Mauricio Abel Soto Gomez
CURRICULUM VITAE

Personal Information

Nome	Mauricio Abel
Cognome	Soto Gomez
Data di Nascita	12/04/1980

Qualifications

10/12/2012	**Ph.D. in Computer Science.** Institute of Fundamental Research in Informatics - IRIF(ex LIAFA), Université Paris Diderot. *"On topological properties of graphs and application to communication networks".* Advisors : Laurent Viennot and Fabien de Montgolfier Jury: Michel Habib, Jean-Loup Guillaume, Nicolas Hanusse, Sébastien Tixeuil.
03/03/2008	**M.S. in Computer Science**, Parisian Master of Research in Computer Science LIAFA, Université Paris Diderot. *"Protocols and algorithms on communication networks".* Advisor : Adi Rosén
16/19/2005	**Mathematical Engineering** Department of Mathematical Engineering, Universidad de Chile. *"Adversarial queueing theory with setups".* Advisor : Marcos Kiwi

Research Contracts

01/02/2023-	RTDa - **Università degli Studi di Milano.** Department of Computer Science "Giovanni degli Antoni".
13/01/2020-31/01/2023	RTDa - **Politecnico di Milano.** Department of Management , Economics and Industrial Engineering.
01/06/2019-12/01/2020	Assegno Ricerca - **Università degli Studi di Milano-Bicocca.** Department of Informatics, Systems and Communication. "On semantic embedding techniques for tabular data reconciliation".
01/03/2018-28/02/2019	Assegno Ricerca - **Università degli Studi di Milano-Bicocca.** Department of Informatics, Systems and Communication. "Algorithms and tools for linked data profiling".
01/03/2017-28/02/2018	Assegno Ricerca - **Università degli Studi di Milano-Bicocca.** Department of Informatics, Systems and Communication. "Quality profiles of open data on the Lombardy region".
01/03/2017-30/04/2017	Occasional collaboration - **Università degli Studi di Milano-Bicocca.** Department of Informatics, Systems and Communication. "Phylogenetic riconstruction for tumoral evolution".

2013 – 2015	Research project manager - **Universidad de Chile.** Department of Mathematical Engineering. "Graph topological properties and application to communication networks".
2011 / 2012	Teaching Assistant (Attaché Temporaire d'Enseignement et de Recherche) – full time **Université d'Orléans.** Graphs, Algorithms and Models of Computation, LIFO.
2010 / 2011	Teaching Assistant – partial time. **Université Paris Diderot.** LIAFA.
2006 / 2007	**Université Paris Sud.** Laboratoire de Recherche en Informatique Master research internship. Advisor : Adi Rosén
2004 / 2005	**Universidad de Chile.** CMM – UMI CNRS 2807, Santiago, Chile. Research internship. Advisor : Marcos Kiwi
2003 / 2004	**Universidad de Chile.** CMM , Mathematical Mechanics Project Research internship. Advisor : Raúl Gormaz

Teaching Experience

Professor

Università degli Studi di Milano

Health Informatics	Bachelor - Medicine	Spring 2023	16h
Machine Learning	Master - Human Sciences	Fall 2023	16h

Politecnico Milano

Optimization	Bachelor - Management	Fall 2022	60h
Optimization	Bachelor - Management	Fall 2021	60h
Optimization	Bachelor - Management	Fall 2020	60h
Optimization	Bachelor - Management	Fall 2019	60h
Optimization	Bachelor - Management	Fall 2018	60h

Università degli Studi di Milano-Bicocca

Optimization	Bachelor - Informatics	Fall 2019	32h

Universidad de Chile

Multivariate calculus	Bachelor - Mathematics	Fall 2015	45h
Multivariate calculus	Bachelor - Mathematics	Summer 2015	45h
Advanced calculus	Bachelor - Mathematics	Spring 2015	45h
Advanced calculus	Bachelor - Mathematics	Summer 2015	45h
Optimization	Bachelor - Mathematics	Spring 2015	45h
Optimization	Bachelor - Mathematics	Summer 2014	45h
Optimization	Bachelor - Mathematics	Spring 2014	45h
Optimization	Bachelor - Mathematics	Fall 2014	45h

Université d'Orléans

Functional programming	Bachelor - Informatics	Spring 2012	39h
Mathematics for Computer Science	Bachelor - Informatics	Spring 2012	45h

Teaching Assistant

Politecnico Milano

Machine Learning	Bachelor - Management	Fall 2022	20h
Machine Learning	Bachelor - Management	Fall 2021	20h
Machine Learning	Bachelor - Management	Fall 2020	20h
Machine Learning	Bachelor - Management	Fall 2019	20h
Optimization	Bachelor - Management	Fall 2022	40h
Optimization	Bachelor - Management	Fall 2021	40h
Optimization	Bachelor - Management	Fall 2020	40h
Optimization	Bachelor - Management	Fall 2019	40h
Optimization	Bachelor - Management	Fall 2018	40h

Università degli Studi di Milano-Bicocca

Optimization	Bachelor - Informatics	Fall 2018	80h
Optimization	Bachelor - Informatics	Fall 2017	40h
Decision Models (tutor)	Master - Informatics	Fall 2017	40h

Université d'Orléans

Optimization	Bachelor - Informatics	Fall 2011	20h
Informatics tools	Bachelor	Fall 2011	20h
Programming (Java)	Bachelor - Math	Fall 2011	45h

Université Paris Diderot

Web Programming	Bachelor - Informatics	Spring 2011	52h
Algorithmic	Bachelor	Fall 2011	18h
Programming (Java)	Bachelor - Math	Fall 2011	29h

Universidad de Chile

Probability	Bachelor - Math	Summer 2004	30h
Probability	Bachelor - Math	Spring 2004	30h
Probability	Bachelor - Math	Fall 2003	30h
Statistics	Bachelor - Math	Summer 2003	30h
Statistics	Bachelor - Math	Spring 2003	30h
Advanced Calculus	Bachelor - Math	Spring 2003	30h
Advanced Calculus	Bachelor - Math	Spring 2002	30h
Advanced Calculus	Bachelor - Math	Spring 2001	30h
Multivariate Calculus	Bachelor - Math	Fall 2004	30h
Multivariate Calculus (MATLAB Lab)	Bachelor - Math	Fall 2002	10h
Calculus	Bachelor - Math	Fall 2004	30h
Calculus	Bachelor - Math	Fall 2003	30h
Calculus	Bachelor - Math	Fall 2002	30h
Calculus	Bachelor - Math	Fall 2001	30h
Linear Algebra	Bachelor - Math	Spring 2002	30h
Linear Algebra	Bachelor - Math	Fall 2001	30h
Linear Algebra	Bachelor - Math	Spring 2000	30h

Thesis Supervision

PhD. Thesis Supervisor

- Ali Pashaeibarough. *Anacleto Lab*. Department on Informatics. Università degli Studi di Milano. 2023.

Master Thesis Supervisor

- Ping An Steven. *Predictive model for small capacity restaurants' demand based on the CRISP-DM methodology*. Politecnico di Milano. 2020.

BCs. Academic Tutor - Politecnico di Milano

1. Ferrari Elisa (2021/2022). *Il processo consulenziale degli Enti del Terzo Settore: analisi, valutazione e sviluppo*.
2. Maggioni Jacopo (2021/2022). *Sviluppo di Indicatori di Performance per un Home Care Provider - Il Caso Vivisol*.
3. Maniscalchi Andrea (2021/2022). *Introduzione di un approccio matematico per la gestione dell'Earned Value in STMicroelectronics*.
4. Malerba Mariapia (2021/2022). *Le comunità energetiche: opportunità concrete per una piccola utility locale*.
5. Grosa Giacomo (2020/2021). *La gestione del magazzino e l'implementazione di un sistema WMS: l'esperienza in Bormioli Pharma*.

6. Balzardi Paolo (2020/2021). *VMI in Barilla: benefici, criticità e futuri sviluppi*.
7. Gervasoni Carolina (2020/2021). *Building Management System: elaborazione di un nuovo catalogo in BTicino*.
8. Carenini Alessandro James (2020/2021). *Analisi della gestione delle scorte di sicurezza*.
9. Balzardi Paolo (2020/2021). *VMI in Barilla: benefici, criticît e futuri sviluppi*.
10. Arcaro Sofia (2020/2021).*H-Vision ed Efficientamento Energetico per CNH Industrial- HITACHI*.

Implementation Of Projects

06/2013-05/2015   **Research Project Head.**
Topology and Dynamics in communication networks: theory and applications.
Scientific project founding grant (50K euros). Founded by CONICYT.

Organization

- **Program committee member**. iiWAS 2023: 25th International Conference on Information Integration and Web Intelligence.
- **Organizing Committee member**. Summer School on Discrete Mathematics 2015. Valparaíso. Chile
- **Organizing Committee member**. Summer School on Discrete Mathematics 2014. Valparaíso. Chile

Activity as Reviewer

- **Journal:** Theoretical Computer Science, Discrete Applied Mathematics, Computers & Operations Research, Central European Journal of Mathematics, Data Mining and Knowledge Discovery.
- **Conference/Workshop:** LATIN 2022: Latin American Symposium on Theoretical Informatics, IWOCA 2019: International Workshop on Combinatorial Algorithms, WWW 2019: The Web Conference, WABI 2018: Workshop on Algorithms in Bioinformatics, ICTCS 2023: 24th Italian Conference on Theoretical Computer Science.

Awards & Fellowships

Feb 2013	Qualification aux fonctions de maître de conférences Section 27 (Computer Science). France.
Sept 2006 – Aug 2009	Fellowship Master research and Doctorate Embassy of France – CONICYT (university, social security and monthly expenses).
1998, '99, '00	Faculty excellent academic student (top 5% of Faculty of Physics and Mathematics, Universidad de Chile).
1998	Academic excellence grant (Admission position 6/542, Faculty of Physics and Mathematics, Universidad de Chile).

Publications

Journal Papers

1. Giorgio Valentini, Dario Malchiodi, Jessica Gliozzo, Marco Mesiti, M.S., Alberto Cabri, Justin Reese, Elena Casiraghi, Peter Robinson.**The promises of large language models for protein design and modeling**. Frontiers in Bioinformatics, 2023. DOI 10.3389/fbinf.2023.1304099

2. Simone Ciccolella, Gianluca Della Vedova, Vladimir Filipović, Mauricio Soto Gomez.**Three Metaheuristic Approaches for Tumor Phylogeny Inference: An Experimental Comparison**. Algorithms, 2023. DOI: 10.3390/a16070333

3. Keith Araño, Carlotta Orsenigo, Mauricio Soto, and Carlo Vercellis. **Multimodal sentiment and emotion recognition in hyperbolic space** Expert Systems with Applications, 2021. DOI 10.1016/j.eswa.2021.115507

4. Simone Ciccolella, Camir, Ricketts, Mauricio Soto Gomez, Murray Patterson, Danae, Silverbush, Paola Bonizzoni, Iman Hajirasouliha, Gianluca Della Vedova. **Inferring cancer progression from Single-Cell Sequencing while allowing mutation losses** Bioinformatics, 2021. DOI 10.1093/bioinformatics/btaa722

5. Simone Ciccolella, Mauricio Soto Gomez, Murray Patterson, Gianluca Della Vedova, Iman Hajirasouliha, Paola Bonizzoni. **gpps: an ILP-based approach for inferring cancer progression with mutation losses from single cell data**. BMC Bioinformatics, 2020. DOI 10.1186/s12859-020-03736-7

6. Paola Bonizzoni, Simone Ciccolella, Gianluca Della Vedova, Mauricio Soto Gomez. **Does Relaxing the Infinite Sites Assumption Give Better Tumor Phylogenies? An ILP-Based Comparative Approach**. IEEE/ACM Transactions on Computational Biology and Bioinformatics, 2019. DOI 10.1109/TCBB.2018.2865729

7. David Coudert, Guillaume Ducoffe, Nicolas Nisse and M.S. **On distance-preserving elimination orderings in graphs: complexity and algorithms**. *Discrete Applied Mathematics*, 2018. DOI 10.1016/j.dam.2018.02.007

8. M.S. and Christopher Thraves. $(p\text{-})$**Box**(1)**: A new graph model.** *Discrete Mathematics and Theoretical Computer Science, 2015.* ISSN 14627264

9. Eduardo G. Pardo, M.S. and Christopher Thraves. **Embedding signed graphs in the line.** *Journal of Combinatorial Optimization*, 2015. DOI 10.1007/s10878-013-9604-1

10. Marcos Kiwi, M.S. and Christopher Thraves. **Adversarial queueing theory with setups.** *Theoretical Computer Science, 2009.* DOI 10.1016/j.tcs.2008.09.064

Conference Papers

11. Emanuele Cavalleri, Sara Bonfitto, Alberto Cabri, Jessica Gliozzo, Paolo Perlasca, Mauricio Soto Gomez, Gabriella Trucco, Elena Casiraghi, Giorgio Valentini, Marco Mesiti. **A Meta-Graph for the Construction of an RNA-Centered Knowledge Graph**. Bioinformatics and Biomedical Engineering, 2023. DOI: 10.1007/978-3-031-34953-9_13

12. Paola Bonizzoni, Gianluca Della Vedova, Simone Ciccolella, and M.S. **Beyond Perfect Phylogeny: Multisample Phylogeny Reconstruction via ILP.** *In: Proceedings of the 8th ACM Conference on Bioinformatics, Computational Biology and Health Informatics* (AMC-BCB '17), Boston, MA, August 2017. DOI 10.1145/3107411.3107441

13. Gianluca Della Vedova, Murray Patterson, Raffaella Rizzi and M.S. **Character-Based Phylogeny Construction and Its Application to Tumor Evolution.** *In: Proceedings of 13th Conference on Computability in Europe* (CiE 2017), Turku, Finland, June 2017. DOI 10.1007/978-3-319-58741-7_1

14. Manuel Vimercati, Federico Bianchi, M.S. and Matteo Palmonari. **Mapping Lexical Knowledge to Distributed Representations for Ontology Concept Invention**. *8th International Conference of the Italian Association for Artificial Intelligence* (AIIA 2019), Rende, Italy, November 2019. DOI 10.1007/978-3-030-35166-3_40

15. Federico Bianchi, M.S., Matteo Palmonari and Vincenzo Cutrona. **Type Vector Representations from Text: An Empirical Analysis**. *In : Proceedings of the Workshop on Deep Learning for Knowledge Graphs and Semantic Technologies. 2018.* (DL4KGS18), Crete, Greece, June 2018. ISSN 16130073

16. Laurent Viennot, M.S. and Fabien de Montgolfier. **Asymptotic Modularity of Some Graph Classes**. *In: Proceedings of 22nd International Symposium on Algorithms and Computation (ISAAC 2011)*, Yokohama Japan, December 2011. DOI 10.1007/978-3-642-25591-5_45

17. Laurent Viennot, M.S. and Fabien de Montgolfier. **Treewidth and Hyperbolicity of the Internet.** *In: Proceedings of 10th IEEE International Symposium on Network Computing and Applications (NCA 2011)*, Cambridge, MA, USA, August 2011. DOI 10.1109/NCA.2011.11

18. Laurent Viennot, M.S. and Fabien de Montgolfier. **Modularité asymptotique de quelques classes de graphes.** *In: Actes du 14èmes Rencontres Francophones sur les Aspects Algorithmiques des Télécommunications (AlgoTel 2012)*, La Grande Motte, Hérault, France, May 2012.

19. Laurent Viennot, M.S. and Fabien de Montgolfier. **Clustering de métrique et clustering de graphe.** *In: Actes du 13es Rencontres Francophones sur les Aspects Algorithmiques des Télécommunications (AlgoTel 2011)*, Cap Estérel, France, May 2011.

20. Laurent Viennot, M.S. and Fabien de Montgolfier. **Autour du caractère arborescent d'Internet.** *In: Actes du Majecstic 2010*, Bordeaux, France, October 2010.

21. Andrea Maurino, Anisa Rula, Bjørn Marius von Zernichow, M.S., Brian Elvesæter, Dumitru Roman: **Modelling and Linking Company Data in the euBusinessGraph Platform.** *In: Proceedings of the 5th Workshop on Data Science for Macro-modeling with Financial and Economic Datasets (DSMM@SIGMOD 2019)* , Amsterdam, Netherlands, July 2019.
    Preprint

22. Andrea Mor, Carlotta Orsenigo, Mauricio Soto Gomez, and Carlo Vercellis. **Shaping the causes of product returns: a topic modeling approach on online customer reviews**. Electronic Commerce Research. DOI: 10.2139/ssrn.4329729

23. Paola Bonizzoni, Gianluca Della Vedova, Mauricio Soto Gomez , Gabriella Trucco. **Computing the Dollo-1 Phylogeny for Skeleton Graphs in Polynomial Time**.

Skills

Languages	Spanish (mother tongue), English (fluent), French (fluent) Italian (fluent).
Programming	PYTHON, R, MATLAB, JAVA, OCAML, PHP/SQL, HTML/CSS, UNIX shell scripting.

Date: 21/01/2024   Milan