand. CSAT deployment and final status. In *Encuentro Chileno de Computación*, page 40, November 2008.
- [27] Rodrigo Tobar, Mauricio Araya-López, and Horst H. von Brand. Symbad: A new tool designed to optimize minimal Linux distributions. In *Encuentro Chileno de Computación*, page 35, November 2008.
- [28] Mauricio Araya-López, Jorge A. Avarias, Matias Mora, and Rodrigo Tobar. ALMA Common Software – UTFSM Group. In *VI Reunión Anual Sociedad Chilena de Astronomía (SOCHIAS)*, page 58, 2007.

## GRANTS

- 2009-2012 PHD Scholarship to study at France, “Master 2 de Investigación y Doctorado” by the French Embassy and CONICYT.
- 2007-2008 Scientific Initiation Grant by the Graduate School of Universidad Técnica Federico Santa María.
- 2006-2008 Scholarship to study Master of Science Degree in Informatics Engineering by the Graduate School of Universidad Técnica Federico Santa María.
- 2006-2008 Half Scholarship to study Informatics Engineering due high marks by the Graduate School of Universidad Técnica Federico Santa María.

## COMMITTEES

- 2012 IV Chilean Workshop on Pattern Recognition
- 2013 23rd International Joint Conference On Artificial Intelligence
- 2013 ICML Workshop on the 2013 Reinforcement Learning Competition
- 2014 Journal of Autonomous Agents and Multi-Agent Systems

## SUMMER SCHOOLS

- 2012 19th Machine Learning Summer School.  
*La Palma, Spain.*
- 2011 7th International Summer School on Pattern Recognition. *Plymouth, England.*

## AWARDS

- 2011 Best Paper Award for “Une extension des POMDPs avec des récompenses dépendant de l’état de croyance”. Conférence Francophone d’Apprentissage 2011.
- 2004 Best software, most popular software and the best mark awards on the 13th UTFSM Software Fair, with an Open Source SPECT tomography reconstruction software.  
*Universidad Técnica Federico Santa María.*

## PERSONAL REFERENCES

- François Charpillet Research Director, Ph.D. (HDR) ,  
*National Institute of Research in Automatics and Computer Science (INRIA).*  
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- Horst von Brand Associate Profesor, Ph.D.,  
*Universidad Técnica Federico Santa María (UTFSM).*  
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Valparaíso, April 21th 2015