

CURRENT POSITION Assistant Professor at Rutgers University

CONTACT INFORMATION Department of Computer Science  
Rutgers University  
110 Frelinghuysen Road, Piscataway, NJ, 08854  
*Phone:* 412-681-6961  
*Website:* www.abdeslam.net

PERSONAL INFORMATION Date of Birth: April 13, 1981  
Place of Birth: Tizi Ouzou, Algeria  
Residence Status in the US: H-1B visa

RESEARCH INTERESTS **Theory:** Machine Learning, Robot Learning, Planning, Reinforcement Learning, Markov Decision Processes, Nonparametric Statistics  
**Applications:** Robotic Grasping and Manipulation, Robot Vision, Imitation Learning, Behavior Modeling, Natural Language User Interfaces

EDUCATIONAL BACKGROUND **Laval University**, Québec, Canada  
**Ph.D.** in Computer Science, July 2010  

- Topic: Predictive Representations For Sequential Decision Making Under Uncertainty
- Committee: Brahim Chaib-draa, Joelle Pineau, Abdel-illah Mouaddib, Philippe Giguère

**Paris-Sud University (Paris XI)**, Paris, France  
**M.S.** in Computer Science, September 2005

**Ecole Nationale Supérieure d'Informatique**, Algiers, Algeria  
**B.S.** in Computer Engineering, October 2004

RESEARCH EXPERIENCE **Rutgers, The State University of New Jersey** September 2015 - now  
*Assistant Professor* New Brunswick, USA  
**National Robotics Engineering Center, Carnegie Mellon University** May 2015 - July 2015  
*Project Scientist* Pittsburgh, USA  
**National Robotics Engineering Center, Carnegie Mellon University** May 2013 - April 2015  
*Postdoctoral Fellow* Pittsburgh, USA  
**Max Planck Institute for Intelligent Systems** August 2010 - April 2013  
*Research Scientist* Tübingen, Germany  
**Laval University** January 2006 - July 2010  
*Graduate Research Assistant* Québec, Canada  
**INRIA** March 2005 - September 2005  
*Internship* Paris, France  
**Ecole Nationale Supérieure d'Informatique** October 2003 - October 2004  
*Internship* Algiers, Algeria

TEACHING EXPERIENCE **Rutgers, The State University of New Jersey**, Piscataway, US  
Introduction to Artificial Intelligence (CS 520, graduate course, 109 students) **Fall 2015**  
**Technical University of Darmstadt**, Darmstadt, Germany  
Seminar class on Robot Learning (Course No. 20-00-0636-se) **Summer 2012**

**Technical University of Darmstadt**, Darmstadt, Germany  
 Seminar class on Autonomous Learning Systems (Course No. 20-00-0630-se) **Fall 2011, Fall 2012**  
**Laval University**, Québec, Canada  
 Teaching assistant of Probability Theory and Statistics (Course No. STT-10400) **Fall 2007**  
**Paris-Sud University**, Paris, France  
 Tutor of Disabled Students in Computer Science **2005**

REFEREED JOURNAL  
 AND CONFERENCE  
 PAPERS

1. Samory Kpotufe, **Abdeslam Boularias**, Thomas Schultz, and Kyoungok Kim. *Gradient Weights Improve Regression and Classification*. In the Journal of Machine Learning Research (**JMLR**), 2016.  
Impact factor: 5.95
2. **Abdeslam Boularias**, Felix Duvallat, Jean Oh and Anthony Stentz. *Learning to Ground Spatial Relations for Outdoor Robot Navigation*. In Proceedings of 2015 IEEE International Conference on Robotics and Automation (**ICRA**), Seattle, USA, 2015.  
Acceptance rate: 41%. Best Cognitive Robotics Paper Award (out of 2275 submissions).
3. Zhikun Wang, **Abdeslam Boularias**, Katharina Mülling, Bernhard Schölkopf and Jan Peters. *Anticipatory Action Selection for Human-Robot Table Tennis*. In **Artificial Intelligence**, 2015.  
Impact factor: 2.71
4. Jean Oh, Arne Suppe, Felix Duvallat, **Abdeslam Boularias**, Jerry Vinokurov, Luis Navarro-Serment, Oscar Romero, Robert Dean, Christian Lebiere, Martial Hebert and Anthony Stentz. *Toward Mobile Robots Reasoning Like Humans*. In Proceedings of the Twenty-Ninth AAAI Conference on Artificial Intelligence (**AAAI**), Austin, Texas, USA, 2015.  
Selected for oral presentation: 11% acceptance rate
5. **Abdeslam Boularias**, J. Andrew Bagnell and Anthony Stentz. *Learning to Manipulate Unknown Objects in Clutter by Reinforcement*. In Proceedings of the Twenty-Ninth AAAI Conference on Artificial Intelligence (**AAAI**), Austin, Texas, USA, 2015.  
Selected for oral presentation: 11% acceptance rate
6. **Abdeslam Boularias**, J. Andrew Bagnell and Anthony Stentz. *Efficient Optimization for Autonomous Robotic Manipulation of Natural Objects*. In Proceedings of the Twenty-Eighth National Conference on Artificial Intelligence (**AAAI**), Quebec City, Quebec, Canada, 2014.  
Acceptance rate: 28%
7. Claudio Persello, **Abdeslam Boularias**, Michele Dalponte, Terje Gobakken, Erik Naeset and Bernhard Schölkopf. *Cost-Sensitive Active Learning With Lookahead: Optimizing Field Surveys for Remote Sensing Data Classification*. In **IEEE Transactions on Geoscience and Remote Sensing** 99: 1-13, 2014.  
Impact factor: 2.93
8. Katharina Mülling, **Abdeslam Boularias**, Betty Mohler, Bernhard Schölkopf and Jan Peters. *Learning Strategies in Table Tennis using Inverse Reinforcement Learning*. In **Biological Cybernetics** 108(5): 603-619, 2014.  
Impact factor: 2.07
9. **Abdeslam Boularias** and Brahim Chaib-draa. *Apprenticeship Learning with Few Demonstrations*. In **Neurocomputing** 104: 83-96, 2013.  
Impact factor: 2.01
10. **Abdeslam Boularias**, Oliver Krömer and Jan Peters. *Algorithms for Learning Markov Field Policies*. In Advances in Neural Information Processing Systems 26 (**NIPS**), Lake Tahoe, NV, USA, 2012.  
Acceptance rate: 25%
11. Samory Kpotufe and **Abdeslam Boularias**. *Gradient Weights help Nonparametric Regressors*. In Advances in Neural Information Processing Systems 26 (**NIPS**), Lake Tahoe, NV,

USA, 2012.

Selected for plenary presentation: 1.36% acceptance rate

12. Yu Nishiyama, **Abdeslam Boularias**, Arthur Gretton and Kenji Fukumizu. *Hilbert Space Embeddings of POMDPs*. In Proceedings of the Twenty-Eighth Conference on Uncertainty in Artificial Intelligence (**UAI**), Catalina Island, CA, USA, 2012.  
Acceptance rate: 31%
13. **Abdeslam Boularias**, Oliver Krömer and Jan Peters. *Structured Apprenticeship Learning*. In Proceedings of the Twenty-Third European Conference on Machine Learning (**ECML**), Bristol, UK, 2012.  
Acceptance rate: 24%
14. **Abdeslam Boularias**, Oliver Krömer and Jan Peters. *Learning Robot Grasping from 3-D Images with Markov Random Fields*. In Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems (**IROS**), San Francisco, CA, USA, 2011.  
Acceptance rate: 32%
15. Zhikun Wang, **Abdeslam Boularias**, Katharina Mülling and Jan Peters. *Balancing Safety and Exploitability in Opponent Modeling*. In Proceedings of the Twenty-Fifth National Conference on Artificial Intelligence (**AAAI**), San Francisco, CA, USA, 2011.  
Acceptance rate: 24.8%
16. **Abdeslam Boularias**, Jens Kober and Jan Peters. *Relative Entropy Inverse Reinforcement Learning*. In Proceedings of the International Conference on Artificial Intelligence and Statistics (**AISTATS**), Fort Lauderdale, FL, USA, 2011. Volume 15 of JMLR.  
Acceptance rate: 36.4%
17. **Abdeslam Boularias** and Brahim Chaib-draa. *Bootstrapping Apprenticeship Learning*. In Advances in Neural Information Processing Systems 24 (**NIPS**), Vancouver, Canada, 2010.  
Acceptance rate: 24%
18. **Abdeslam Boularias** and Brahim Chaib-draa. *Apprenticeship Learning via Soft Local Homomorphisms*. In Proceedings of 2010 IEEE International Conference on Robotics and Automation (**ICRA**), Anchorage, USA, 2010.  
Acceptance rate: 41.6%
19. **Abdeslam Boularias** and Brahim Chaib-draa. *Predictive Representations for Policy Gradient in POMDPs*. In Proceedings of the International Conference on Machine Learning (**ICML**), Montreal, Canada, 2009.  
Acceptance rate: 26.9%
20. **Abdeslam Boularias** and Brahim Chaib-draa. *Exact Dynamic Programming for Decentralized POMDPs with Lossless Policy Compression*. In Proceedings of the International Conference on Automated Planning and Scheduling (**ICAPS**), Sydney, Australia, 2008.  
Acceptance rate: 34%
21. **Abdeslam Boularias**. *A Predictive Model for Imitation Learning in Partially Observable Environments*. In Proceedings of the International Conference on Machine Learning and Applications (**ICMLA**), San Diego, CA, USA, 2008.
22. **Abdeslam Boularias**, Masoumeh Izadi and Brahim Chaib-draa. *Prediction-directed Compression of POMDPs*. In Proceedings of the International Conference on Machine Learning and Applications (**ICMLA**), San Diego, CA, USA, 2008.
23. **Abdeslam Boularias**, Masoumeh Izadi and Brahim Chaib-draa. *State Space Compression with Predictive Representations*. In Proceedings of 21st International FLAIRS Conference, Coconut Grove, FL, USA, 2008.
24. Andriy Burkov, **Abdeslam Boularias** and Brahim Chaib-draa (2007). *Competition and Coordination in Stochastic Games*. In Proceedings of the 20th Canadian Conference on Artificial Intelligence, Montréal, Canada, 2007.

REFEREED  
WORKSHOP PAPERS

1. Katharina Mülling, **Abdeslam Boularias**, Betty Mohler, Bernhard Schölkopf and Jan Peters. Inverse Reinforcement Learning for Strategy Extraction. In Proceedings of ECML'13 Workshop on Machine Learning and Data Mining for Sports Analytics.
2. **Abdeslam Boularias**, Oliver Krömer and Jan Peters. *Structured Apprenticeship Learning*. In Proceedings of the 10th European Workshop on Reinforcement Learning (EWRL'12), 2012.
3. Yu Nishiyama, **Abdeslam Boularias**, Arthur Gretton and Kenji Fukumizu. *Kernel Bellman Equations in POMDPs*. In Proceedings of the Technical Committee on Information-Based Induction Sciences and Machine Learning (IBISML 2012), Tokyo, Japan, 2012.
4. **Abdeslam Boularias**, Hamid R. Chinaei and Brahim Chaib-draa. *Learning the Reward Model of Dialogue POMDPs*. In NIPS'10 Workshop on Machine Learning for Assistive Technology (MLAT-2010), Vancouver, Canada, 2010.
5. **Abdeslam Boularias** and Brahim Chaib-draa. *Policy Transfer in Apprenticeship Learning*. In NIPS'09 Workshop on Transfer Learning for Structured Data, Vancouver, Canada, 2009.
6. **Abdeslam Boularias** and Brahim Chaib-draa. *Learning Probabilistic Models via Bayesian Inverse Planning*. In NIPS'09 Workshop on Probabilistic Approaches for Robotics and Control, Vancouver, Canada, 2009.
7. **Abdeslam Boularias** and Brahim Chaib-draa. *Planning in Decentralized POMDPs with Predictive Policy Representations*. In Proceedings of ICAPS'08 Multi-agent Planning Workshop (MASPLAN'08), Sydney, Australia, 2008.
8. **Abdeslam Boularias** and Brahim Chaib-draa. *Les Représentations Prédicatives des États et des Politiques*. In Actes des Quatrièmes Journées Francophones Modèles Formels de l'Intéraktion (MFI'07), Paris, France, 2007.

REPORTS

1. **Abdeslam Boularias**. *Predictive Representations For Sequential Decision Making Under Uncertainty*. Laval University, Canada, 2010.
2. **Abdeslam Boularias**. *Using Predictive Representations for Planning and Learning in Partially Observable Systems*. Laval University, Canada, 2008.
3. **Abdeslam Boularias**. *Vers une approche alliant les représentations prédictives des états et les options pour la prise de la décision*. Laval University, Canada, 2006.
4. **Abdeslam Boularias**. *MPICH-V3: un MPI tolérant aux défaillances pour les Grilles*. University of Paris-Sud, France, 2005.
5. **Abdeslam Boularias** and Belaid Saad. *Implémentation et étude des performances de la structure Compact Trie Hashing (CTH\*)*. ESI, Algeria, 2004.

JOURNAL ARTICLE IEEE Transactions on Systems, Man, and Cybernetics, 2009 and 2010

REVIEWING IEEE Transactions on Cybernetics, 2015  
Neurocomputing, 2011  
Robotics and Autonomous Systems, 2012  
Neural Networks, 2013  
Neural Computation, 2013  
Autonomous Robots, 2013  
Journal of Machine Learning Research, 2013

CONFERENCE International Conference on Autonomous Agents and Multiagent Systems (AAMAS), 2008  
 ARTICLE North-East Student Colloquium on Artificial Intelligence (NESCAI), 2008  
 REVIEWING International Joint Conference on Artificial Intelligence (IJCAI), 2009  
 International Conference on Intelligent Robots and Systems (IROS), 2009, 2010, 2011 and 2012  
 International Conference on Humanoid Robots (Humanoids), 2010, 2011, 2013 and 2014  
 Snowbird Learning Workshop, 2011 and 2012  
 International Conference on Robotics and Automation (ICRA), 2011, 2012, 2013, 2014 and 2015  
 Annual Conference on Neural Information Processing Systems (NIPS), 2011, 2013, 2014 and 2015  
 International Colloquium on Automata, Languages and Programming (ICALP), 2013

PROGRAM Robotics: Science and Systems (R:SS), 2015  
 COMMITTEE International Conference on Artificial Neural Networks (ICANN), 2011  
 MEMBERSHIP European Workshop on Reinforcement Learning (EWRL), 2012  
 Fall Symposium of the Association for the Advancement of Artificial Intelligence (AAAI), 2012  
 IEEE Symposium on Adaptive Dynamic Programming and Reinforcement Learning (ADPRL), 2013  
 International Conference on Machine Learning (ICML), 2012 and 2013  
 European Conference on Machine Learning (ECML PKDD), 2013

SENIOR PROGRAM Association for the Advancement of Artificial Intelligence (AAAI), 2012  
 COMMITTEE International Joint Conference on Artificial Intelligence (IJCAI), 2013  
 MEMBERSHIP

ASSOCIATE EDITOR International Conference on Intelligent Robots and Systems (IROS), 2014 and 2015

GRANT AND FELLOWSHIP The Natural Sciences and Engineering Research Council of Canada (NSERC), 2012  
 REVIEWING AAAI Robotics Fellowships, 2015 and 2016

CO-ADVISED Zhikun Wang, Ph.D., Max Planck Institute for Intelligent Systems  
 STUDENTS Katharina Mülling, Ph.D., Max Planck Institute for Intelligent Systems  
 Allain Sulface, M.S., Laval University  
 Brahim El Mounni, MBA, Laval University

THESIS COMMITTEE Tarek El-Gaaly, Ph.D., Rutgers University, 2015

DEPARTMENT MS admissions committee, Rutgers University, 2015  
 SERVICE

ORGANIZATION Organizer of the workshop: Machine Learning for System Identification, ICML 2013  
 Organizer of the workshop: New Developments in Imitation Learning, ICML 2011  
 Chair of the session: Machine Learning and Robotics, ICML 2011  
 Chair of the session: Learning Parameterized Policies, IROS 2011  
 Organizer of weekly seminars at the computer science department of Laval University, 2008

FUNDING Research Stipend, The Max Planck Society for the Advancement of Science, 2011-2013  
 EU Grant, GeRT project, 2010-2011  
 Scholarship of Quebec Ministry of Education, 2006-2008  
 Key contributions to a grant of Fonds Québécois de la Recherche sur la Nature et les Technologies (FQRNT), 2008

INVITED TALKS McGill University, Canada, 2007 and 2009  
 Max Planck Institute for Intelligent Systems, Germany, 2010  
 Alberta Ingenuity Centre for Machine Learning, Canada, 2010  
 Technical University of Darmstadt, Darmstadt, Germany, 2011

INRIA SequeL, France, 2011  
IBM Dublin, Ireland, 2013  
University of Ottawa, Canada, 2013  
Tufts University, US, 2015  
University of Utah, US, 2015  
Rutgers University, US, 2015  
Stevens Institute, US, 2015  
Arizona State University, US, 2015  
University of British Columbia, Canada, 2015  
Laval University, Canada, 2015

COMPUTER SKILLS C++, Matlab, CPLEX, MPI (Message Passing Interface), Parallel Computing, PCL (Point Cloud Library), Eigen, OpenCV, ROS (Robot Operating System)

REFERENCES

**Prof. Brahim Chaib-draa**

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**Prof. Joelle Pineau**

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3480, rue de l'Université  
H3A 2A7 Montréal, Canada  
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**Prof. Anthony Stentz**

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