

Ramon Fraga Pereira

Lecturer in Symbolic AI

*The University of Manchester
Department Computer Science*

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Education

- 2020–2023 **Postdoc in Computer Science**, *Sapienza Università di Roma*, Roma, Italy.
2016–2020 **Ph.D. in Computer Science**, *PUCRS*, Porto Alegre, Brazil.
2018–2019 **Ph.D. in Computer Science (Visiting Student)**, *The University of Melbourne*, Melbourne, Australia.
2014–2016 **M.Sc. in Computer Science**, *PUCRS*, Porto Alegre, Brazil.
2009–2013 **B.Sc. in Computer Science**, *PUCRS*, Porto Alegre, Brazil.

Ph.D. Thesis

- Title *Goal Recognition over Imperfect Domain Models*
Advisor Prof. Dr. Felipe Meneguzzi
Co-advisor Dr. Miquel Ramírez
Description Recognition of goals in incomplete STRIPS and approximate hybrid domain models.

M.Sc. Dissertation

- Title *Landmark-Based Approaches for Plan Recognition Tasks*
Advisor Prof. Dr. Felipe Meneguzzi
Description Recognition of goals and plans using Automated Planning techniques (*i.e.*, landmarks, domain-independent heuristics, *etc.*).

B.Sc. Diploma Thesis

- Title *Implementing Performance Optimizations on GraphPlan*
Advisor Prof. Dr. Felipe Meneguzzi
Description Implementation of new features (*e.g.*, PDDL and other heuristics) and optimizations into a GraphPlan implementation in Java.

Employment

Academia

- 2023–Present **Lecturer**, *The University of Manchester*, Manchester, United Kingdom.
Lecturer in Symbolic AI and Autonomous Systems in the Department Computer Science.

- 2020–2023 **Postdoctoral Research Associate**, *Sapienza Università di Roma*, Rome, Italy.
 WhiteMech Project.
 Research focused on developing Non-Deterministic Planning algorithms.
- 2017–2020 **Researcher (Ph.D. Student)**, *PUCRS*, Porto Alegre, Brazil.
 Recognition of goals in incomplete STRIPS domain models.
- 2018–2019 **Ph.D. Research Intern**, *The University of Melbourne*, Melbourne, Australia.
 Project: Online Probabilistic Goal Recognition over Nominal Models.
 Advisor: Dr. Miquel Ram3rez.
 Scholarship provided by CAPES, Brazil.
- 2018 **Ph.D. Research Intern**, *The University of Melbourne*, Melbourne, Australia.
 Project: Goal Recognition over Nominal Models.
 Advisor: Dr. Miquel Ram3rez.
 Scholarship provided by the Australian Academy of Science as part of the Australia-Americas PhD Research Internship Program.
- 2016–2017 **Researcher (Ph.D. Student)**, *Hewlett-Packard (HP)*, Porto Alegre, Brazil.
 Research focused on Goal and Plan Recognition in real-world scenarios.
- 2015 **Researcher (M.Sc. Student)**, *PUCRS*, Porto Alegre, Brazil.
 Research focused on Goal and Plan Recognition using Automated Planning techniques.
- 2014 **Researcher (M.Sc. Student)**, *Samsung*, Porto Alegre, Brazil.
 SeaTeaMS – Semantic and Multi-Agent Technologies for Team Interaction.
 Research focused on Plan Recognition for Multi-Agent Systems.

Teaching

- Spring/2019 **Teaching Assistant**, *PUCRS*, Porto Alegre, Brazil.
 Artificial Intelligence (Undergraduate course), Prof. Dr. Felipe Meneguzzi.
- Spring/2017 **Teaching Assistant**, *PUCRS*, Porto Alegre, Brazil.
 Artificial Intelligence (Undergraduate course), Prof. Dr. Felipe Meneguzzi.
- Spring/2015 **Teaching Assistant**, *PUCRS*, Porto Alegre, Brazil.
 Artificial Intelligence (Undergraduate course), Prof. Dr. Felipe Meneguzzi.

Student Advising and Mentoring

- 2023 **Ph.D. Advising**, *The University of Manchester*, Manchester, United Kingdom.
 Co-advising the Ph.D. student Simon Kolker with Dra. Louise Dennis.
 Title: Uncertain Machine Ethics
- 2022 **B.Sc. Advising**, *Monash University*, Melbourne, Australia.
 Co-advising the bachelor final project with Prof. Dra. Mor Vered.
 Title: Landmark-Based Deceptive Planning
 Students: Jaden Zhang and Patrick Winter
- Spring/2021 **B.Sc. Advising**, *Monash University*, Melbourne, Australia.
 Co-advising the bachelor final project with Prof. Dra. Mor Vered.
 Title: Deceptive Planning using Landmarks and Centroids
 Students: Adrian Price
- 2019-2020 **B.Sc. Advising**, *PUCRS*, Porto Alegre, Brasil.
 Co-advising the bachelor final project with Prof. Dr. Felipe Meneguzzi.
 Title: Inferring Agents Preferences as Priors for Probabilistic Goal Recognition
 Students: Kin Max Piamolini Gusm3o

Industry

- 2008–2014 **Software Developer**, *Thema Informática Ltda.*, Porto Alegre, Brazil.
Responsible for developing some modules of an ERP (Enterprise Resource Planning) for public and private companies using Java with JSF (Java Server Faces), RichFaces, Spring, iBatis, and PL/SQL.
- 2005–2008 **Network Administrator**, *RedeImagem Ltda.*, Porto Alegre, Brazil.
Responsible for managing networks using Microsoft Windows 2000/2003; and
Responsible for installing and maintaining databases (Microsoft SQL Server e Oracle 9i/10g).

Quick Links

- Google Scholar <https://scholar.google.com.br/citations?user=9HRSVRgAAAAJ&hl>
- DBLP https://dblp.uni-trier.de/pers/hd/p/Pereira:Ramon_Fraga
- GitHub <http://github.com/ramonpereira>

Publications

Book Chapters

- 2020 Maurício Cecilio Magnaguagno, **Ramon Fraga Pereira**, Martin D. Móre, and Felipe Meneguzzi. Web Planner: A Tool to Develop, Visualize and Test Classical Planning Domains. *Knowledge Engineering Tools and Techniques for AI Planning, 1st Edition*, Editors: Mauro Vallati and Diane Kitchin, Springer, 2020.

Journal Papers

- 2022 Mor Vered, Reuth Mirsky, **Ramon Fraga Pereira**, and Felipe Meneguzzi. Editorial: Advances in Goal, Plan and Activity Recognition. *Frontiers in Artificial Intelligence*, Vol 5:861669, 2022.
- 2020 **Ramon Fraga Pereira**, Nir Oren, and Felipe Meneguzzi. Landmark-Based Approaches for Goal Recognition as Planning. *Artificial Intelligence (AIJ)*, Vol 279, 2020.
- 2020 **Ramon Fraga Pereira**, Nir Oren, and Felipe Meneguzzi. Using Sub-Optimal Plan Detection to Identify Commitment Abandonment in Discrete Environments. *ACM Transactions on Intelligent Systems and Technology (TIST)*, Vol 11, 2020.
- 2018 Rafael C. Cardoso, **Ramon Fraga Pereira**, Guilherme Krzisch, Maurício Cecilio Magnaguagno, Tulio Basegio, and Felipe Meneguzzi. Team PUCRS: a Decentralised Multi-Agent Solution for the Agents in the City Scenario. *International Journal of Agent-Oriented Software Engineering*, Vol 6:1, P. 3-34, 2018.
- 2017 Giovanni P. Farias, **Ramon Fraga Pereira**, Lucas W. Hilgert, Felipe Meneguzzi, Renata Vieira, and Rafael H. Bordini. Predicting Plan Failure by Monitoring Action Sequences and Duration. *Advances in Distributed Computing and Artificial Intelligence Journal*, Vol 6:1, P. 71-84, 2017.
- 2016 Cameron R. Craddock, **Ramon Fraga Pereira**, *et. al.*. Brainhack: A Collaborative Workshop for the Open Neuroscience Community. In *GigaScience*, 5(1):1–8, 2016.
- 2016 **Ramon Fraga Pereira**, Anibal Solon Heinsfeld, Alexandre R. Franco, Augusto Buchweitz, and Felipe Meneguzzi. Detecting Task-Based fMRI Compliance using Plan Abandonment Techniques. In *GigaScience*, 5(1): 21-22, 2016.

Conference Papers

- 2023 Leonardo Amado, **Ramon Fraga Pereira**, and Felipe Meneguzzi. Robust Neuro-Symbolic Goal and Plan Recognition. In *37th AAAI Conference on Artificial Intelligence*, 2023.
- 2023 Adrian Price, **Ramon Fraga Pereira**, Peta Masters, and Mor Vered. Domain-Independent Deceptive Planning. In *22nd International Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*, 2023.
- 2022 **Ramon Fraga Pereira**, André G. Pereira, Frederico Messa, and Giuseppe De Giacomo. Iterative Depth-First Search for Fully Observable Non-Deterministic Planning. In *the 32nd International Conference on Automated Planning and Scheduling (ICAPS)*, 2022.
- 2021 Felipe Meneguzzi and **Ramon Fraga Pereira**. A Survey on Goal Recognition as Planning. In *the 30th International Joint Conference on Artificial Intelligence (IJCAI)*, 2021.
- 2021 Luisa R. Santos, Felipe Meneguzzi, **Ramon Fraga Pereira**, and André Grahl Pereira. An LP-Based Approach for Goal Recognition as Planning. In *the 35th AAAI Conference on Artificial Intelligence (AAAI)*, 2021.
- 2021 Leonardo Amado, **Ramon Fraga Pereira**, and Felipe Meneguzzi. Combining LSTMs and Symbolic Approaches for Robust Plan Recognition. In *the 20th International Conference on Autonomous Agents and Multiagent Systems (AAMAS)*, 2021.
- 2020 Leonardo Amado, Gabriel Paludo Licks, Matheus Marcon, **Ramon Fraga Pereira**, and Felipe Meneguzzi. Using Self-Attention LSTMs to Enhance Observations in Goal Recognition. In *the 33rd International Joint Conference on Neural Networks (IJCNN)*, 2020.
- 2019 **Ramon Fraga Pereira**, Mor Vered, Felipe Meneguzzi, and Miquel Ramírez. Online Probabilistic Goal Recognition over Nominal Models. In *the 28th International Joint Conference on Artificial Intelligence (IJCAI)*, 2019.
- 2019 **Ramon Fraga Pereira**, André Grahl Pereira, and Felipe Meneguzzi. Landmark-Enhanced Heuristics for Goal Recognition in Incomplete Domain Models. In *the 29th International Conference on Planning and Scheduling (ICAPS)*, 2019.
- 2019 **Ramon Fraga Pereira**. Heuristic Goal Recognition in Incomplete Domain Models. In *the 29th International Conference on Planning and Scheduling (ICAPS)*, *Doctoral Consortium*, 2019.
- 2018 **Ramon Fraga Pereira**, and Felipe Meneguzzi. Goal Recognition in Incomplete Domain Models. In *the 32nd Association for the Advancement of Artificial Intelligence (AAAI)*, *Student Abstract*, 2018.
- 2018 Mor Vered, **Ramon Fraga Pereira**, Maurício Cecilio Magnaguagno, Felipe Meneguzzi, and Gal A. Kaminka. Towards Online Goal Recognition Combining Goal Mirroring and Landmarks. In *the 17th International Conference on Autonomous Agents and Multiagent Systems (AAMAS)*, 2018.
- 2018 Leonardo Amado, **Ramon Fraga Pereira**, João Paulo Aires, Maurício Cecilio Magnaguagno, Roger Granada, and Felipe Meneguzzi. Goal Recognition in Latent Space. In *the 31st International Joint Conference on Neural Networks (IJCNN)*, 2018.

- 2018 Felipe Meneguzzi, **Ramon Fraga Pereira**, and Nir Oren. Sensor Placement for Plan Monitoring Using Genetic Programming. In *the International Conference on Principles and Practice of Multi-Agent Systems (PRIMA)*, 2018.
- 2018 **Ramon Fraga Pereira**. Goal Recognition as Reasoning over Landmarks in Incomplete Domain Models. In *the 17th International Conference on Autonomous Agents and Multiagent Systems (AAMAS), Doctoral Consortium*, 2018.
- 2017 **Ramon Fraga Pereira**, Nir Oren, and Felipe Meneguzzi. Landmark-Based Heuristics for Goal Recognition. In *the 31st Association for the Advancement of Artificial Intelligence (AAAI)*, 2017.
- 2017 **Ramon Fraga Pereira**, Nir Oren, and Felipe Meneguzzi. Detecting Commitment Abandonment by Monitoring Sub-Optimal Steps during Plan Execution. In *the 16th International Conference on Autonomous Agents and Multiagent Systems (AAMAS)*, 2017.
- 2016 **Ramon Fraga Pereira** and Felipe Meneguzzi. Landmark-Based Plan Recognition. In *the 22nd European Conference on Artificial Intelligence (ECAI)*, 2016.
- 2016 Maurício Cecilio Magnaguagno, **Ramon Fraga Pereira**, and Felipe Meneguzzi. DOVE-TAIL: An Abstraction for Classical Planning using a Visual Metaphor. In *the 29th Florida Artificial Intelligence Research Society Conference (FLAIRS)*, 2016.
- 2016 Giovanni P. Farias, **Ramon Fraga Pereira**, Lucas W. Hilgert, Felipe Meneguzzi, Renata Vieira, and Rafael H. Bordini. Failure Prediction based on Monitoring Sequences of Actions and Action Duration. In *the 10th Workshop-School on Software Agents, Environments and Applications (WESAAC)*, 2016.
- 2015 **Ramon Fraga Pereira**, Maurício Cecilio Magnaguagno, Anibal Solon Heinsfeld, and Felipe Meneguzzi. LOCUS: An Environment Description Language for Jason. In *the 9th Workshop-School on Software Agents, Environments and Applications (WESAAC)*, 2015.

Workshop Papers

- 2023 Simon Kolker, Louise Dennis, **Ramon Fraga Pereira**, Mengwei Xu. Uncertain Machine Ethical Decisions Using Hypothetical Retrospection. In *the AAMAS 2023 Workshop on Coordination, Organizations, Institutions, Norms and Ethics for Governance of Multi-Agent Systems (COINE)*, 2023.
- 2021 Kim Max Gusmão, **Ramon Fraga Pereira**, and Felipe Meneguzzi. Inferring Agents Preferences as Priors for Probabilistic Goal Recognition. In *the ICAPS Workshop on Scheduling and Planning Applications woRKshop (SPARK)*, 2021.
- 2020 Kim Max Gusmão, **Ramon Fraga Pereira**, and Felipe Meneguzzi. The More the Merrier?! Evaluating the Effect of Landmark Extraction Algorithms on Landmark-Based Goal Recognition. In *the AAAI 2020 Workshop on Plan, Activity, and Intent Recognition (PAIR)*, 2020.
- 2019 **Ramon Fraga Pereira**, Mor Vered, Felipe Meneguzzi, and Miquel Ramírez. Goal Recognition over Nominal Models. In *the ICAPS 2019 Workshop on Planning and Robotics (PlanRob)*, 2019.

- 2019 Felipe Meneguzzi, André Grahl Pereira, and **Ramon Fraga Pereira**. Robust Goal Recognition with Operator-Counting Heuristics. In *the ICAPS 2019 Workshop on Explainable AI (XAIP)*, 2019.
- 2019 Leonardo Amado, João Paulo Aires, **Ramon Fraga Pereira** Maurício Cecilio Magnaguagno, Roger Granada, and Felipe Meneguzzi. An LSTM-Based Approach for Goal Recognition in Latent Space. In *the AAAI 2019 Workshop on Plan, Activity, and Intent Recognition (PAIR)*, 2019.
- 2018 **Ramon Fraga Pereira**, and Felipe Meneguzzi. Goal Recognition in Incomplete STRIPS Domain Models. In *the AAAI 2018 Workshop on Plan, Activity, and Intent Recognition (PAIR)*, 2018.
- 2018 Mor Vered, **Ramon Fraga Pereira**, Maurício Cecilio Magnaguagno, Felipe Meneguzzi, and Gal A. Kaminka. Online Goal Recognition as Reasoning over Landmarks. In *the AAAI 2018 Workshop on Plan, Activity, and Intent Recognition (PAIR)*, 2018.
- 2018 Leonardo Amado, João Paulo Aires, **Ramon Fraga Pereira** Maurício Cecilio Magnaguagno, Roger Granada, and Felipe Meneguzzi. LSTM-Based Goal Recognition in Latent Space. In *the IJCAI Workshop on Planning and Learning (PAL)*, 2018.
- 2017 **Ramon Fraga Pereira**, Nir Oren, and Felipe Meneguzzi. Monitoring Plan Optimality using Landmarks and Domain-Independent Heuristics. In *the AAAI 2017 Workshop on Plan, Activity, and Intent Recognition (PAIR)*, 2017.
- 2017 Roger Granada, **Ramon Fraga Pereira**, Juarez Monteiro, Rodrigo Barros, Duncan Ruiz, and Felipe Meneguzzi. Hybrid Activity and Plan Recognition for Video Streams. In *the AAAI 2017 Workshop on Plan, Activity, and Intent Recognition (PAIR)*, 2017.
- 2017 Mor Vered, **Ramon Fraga Pereira**, Maurício Cecilio Magnaguagno, Gal A. Kaminka, and Felipe Meneguzzi. Online Goal Recognition Combining Landmarks and Planning. In *the IJCAI 2017 Workshop on Goal Reasoning (GR)*, 2017.
- 2017 Maurício Cecilio Magnaguagno, **Ramon Fraga Pereira**, Martin D. Móre, and Felipe Meneguzzi. WEB PLANNER: A Tool to Develop Classical Planning Domains and Visualize Heuristic State-Space Search. In *the ICAPS 2017 Workshop on User Interfaces and Scheduling and Planning (UISP)*, 2017.
- 2017 **Ramon Fraga Pereira**, Nir Oren, and Felipe Meneguzzi. A Plan Optimality Monitoring Approach to Detect Commitment Abandonment. In *the AAMAS 2017 International Workshop on Coordination, Organisations, Institutions and Norms (COIN)*, 2017.

Demonstrations

- 2020 Leonardo Amado, **Ramon Fraga Pereira**, João Paulo Aires, Maurício Cecilio Magnaguagno, Roger Granada, Gabriel Licks, Matheus Marcon, and Felipe Meneguzzi. LatRec+: Learning-Based Approach for Goal Recognition in Latent Space. In *the AAAI 2020 Workshop on Plan, Activity, and Intent Recognition (PAIR)*, 2020.
- 2020 Roger Granada, **Ramon Fraga Pereira**, Juarez Monteiro, Leonardo Amado, Rodrigo Barros, Duncan Ruiz, and Felipe Meneguzzi. HAPRec: Hybrid Activity and Plan Recognizer. In *the AAAI 2020 Workshop on Plan, Activity, and Intent Recognition (PAIR)*, 2020.

- 2019 Leonardo Amado, **Ramon Fraga Pereira**, João Paulo Aires, Maurício Cecilio Magnaguagno, Roger Granada, Gabriel Licks, and Felipe Meneguzzi. LatRec: Recognizing Goals in Latent Space. In *the 29th International Conference on Planning and Scheduling (ICAPS)*, 2019.
- 2019 Maurício Cecilio Magnaguagno, **Ramon Fraga Pereira**, Martin D. Móre, and Felipe Meneguzzi. Develop, Visualize and Test Classical Planning Descriptions in your Browser. In *the 29th International Conference on Planning and Scheduling (ICAPS)*, 2019.

Awards and Research Grants

- 2020 **Best Ph.D. Thesis in Artificial Intelligence in Brazil (CTDIAC at BRACIS).**
 Title: *Goal Recognition over Imperfect Domain Models.*
 Advisor: Prof. Dr. Felipe Meneguzzi.
 Co-advisor: Dr. Miquel Ramírez.
- 2018 **Australia-Americas Ph.D. Research Internship Program**, *The Australian Academy of Science*, Australia.
- 2018 **CAPES Research Grant for split-site Doctoral Program**, *Brazilian Government*, Brazil.
- 2018 **Among the 10 Best Student Abstracts at the 32nd Association for the Advancement of Artificial Intelligence (AAAI).**
 Title: *Goal Recognition in Incomplete Domain Models.*
- 2016 **Second Best Master's Dissertation in Artificial Intelligence in Brazil (CTDIAC at BRACIS).**
 Title: *Landmark-Based Plan Recognition.*
 Advisor: Prof. Dr. Felipe Meneguzzi
- 2016 **Multi-Agent Programming Contest (1st Place), Agents in the City Scenario.**
 Solution: *A Decentralized Multi-Agent Solution using JaCaMo.*
 Team: Rafael C. Cardoso, **Ramon Fraga Pereira**, Anibal Solon Heinsfeld, Artur Freitas, Guilherme Krzisch, Maurício Cecilio Magnaguagno, Túlio Basegio, and Felipe Meneguzzi
- 2013 **Best Bachelor's Diploma Thesis in Computer Science at Pontifical Catholic University of Rio Grande do Sul (PUCRS).**
 Title: *Implementing Performance Optimizations on GraphPlan.*
 Authors: **Ramon Fraga Pereira** and Fernando Fuentes Giroletti
 Advisor: Prof. Dr. Felipe Meneguzzi

Other Academic Activities

Journals

- 2020 **Guest Editor.**
 Frontiers of Artificial Intelligence - Special Issue on Goal and Plan Recognition.

2020-2023 **Reviewer.**

Journal of Artificial Intelligence Research (JAIR).
Artificial Intelligence (AIJ).
Knowledge Engineering Review (KER).
Journal of Logic and Computation (JLC).
Frontiers in Artificial Intelligence.
International Journal of Computers and Applications (TJCA).

Conferences

2019-2023 **Program Committee.**

Association for the Advancement of Artificial Intelligence (AAAI).
International Joint Conference on Artificial Intelligence (IJCAI).
International Conference on Autonomous Agents and Multiagent Systems (AAMAS).

2022-2023 **Program Committee.**

International Conference on Automated Planning and Scheduling (ICAPS).

2020-2023 **Program Committee.**

European Conference on Artificial Intelligence (ECAI).

2021 **Senior Program Committee.**

International Joint Conference on Artificial Intelligence (IJCAI).

2021 **Co-chair.**

Panel Session of the AAAI Workshop on Plan, Activity, and Intent Recognition (PAIR).

2020 **Co-chair.**

Demo Session of the AAAI Workshop on Plan, Activity, and Intent Recognition (PAIR).

Talks

2019 **Invited Talk, *Heuristic Goal Recognition in Incomplete Domain Models*.** Agents-VIC, RMIT University, Melbourne, Australia.

Languages

Portuguese **Native**

English **Fluent**

Italian **Intermediate**

Spanish **Beginner**

Skill Set

Java **Advanced (15 years)**

Python **Advanced (10 years)**

C/C++ **Intermediary (2 years)**

AgentSpeak(L) **Beginner (1 year)**