Alberto Marchesi

Curriculum Vitae et Studiorum

Personal Information

Date of Birth	September 22, 1992
Place of Birth	Piacenza, Italy
Citinzenship	Italian

Work Information

University	Politecnico di Milano
Department	Dipartimento di Elettronica, Informazione e Bioingegneria (DEIB)
Address	Via Golgi 39, 20133, Milano (MI), Italy
Email	alberto.marchesi@polimi.it
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Phone	+39 02 2399 9685

Research Experience

2020 — **PostDoc Research Assistant**, *Politecnico di Milano, Dipartimento di Elettronica Informazione e Bioingegneria (DEIB)*, Milano.

Education

2016 – 2020 — **PhD in Computer Science and Engineering**, *Politecnico di Milano*, Milano,
Thesis: Leadership Games: Multiple Followers, Multiple Leaders, and Perfection
Advisor: Prof. Nicola Gatti.
Mark: *with laude*

2014 – 2016 — **MSc in Computer Science and Engineering**, *Politecnico di Milano*, Milano,
Thesis: Methods for finding Leader-Follower equilibria with multiple followers
Advisor: Prof. Nicola Gatti.
Mark: *110 cum laude/110*

2011 – 2014 — **BSc in Computer Science and Engineering**, *Politecnico di Milano*, Milano.
Mark: *110 cum laude/110*

2011 — **Diploma di Perito Industriale in Informatica**, *Istituto Tecnico Indistriale Statale G. Marconi*, Piacenza (PC).
Mark: *100 cum laude/100*

Teaching Activities

2018 — **Economics and Computation a.y. 2017-2018; 2018-2019; 2019-2020**, *Teaching assistant*, Exercise sessions using innovative teaching methodologies.

2018 **Informatica A a.y. 2018-2019; 2019-2020; 2020-2021**, *Teaching assistant*, Exercise sessions.

2019 **Game Theory a.y. 2019-2020**, *Teaching assistant*, Exercise sessions.

Research Interests

My current research focuses on *Artificial Intelligent*, especially *Algorithmic Game Theory* and *Machine Learning*.

Algorithmic Game Theory: My main research interests are: analysis of the computational complexity of equilibirum finding problems; development of exact and approximate algorithms for computing equilbiria in large games; application of algorithmic techniques to real-world economic problems, such as pricing and information struture design.

Machine Learning: I am interested in multi-agent learning, which studies how rational agents can learn their stratgies while competing among each other, and online learning, in particular multi-armed bandits techniques applied to economic problems.

PhD Research Project

Title: *Leadership Games: Multiple Followers, Multiple Leaders, and Perfection*

Advisors: Prof. Nicola Gatti

Description: In recent years, leader-follower (a.k.a. Stackelberg) games have received a growing interest from the Artificial Intelligence community. These games model strategic interactions involving two groups of agents, the leaders and the followers, where the former commit to playing some strategies, while the latter decide how to play after observing the commitment. This model perfectly fits many real-world scenarios, such as the securitty domain. We extend the state of the art on Stackelber games by adddressing models involving multiple leaders and followers, and introducing, for the first time, the idea of perfection (a.k.a. equilibrium refinement) in such settings.

Publications

Working Papers

Castiglioni M., Celli A., Marchesi A., Gatti N.
Signaling in Bayesian Network Congestion Games: the Subtle Power of Symmetry
Working paper, arXiv preprint arXiv:2002.05190

Papers on Proceedings of International Conferences

[C13] Celli A., Marchesi A., Farina G., Gatti N.
No-Regret Learning Dynamics for Extensive-Form Correlated Equilibrium
The 34th Conference on Neural Information Processing Systems, NeurIPS 2020, Virtual conference [**Oral** presentation, top **1.11%** of submissions]

[C12] Castiglioni M., Celli A., Marchesi A., Gatti N.
Online Bayesian Persuasion
The 34th Conference on Neural Information Processing Systems, NeurIPS 2020, Virtual conference [**Spotlight** presentation, top **2.96%** of submissions]

[C11] Marchesi A., Trovò F., Gatti N.
Learning Probably Approximately Correct Maximin Strategies in Simulation-Based Games with Infinite Strategy Spaces
The 19th International Conference on Autonomous Agents and Multi-Agent Systems, AAMAS 2020, Virtual conference

[C10] Celli A., Marchesi A., Bianchi T., Gatti N.
Learning to Correlate in Multi-Player General-Sum Sequential Games
The 33rd Conference on Neural Information Processing Systems, NeurIPS 2019, Vancouver, Canada

[C9] Castiglioni M., Marchesi A., Gatti N.
Be a Leader or Become a Follower:The Strategy to Commit to with Multiple Leaders
The 28th International Joint Conference on Artificial Intelligence, IJCAI 2019, Macao, China

[C8] Marchesi A., Castiglioni M., Gatti N.
Leadership in Congestion Games: Multiple User Classes and Non-Singleton Actions
The 28th International Joint Conference on Artificial Intelligence, IJCAI 2019, Macao, China

[C7] Marchesi A., Farina G., Kroer C., Gatti N., Sandholm T.
Quasi-Perfect Stackelberg Equilibrium
The 33rd AAAI Conference on Artificial Intelligence, AAAI 2019, Honolulu, USA

[C6] Marchesi A., Coniglio S., Gatti N.
Leadership in Singleton Congestion Games
The 27th International Joint Conference on Artificial Intelligence, IJCAI 2018: 447-453, Stockholm, Sweden

[C5] Farina G., Marchesi A., Kroer C., Gatti N., Sandholm T.
Trembling-Hand Perfection in Extensive-Form Games with Commitment
The 27th International Joint Conference on Artificial Intelligence, IJCAI 2018: 233-239, Stockholm, Sweden

[C4] De Nittis G., Marchesi A., Gatti N.
Computing the Strategy to Commit to in Polymatrix Games
The 32nd AAAI Conference on Artificial Intelligence, AAAI 2018: 989-996, New Orleans, USA

[C3] Coniglio S., Gatti N., Marchesi A.
Pessimistic Leader-Follower Equilibria with Multiple Followers
The 26th International Joint Conference on Artificial Intelligence, IJCAI 2017: 171-177, Melbourne, Australia

[C2] Celli A., Marchesi A., Gatti N.
On the Complexity of Nash Equilibrium Reoptimization
The 33rd Conference on Uncertainty in Artificial Intelligence, UAI 2017: 292-301, Sydney, Australia

[C1] Basilico N., Coniglio S., Gatti N., Marchesi A.
Bilevel programming approaches to the computation of optimistic and pessimistic single-leader-multi-follower equilibria
The 16th International Symposium on Experimental Algorithms, SEA 2017: 31:1-31:14 London, UK, June 21-23, 2017

International Journals

[J4] Gatti N., Gilli M., Marchesi A.
A Characterization of Quasi-Perfect Equilibria
Games and Economic Behavior, 2020

[J3] Coniglio S., Gatti N., Marchesi A.
Computing a Pessimistic Stackelberg Equilibrium with Multiple Followers: the Mixed-Pure Case
Algorithmica, 2020

[J2] Castiglioni M., Marchesi A., Gatti N., Coniglio S.
Leadership in Singleton Congestion Games: What is Hard and What is Easy
Artificial Intelligence Journal (AIJ), 2019

[J1] Basilico N., Coniglio S., Gatti N., Marchesi A.
Bilevel programming methods for computing single-leader-multi-follower equilibria in normal-form and polymatrix games
EURO Journal on Computational Optimization, 2019

Papers in International Workshops

Castiglioni M., Marchesi A., Gatti N.
Computing Correlated Strategies to Commit to with Multiple Leaders
Games, Agents and Incentives Workshops at AAMAS 2020, Virtual workshop

Marchesi A., Trovò F., Gatti N.
Learning Maximin Strategies with Best Arm Identification Techniques
Games, Agents and Incentives Workshops at AAMAS 2020, Virtual workshop

Celli A., Marchesi A., Bianchi T., Gatti N.
Learning to Correlate in Multi-Player General-Sum Sequential Games
Smooth Games Optimization and Machine Learning Workshop (NeurIPS 2019), Vancouver, Canada.

Marchesi A., Trovò F., Gatti N.
Learning Maximin Strategies in Simulation-Based Games with Infinite Strategy Spaces
Smooth Games Optimization and Machine Learning Workshop (NeurIPS 2019), Vancouver, Canada.

Farina G., Marchesi A., Kroer C., Gatti N., Sandholm T.
Trembling-Hand Perfection in Stackelberg Sequential Games
Games, Agents and Incentives Workshops at AAMAS 2019, Stockholm, Sweden

Marchesi A., Farina G., Kroer C., Gatti N., Sandholm T.
Computing a Quasi-Perfect Stackelberg Equilibrium
Games, Agents and Incentives Workshops at AAMAS 2019, Stockholm, Sweden

Marchesi A., Coniglio S., Gatti N.
Singleton Congestion Games with Leadership
Games, Agents and Incentives Workshops at AAMAS 2019, Stockholm, Sweden

Marchesi A., Farina G., Kroer C., Gatti N., Sandholm T.
Quasi-Perfect Stackelberg Equilibrium
AAAI-19 Workshop on Reinforcement Learning in Games, Honolulu, USA

Celli A., Marchesi A.
Nash Equilibrium Reoptimization is Hard
The 3rd IJCAI Algorithmic Game Theory Workshop, Melbourne, Australia

National Journals

Celli A., Marchesi A.
Learning Dynamics in Limited-Control Repeated Games
Intelligenza Artificiale, 2018

Awards

National Doctoral Scholarship
Three-years doctoral scholarship sponsored by the Ministry of Education, Universities and Research.

Borsa di Studio FCA e CNH Industrial 2017
Scolarships for the best graduated students (Laurea Magistrale) who are sons/daughters of emplyees of FCA and CNH Industrial.

Borsa di Studio FCA e CNH Industrial 2015
Scolarships for the best graduated students (Laurea Triennale) who are sons/daughters of emplyees of FCA and CNH Industrial.

Talks and Seminars

Talks given at International Conferences

Aug. 2019 **Be a Leader or Become a Follower: The Strategy to Commit to with Multiple Leaders**
The 28th International Joint Conference on Artificial Intelligence, IJCAI 2019, Macao, China

Feb. 2018 **Computing the Strategy to Commit to in Polymatrix Games**
The 32nd AAAI Conference on Artificial Intelligence, AAAI 2018, New Orleans, USA

Aug. 2017 **Pessimistic Leader-Follower Equilibria with Multiple Followers**
The 26th International Joint Conference on Artificial Intelligence, IJCAI 2017, Melbourne, Australia

Talks given at Workshops

Aug. 2019 **Be a Leader or Become a Follower:The Strategy to Commit to with Multiple Leaders**
Markets, Algorithms, Prediction, and LEarning 2019, MAPLE 2019, Milan, Italy

Aug. 2017 **Nash Equilibrium Reoptimization is Hard**
The 3rd IJCAI Algorithmic Game Theory Workshop, Melbourne, Australia

Seminars

Mar. 2017 **Leadership Games**
Permanent Itinerant Game Theory Seminars (P.I.G.S.), Politecnico di Milano, Italy

Jan. 2018 **When Are Equilibria of Simple Auctions Near-Optimal?**
Permanent Itinerant Game Theory Seminars (P.I.G.S.), Politecnico di Milano, Italy

Editorial Activities

International Conferences

IJCAI 2017 International Joint Conference on Artificial Intelligence, Program Committee Subreviewer.

AAMAS 2017 International Conference on Antonomous Agents and Multiagent Sytems, Program Committee Subreviewer.

AAAI 2018 AAAI Conference on Artificial Intelligence, Program Committee.

IJCAI 2018 International Joint Conference on Artificial Intelligence, Program Committee Subreviewer.

AAAI 2019 AAAI Conference on Artificial Intelligence, Program Committee.

AAAI 2020 AAAI Conference on Artificial Intelligence, Program Committee.

IJCAI 2020 International Joint Conference on Artificial Intelligence, Program Committee.

NeurIPS 2020 Conference on Neural Information Processing Systems, Program Committee.

AAAI 2021 AAAI Conference on Artificial Intelligence, Program Committee.

Qualifications

Sep 2013

TOEIC, *Mark 980/990*, Milano.
Certificate of English language

Languages

Italian Native *Mother Tongue*

English Fluent *Daily practice, all work performed in English*

Working Experience

2011

Web Application Programmer, *H&S - Qualità nel software*, Piacenza (PC), Italy.
Development of a web application in ASP.NET and C#, management of databases in SQL Server 2008 Professional.

Skills

General

Social Good ability to adapt to multicultural environments, Good communication skills.

Organisational Team spirit.

Technical MS Office tools.

Programming

Languages	C, Java, Python (numpy, scipy), R, MATLAB, AMPL, SQL, HTML, C#, Scheme, Haskell, Prolog
Integrated Development Environments	Pycharm, Eclipse, NetBeans, MATLAB, R
Typesetting	Microsoft Office, Apple iWork, LaTeX
Operating Systems	Microsoft Windows, Apple MacOS, GNU/Linux

Personal Interests

Sport	Tennis

relativo alla protezione delle persone fisiche per quanto riguarda il trattamento dei dati personali). Autorizzo la pubblicazione del Curriculum Vitae sul sito istituzionale del Politecnico di Milano (sez. Amministrazione Trasparente) in ottemperanza al D. Lgs n. 33 del 14 marzo 2013 (e s.m.i.).