

## Personal information

Name / Surname

**Andrea Ghiglietti**

Personal Email

andrea.ghiglietti@unimib.it

Nationality

Italian

Date of birth

18 May 1986



## Current employment

Dates

09/2022–today

Name and type of organization

Università degli Studi di Milano-Bicocca,  
via Bicocca degli Arcimboldi 8, 20126 Milan (Italy)

Employment

**Assistant Professor - rtdb**

## Previous employments

Dates

03/2022–08/2022

Name and type of organization

Università degli Studi di Torino,  
Lungo Dora Siena 100/A, 10153 Turin (Italy)

Employment

**Assistant Professor - rtdb**

Dates

03/2019–02/2022

Name and type of organization

Swissblock Technology AG,  
Bahnhofplatz, 06300, Zug (Switzerland)

Employment

**Statistical consultant**

Dates

02/2020–03/2021

Name and type of organization

Università della Svizzera Italiana,  
Via Buffi 13, 06900 Lugano (Switzerland)

Employment

**Research Fellow**

Dates

04/2018–08/2019

Name and type of organization

Livanova PLC,  
Via Benigno Crespi, 17, 20159 Milan (Italy)

Employment

**Quality Statistician**

Dates

12/2017–03/2018

Name and type of organization

Università Cattolica del Sacro Cuore,  
Largo Gemelli 1, 20123 Milan (Italy)

Employment

**Assistant Professor - rtda**

Dates

06/2014–11/2017

Name and type of organization

Università degli Studi di Milano,  
Via Cesare Saldini 50, 20133 Milan (Italy)

Employment

**Postdoctoral Researcher**

Title of the project

“Statistical inference for counting processes”

Dates

02/2014–05/2014

Name and type of organization

Politecnico di Milano,  
P.za Leonardo Da Vinci 32, 20133 Milan (Italy)

Employment	<b>Scientific collaborator</b>
Title of the project	"Use of database of the Regional Sanitary Service for epidemiology evaluation, of short terms results, and process indices in hospitalized patients for heart diseases"
<b>Education</b>	
Dates	2011–2014
Name and type of organization providing education	Politecnico di Milano, P.za Leonardo Da Vinci 32, 20133 Milan (Italy) <b>Phd cum Laude in Mathematical Models and Methods in Engineering – XXVI cycle</b>
Advisor	<b>Specialization Statistics.</b> Prof. Anna Maria Paganoni.
Title of Thesis	"Statistical properties of urn models in Response-Adaptive Designs"
Dates	2008–2010
Name and type of organization providing education	Politecnico di Milano, P.za Leonardo Da Vinci 32, 20133 Milano (Italy)
Title of qualification awarded	<b>Master degree in Mathematical Engineering, Specialization Statistics.</b>
Grade	110/110.
Advisor	Prof. Anna Maria Paganoni.
Title of Thesis	"Urn Models for the adaptive design of clinical trials"
Dates	2005–2008
Name and type of organization providing education	Politecnico di Milano, P.za Leonardo Da Vinci 32, 20133 Milan (Italy)
Title of qualification awarded	<b>Bachelor degree in Mathematical Engineering, Specialization Statistics.</b>
Grade	110/110
Advisor	Prof. Anna Maria Paganoni.
Title of Thesis	"Sequential Tests"
Dates	2000–2005
Name and type of organization providing education	Liceo Scientifico Giambattista Vico, informatic orientation Viale Italia 26, 20094 Corsico (MI) (Italy)
Title of qualification award	<b>Maturità Scientifica.</b>
Grade	100/100
<b>Abilitazione Scientifica Nazionale</b>	
Periodo di validita'	16 July 2018–16 July 2029
Fascia	Seconda
Settore Concorsuale	13/D1 Statistica
<b>Publications</b>	
2024	- G. Aletti, I. Crimaldi, A. Ghiglietti:

- "Networks of reinforced stochastic processes: a complete description of the first-order asymptotics"  
Stochastic Processes and their Applications, 176, 104427
- 2024 - G. Aletti, I. Crimaldi, A. Ghiglietti:  
"Networks of reinforced stochastic processes: probability of asymptotic polarization and related general results"  
Stochastic Processes and their Applications, 174, 104376
- 2023 - G. Aletti, I. Crimaldi, A. Ghiglietti:  
"Interacting innovation processes"  
Scientific Reports, 13, 17187
- 2020 - G. Aletti, I. Crimaldi, A. Ghiglietti:  
"Interacting reinforced stochastic processes: Statistical inference based on the weighted empirical means"  
Bernoulli, vol. 26, 2, 1098–1138
- 2019 - G. Aletti, I. Crimaldi, A. Ghiglietti:  
"Networks of reinforced stochastic processes: Asymptotics for the empirical means"  
Bernoulli, vol. 25, 4B, 3339-3378
- 2019 - A. Martino, A. Ghiglietti, F. Ieva, A.M. Paganoni:  
"A k-means procedure based on a Mahalanobis type distance for clustering multivariate functional data"  
Statistical Methods and Applications, vol. 28, 301-322
- 2018 - G. Aletti, A. Ghiglietti, W.F. Rosenberger:  
"Nonparametric covariate-adjusted response-adaptive design based on a functional urn model"  
The Annals of Statistics, vol. 46, 6B, 3838-3866
- 2018 - A. Ghiglietti, M.G. Scarale, R. Miceli, F. Ieva, L. Mariani, L. Gavazzi, A.M. Paganoni, V. Edefonti :  
"Urn models for response-adaptive randomized designs: a simulation study based on a non-adaptive randomized trial"  
Journal of Biopharmaceutical Statistics, vol. 28, 6, 1203-1215
- 2018 - G. Aletti, A. Ghiglietti, A.N. Vidyashankar:  
"Dynamics of an adaptive randomly reinforced urn"  
Bernoulli, vol. 24, 3, 2204-2255
- 2017 - A. Ghiglietti, A.M. Paganoni:  
"Exact tests for the means of Gaussian stochastic processes"  
Statistics & Probability Letters, vol. 131, 102-107
- 2017 - G. Aletti, I. Crimaldi, A. Ghiglietti:  
"Synchronization of reinforced stochastic processes with a network-based interaction"  
The Annals of Applied Probability, vol. 27, 6, 3787-3844
- 2017 - A. Ghiglietti, A.N. Vidyashankar, W.F. Rosenberger:

- "Central limit theorem for an adaptive randomly reinforced urn model"  
The Annals of Applied Probability, vol. 27, 5, 2956-3003
- 2017 - G. Aletti, A. Ghiglietti:  
"Interacting generalized Friedman's urn systems"  
Stochastic Processes and their Applications, vol. 127, 8, 2650-2678
- 2017 - A. Ghiglietti, F. Ieva, A.M. Paganoni:  
"Statistical inference for stochastic processes: two sample hypothesis tests"  
Journal of Statistical Planning and Inference, vol. 180, 49-68
- 2017 - A. Ghiglietti, F. Ieva, A.M. Paganoni, G. Aletti:  
"On linear regression models in infinite dimensional spaces with scalar response"  
Statistical Papers, vol. 58, 2, 527-548
- 2016 - A. Ghiglietti, A.M. Paganoni:  
"An urn model to construct an efficient test procedure for response adaptive designs"  
Statistical Methods and Applications, vol. 25, 2, 211-226
- 2015 - M. Rasponi, A. Gazaneo, A. Bonomi, A. Ghiglietti, P. Occhetta, G.B. Fiore, A. Pessina:  
"Lab-on-chip for testing myelotoxic effect of drugs and chemicals"  
Microfluidics and Nanofluidics, vol. 19, 4, 935-940
- 2014 - A. Ghiglietti, A.M. Paganoni:  
"Statistical properties of two-color randomly reinforced urn design targeting fixed allocations"  
Electronic Journal of Statistics, vol. 8, 708-737
- 2014 - R. Cilia, C. Siri, D. Rusconi, R. Allegra, A. Ghiglietti, G. Sacilotto, M. Zini, A.L. Zecchinelli, R. Asselta, S. Duga, A.M. Paganoni, G. Pezzoli, M. Seia, S. Goldwurm:  
"LRRK2 mutations in parkinson's disease: confirmation of a gender effect in the Italian population"  
Parkinsonism and Related Disorders, vol. 20, 8, 911-914
- 2013 - G. Aletti, A. Ghiglietti, A.M. Paganoni:  
"Randomly reinforced urn designs with prespecified allocations"  
Journal of Applied Probability, vol. 50, 2, 486-498

### **Contributions to books**

- 2023 - G. Aletti, I. Crimaldi, A. Ghiglietti:  
"Networks of reinforced stochastic processes"  
Oberwolfach Reports, ISSN 1660-8933. Proceedings of MATRIX-MFO Tandem Workshop: Stochastic Reinforcement Processes and Graphs, Creswick, Australia, 5-11 March, 2023.

- 2016 - A. Ghiglietti:  
 “Asymptotic Properties of an Adaptive Randomly Reinforced Urn model”  
 mODa 11 - Advances in Model-Oriented Design and Analysis, pp. 113-121. Springer.
- 2015 - L. Azzimonti, M.A. Cremona, A. Ghiglietti, F. Ieva, A. Menafoglio, A. Pini, P. Zanini :  
 “BarCamp: Technology Foresight and Statistics for the Future”  
 Advances in Complex Data Modeling and Computational Methods in Statistics, Contributions to Statistics, pp. 149-160. Springer.
- 2013 - A. Ghiglietti, A.M. Paganoni:  
 “Randomly reinforced urn designs whose allocation proportions converge to arbitrary prespecified values”  
 mODa 10 - Advances in Model-Oriented Design and Analysis, pp. 99-106. Springer.

### Proceedings

- 2017 - A. Ghiglietti, F. Ieva, A.M. Paganoni:  
 “A generalized Mahalanobis distance for the classification of functional data”  
 Proceedings of 11<sup>th</sup> Scientific meeting of the Classification and Data Analysis Group, Milan, Italy, 13-15 September, 2017.
- 2017 - A. Martino, A. Ghiglietti, A.M. Paganoni:  
 “Classification methods for multivariate functional data with applications to biomedical signals”  
 Proceedings of 11<sup>th</sup> Scientific meeting of the Classification and Data Analysis Group, Milan, Italy, 13-15 September, 2017.
- 2016 - A. Ghiglietti:  
 “Adaptive Randomly Reinforced Urn design and its asymptotic properties”  
 Proceeding of 48<sup>th</sup> Scientific meeting of the Italian Statistical Society, Fisciano, Italy, 8-10 June, 2016.
- 2015 - A. Ghiglietti, A.M. Paganoni:  
 “A generalized distance for inference on functional data”  
 Proceedings of 10<sup>th</sup> Scientific meeting of the Classification and Data Analysis Group, Santa Margherita di Pula, Italy, 8-10 October, 2015.
- 2014 - A. Ghiglietti, A.M. Paganoni:  
 “Statistical properties of urn designs in clinical trials”  
 Proceeding of 47<sup>th</sup> Scientific meeting of the Italian Statistical Society, Cagliari, 11-13 June, 2014.
- 2013 - A. Ghiglietti, A.M. Paganoni:  
 “Asymptotic statistical properties of a response adaptive design based on a two colours urn model”

Proceedings of S.Co.2013 Complex Models and Computational Intensive Methods for Estimation and Prediction, Milano, September 9-11, 2013.

- 2012 - G. Aletti, A. Ghiglietti, A.M. Paganoni:  
 “Randomly reinforced urn designs whose allocation proportions converge to arbitrary prespecified values”  
 Proceeding of 46<sup>th</sup> Scientific meeting of the Italian Statistical Society, Rome, 20-22 June, 2012.

### Preprints

- 2025 - G. Aletti, I. Crimaldi, A. Ghiglietti:  
 “Statistical inference for interacting innovation processes and related general results”  
 Technical Report: arXiv:2501.09648.
- 2024 - G. Aletti, A. Baldi Antognini, I. Crimaldi, R. Frieri, A. Ghiglietti:  
 “Design and inference for multi-arm clinical trials with informational borrowing: the interacting urns design”  
 Technical Report: arXiv:2407.20819.

### Participation to schools, workshops and conferences

#### **IMS 2024 International Conference on Statistics and Data Science (ICSDS),**

Radisson Blu Hotel. Nice, France, 16-19 December, 2024

Talk: “Design and inference for multi-arm clinical trials with informational borrowing: the interacting urns design”

#### **4<sup>th</sup> Italian National Meeting on Probability and Mathematical Statistics,**

Università Sapienza. Rome, Italy, 10-14 June, 2024

Talk: “Asymptotic behavior of interacting innovation processes”

#### **IMS 2023 International Conference on Statistics and Data Science (ICSDS),**

Centro cultural de Belém. Lisbon, Portugal, 18-21 December, 2023

Talk: “Interacting Innovation Processes”

#### **MATRIX-MFO Tandem Workshop: Stochastic Reinforcement Processes and Graphs,**

University of Melbourne. Creswick, Australia, 5-11 March, 2023

Talk (Invited): “Networks of Reinforced Stochastic Processes”

#### **3<sup>rd</sup> Italian National Meeting on Probability and Mathematical Statistics,**

Università di Bologna. Bologna, Italy, 13-16 June, 2022

Talk: “Dynamics of Reinforced Stochastic Processes with a network-based interaction”

#### **Pólya urns, stochastic approximation and quasi-stationary distributions: new developments,**

University of Bath. Bath, England, 11-14 April, 2022

Talk (Invited): "Asymptotics of Reinforced Stochastic Processes with a network-based interaction"

**11<sup>th</sup> Scientific meeting of the Classification and Data Analysis Group,**

Università Bicocca. Milan, Italy, 13-15 September, 2017

Talk: "A generalized Mahalanobis distance for the classification of functional data",

Session: Classification of Multiway and Functional Data

**1<sup>st</sup> Italian National Meeting on Probability and Mathematical Statistics,**

Politecnico di Torino. Turin, Italy, 19-22 June, 2017

Talk: "Systems of Reinforced Stochastic Processes with a network-based interaction"

**13<sup>th</sup> Workshop on Stochastic Models, Statistics and their Applications,**

Humboldt Universität of Berlin. Berlin, Germany, 20-24 February, 2017

Talk (Invited): "A functional urn model for CARA designs",

Session: Sequential Experimental Design

**9<sup>th</sup> International Conference on the ERCIM WG on Computational and Methodological Statistics,**

University of Seville. Seville, Spain, 9-11 December, 2016

Talk (Invited): "Inference on the means of functional data based on a Generalized Mahalanobis distance",

Session: Non- and semi-parametric approaches in functional statistics

**5<sup>th</sup> Early Phase Adaptive Trials Workshop,**

Politecnico di Torino. Turin, Italy, 28-30 September, 2016

**Model-Oriented Data Analysis and Optimum Design (MODA 11),**

Technische Universität Dortmund. Hamminkeln Dingden, Germany, 13-17 June, 2016

Talk (Invited): "Asymptotic Properties of an Adaptive Randomly Reinforced Urn model".

**48<sup>th</sup> Scientific meeting of the Italian Statistical Society,**

Università di Salerno. Fisciano, Italy, 8-10 June, 2016

Talk: "Adaptive Randomly Reinforced Urn design and its asymptotic properties",

Session: Sampling Methods

**10<sup>th</sup> Scientific meeting of the Classification and Data Analysis Group,**

Università di Cagliari. Santa Margherita di Pula, Italy, 8-10 October, 2015

Talk: "A generalized distance for inference on functional data",

Session: Functional data analysis

**8<sup>th</sup> International Workshop on Simulation,**

Alpen-Adria Universitat. Vienna, Austria, 21-25 September, 2015

Talk (Invited): "An adaptive randomly reinforced urn model with random thresholds",

Session: Recent Developments in Adaptive Designs

**StaTalk on Biostatistics**

Università degli Studi di Milano. Milan, Italy, 24 April, 2015

Talk (Invited): "Urns, Coins and Clinical Trials".

**47<sup>th</sup> Scientific meeting of the Italian Statistical Society,**

Università di Cagliari. Cagliari, Italy, 11-13 June, 2014

Talk: "Statistical properties of urn designs in clinical trials",

Session: Clinical Designs

**Barcamp @ Polimi**

Politecnico di Milano, Milan, Italy, 12 September, 2013

**S.Co.2013 Complex Data Modeling and Computationally Intensive Statistical Methods for Estimation and Prediction,**

Politecnico di Milano, Milan, Italy, 9-11 September, 2013

Talk: "Asymptotic statistical properties of a response adaptive design based on a two colours urn model"

Session: Epidemiology

**Model-Oriented Data Analysis and Optimum Design (MODA 10),**

Uniwersitet Zielonogorski. Lagow Lubuski, Poland, 10-14 June, 2013

Talk (Invited): "Randomly reinforced urn designs whose allocation proportions converge to arbitrary prespecified values"

**7<sup>th</sup> International Workshop on Simulation,**

Università di Bologna. Rimini, Italy, 21-25 May, 2013

Talk (Invited): "Randomly reinforced urn designs with prespecified allocations",

Session: Response adaptive randomization

**46<sup>th</sup> Scientific meeting of the Italian Statistical Society,**

Università la Sapienza. Rome, Italy, 20-22 June, 2012

Talk: "Randomly reinforced urn designs whose allocation proportions converge to arbitrary prespecified values",

Session: Estimation methods

**Complex Data Modeling and Computationally Intensive Statistical Methods for Estimation and Prediction,**

Università di Padova. Padua, Italy, 19-21 September, 2011

**Summer school on Statistical experimental design**

Almagro, Spain, 6-10 June, 2011.

**Workshop of Game Theory**



Politecnico di Milano. Milan, Italy, 12-13 May, 2011.

## Seminars

Date	31 May 2016
Name of the organization	Department of Mathematics, Politecnico di Torino
Event	Seminar
Presentation Title	<b>Asymptotic results on a general class of Adaptive Randomly Reinforced Urn designs</b>
Date	1 February 2016
Name of the organization	Department of Mathematics, Politecnico di Milano
Event	Bio-MOX Seminar
Presentation Title	<b>Interacting Generalized Pólya Urn Systems</b>
Date	13 February 2015
Name of the organization	George Mason University
Event	Seminar
Presentation Title	<b>Statistical properties of urn models in response-adaptive designs</b>
Date	17 July 2014
Name of the organization	Department of Mathematics, Università degli Studi di Milano
Event	Seminar
Presentation Title	<b>Asymptotic properties of response-adaptive urn models</b>
Date	30 January 2014
Name of the organization	Chalmers University of Technology
Event	Seminar
Presentation Title	<b>A two-color Randomly Reinforced Urn design targeting fixed allocations</b>
Date	6 June 2012
Name of the organization	Department of Mathematics, Politecnico di Milano
Event	MOX Seminar
Presentation Title	<b>Randomly reinforced urn designs with prespecified allocations</b>

## Referee activity for ISI Journals

Annals of Applied Probability  
Journal of Applied Statistics  
International Journal of Mathematics and Statistics

## Visiting experiences

Period	November-December 2016
University	George Mason University
Place	Fairfax, VA, United States
Period	January-March 2015
University	George Mason University
Place	Fairfax, VA, United States

Period	January-March 2013
University	George Mason University
Place	Fairfax, VA, United States

**Teaching**

**Academic year 2024-2025**

Course	Calculus of the Probabilities
University	Università degli Studi di Milano-Bicocca
Dates	February 2025-June 2025
Activity	Teaching
Course	Statistical Methods
University	Università degli Studi di Milano-Bicocca
Dates	September 2024-January 2025
Activity	Teaching

**Academic year 2023-2024**

Course	Calculus of the Probabilities
University	Università degli Studi di Milano-Bicocca
Dates	February 2024-June 2024
Activity	Teaching
Course	Statistical Methods
University	Università degli Studi di Milano-Bicocca
Dates	September 2023-January 2024
Activity	Teaching

**Academic year 2022-2023**

Course	Statistics I
University	Università degli Studi di Milano-Bicocca
Dates	March 2023-June 2023
Activity	Teaching
Course	Data Mining and Statistical Learning
University	Università degli Studi di Torino
Dates	September 2022-January 2023
Activity	Teaching
Course	Statistical Methods
University	Università degli Studi di Milano-Bicocca
Dates	September 2022-January 2023
Activity	Teaching

**Academic year 2020-2021**

Course	Statistical Methods in Environmental Studies
University	Università degli Studi di Milano
Dates	February 2021-June 2021
Activity	Teaching assistant

**Academic year 2019-2020**

Course	Linear Models
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University	Università degli Studi di Genova
Dates	October 2019-December 2019
Activity	Teaching in seminars
<b>Academic year 2017-2018</b>	
Course	Applied Statistics
University	Università Cattolica del Sacro Cuore
Dates	February 2018-April 2018
Activity	Teaching
<b>Academic year 2016-2017</b>	
Course	Mathematical Statistics
University	Università degli Studi di Milano
Dates	March 2017-June 2017
Activity	Teaching assistant
Course	Models and Methods for the Inferential Statistics
University	Politecnico di Milano
Dates	March 2017-June 2017
Activity	Teaching assistant
Course	Statistics
University	Politecnico di Milano
Dates	March 2017-June 2017
Activity	Teaching assistant
<b>Academic year 2015-2016</b>	
Course	Mathematical Statistics
University	Università degli Studi di Milano
Dates	March 2016-June 2016
Activity	Teaching assistant
Course	Models and Methods for the Inferential Statistics
University	Politecnico di Milano
Dates	March 2016-June 2016
Activity	Teaching assistant
Course	Probability Calculus and Mathematical Statistics 2
University	Università degli Studi di Milano
Dates	September 2015-February 2016
Activity	Tutoring
<b>Academic year 2014-2015</b>	
Course	Models and Methods for the Inferential Statistics
University	Politecnico di Milano
Dates	March 2015-June 2015
Activity	Teaching assistant
Course	Laboratory of Mathematical Modelling
University	Università degli Studi di Milano
Dates	March 2015-June 2015

Activity	Teaching assistant
<b>Academic year 2013-2014</b>	
Course	Statistics for Energy Engineering
University	Politecnico di Milano
Dates	October 2013-February 2014
Activity	Teaching assistant
<b>Academic year 2012-2013</b>	
Course	Statistics
University	Politecnico di Milano
Dates	March 2013-May 2013
Activity	Teaching assistant
Course	Statistics
University	Politecnico di Milano
Period	March 2013-May 2013
Activity	Teaching assistant in laboratory
Course	Statistics
University	Politecnico di Milano
Period	March 2013-July 2013
Activity	Teaching assistant in laboratory
Course	Statistics for Energy Engineering
University	Politecnico di Milano
Period	March-July 2013
Activity	Tutoring in laboratory
<b>Academic year 2011-2012</b>	
Course	Statistics
University	Politecnico di Milano
Dates	March 2012-May 2012
Activity	Teaching assistant
Course	Statistics
University	Politecnico di Milano
Period	March 2012-May 2012
Activity	Teaching assistant in laboratory
Course	Statistics
University	Politecnico di Milano
Period	March 2012-July 2012
Activity	Teaching assistant in laboratory
Course	Medical Statistics
University	Politecnico di Milano
Period	November 2011-January 2012
Activity	Tutoring course on-line
<b>AA 2010-2011</b>	

Course Statistics for Energy Engineering  
 University Politecnico di Milano  
 Period March-July 2011  
 Activity Tutoring in laboratory

Course Medical Statistics  
 University Politecnico di Milano  
 Period November 2010-January 2011  
 Activity Tutoring course on-line

### Scientific and management activities

**2016 - 2016** Responsible for the statistical consulence for WebScience S.r.l.  
**2014 - 2015** Responsible for the statistical consulence for the Department of Bio-engineering, Politecnico di Milano.  
**2011 - 2014** Responsible for the statistical consulence for the Parkinson Center ICP.

### Language skills

Mother tongue **Italian**

*Self-assessment*  
*European level*

**English**

**Spanish**

Understanding		Speaking		Writing
Listening	Reading	Spoken interaction	Spoken production	
C1 Proficient user	C1 Proficient user	C1 Proficient user	C1 Proficient user	C1 Proficient user
C2 Proficient user	C2 Proficient user	C1 Proficient user	C1 Proficient user	C1 Proficient user

### Computer and programming skills

Python, R, SAS, Matlab, Latex, Office  
 Licence awared E.C.D.L.