

Andrea Spinelli

Curriculum vitae

(Last updated: April 30, 2023)

Personal information

Name and surname: Andrea Spinelli

Date of birth: December 6, 1992

Nationality: Italian

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Current position

(October 1, 2020 - present) **PhD candidate in Applied Economics and Management (AEM)** at University of Pavia and jointly at University of Bergamo.

Supervisor: Prof. Francesca Maggioni (University of Bergamo).

Academic discipline: MAT/09 (Operations Research).

Education

- (October 1, 2020 - present) **PhD candidate in Applied Economics and Management (AEM)** at University of Pavia and jointly at University of Bergamo.

- (March 1, 2017) **Master's degree in Mathematics** at University of Milan.

Mark: 110/110.

Title of the thesis: A mathematical model of the enterohepatic circulation of bile acids after partial hepatectomy.

Supervisors: Prof. Paola Causin (University of Milan), Prof. Astrid Decoene and Prof. Jean-Baptiste Lagaert (Paris-Sud University).

- (October 9, 2014) **Bachelor's degree in Mathematics** at University of Milan-Bicocca.

Mark: 110/110.

Title of the thesis: Class A Bézier curves.

Supervisor: Prof. Lucia Romani (University of Milan-Bicocca).

- (July 2011) **High school diploma** at Liceo Scientifico F. Lussana, Bergamo.

Mark: 100/100.

Training courses

- (4/04/2022 - 8/04/2022) **Copenhagen School of Stochastic Programming**. University of Copenhagen (DK).
- (March 22-26, 2021) **Optimization Models for Machine Learning**. PhD Degree in Mathematics and Computer Science. University of Calabria (IT).
- (December 12, 2018) **Percorso formativo personalizzato (24 cfu) per l'accesso ai corsi triennali FIT**. University of Bergamo (IT).

Qualifications

- (29/06/2022) Italian **secondary teaching** qualifications in **Mathematics**.

Awards

- (October 1, 2020 - present) **Full PhD Scholarship** granted by University of Bergamo.
- (28/03/2023) **Study award “Marco Manera” 2023** - University of Pavia.
Research project “A Stochastic Optimization Programming Model for a Waste Collection Problem”, in collaboration with Francesca Maggioni (University of Bergamo), Ana Barbosa-Póvoa e Tânia Ramos (Instituto Superior Técnico, University of Lisbon), Daniele Vigo (University of Bologna).
- (13/03/2023) **Local winner of the Three Minutes Thesis (3MT) competition - VII edition** - University of Pavia.
Title of the presentation: “Maths in the trash? A mathematical model for waste collection”.
- (February 1, 2022 - June 30, 2022) **International Mobility Grant - XII edition** granted by University of Pavia.

Research interests

Operations Research, Optimization under Uncertainty, Optimization for Machine Learning, Optimization for Waste Management, Didactics of Mathematics.

List of publications

- [1] De Leone, R., Maggioni, F., Spinelli, A.: *A Robust Twin Parametric Margin Support Vector Machine for Multiclass Classification* (in preparazione).
- [2] Spinelli, A., Maggioni, F., Pereira Ramos, T., Barbosa-Póvoa, A., Vigo, D.: *A Rolling Horizon Methodology for a Multi-Stage Stochastic Waste Collection Problem* (in preparazione).
- [3] Maggioni, F., Spinelli, A.: *A Robust Optimization Model for Nonlinear Support Vector Machine* (in preparazione).

- [4] Spinelli, A. (2022): *Potenzialità e responsabilità della scuola per favorire l'inclusione nelle discipline STEM*. Nuova Secondaria, anno XL, n.1 2022, 130-134, ISSN: 1828-4582.
- [5] Spinelli, A. (2022): “*Piacere, sono... un modello matematico*”: un esempio di ‘buon problema’ tra scuola primaria e scuola secondaria. Quaderni di Ricerca in Didattica, numero speciale n.10, ISSN: 1592-4424.

Research periods abroad

- (February 1, 2022 - June 30, 2022) **Visiting PhD student** at Instituto Superior Técnico, University of Lisbon (PT).
Research collaboration with Prof. Ana Barbosa-Póvoa and Prof. Tânia Ramos.
- (March 1, 2016 - July 15, 2016) **Research stage** in Applied Mathematics at Paris-Sud University and IN-SERM (FR).
Research collaboration with Prof. Astrid Decoene and Prof. Jean-Baptiste Lagaert.

Talks and seminars

- (November 24, 2022) *A rolling horizon methodology for a multi-stage stochastic waste collection problem* - CEG-IST Seminar, Instituto Superior Técnico, University of Lisbon (PT).
- (November 18, 2022) *Piacere, sono... un modello matematico: un esempio di ‘buon problema’ tra scuola primaria e scuola secondaria*, GIMat, University of Catania (IT).
- (August 30, 2022) *A robust optimization model for nonlinear Support Vector Machine* - ODS2022, University of Florence (IT).
- (July 5, 2022) *A robust optimization model for nonlinear Support Vector Machine* - 32nd EURO Conference, Aalto University (FIN).
- (February 23, 2022) *A robust optimization model for nonlinear Support Vector Machine* - VI AIROYoung Workshop, Roma Tre University (IT).
- (February 22, 2022) *Potenzialità e responsabilità della scuola per favorire l'inclusione nelle STEM*, University of Bergamo (IT).
- (October 22, 2021) *Piacere, sono... un modello matematico: un esempio di ‘buon problema’ tra scuola primaria e scuola secondaria*, PIMat, University of Catania (IT).
- (March 11, 2021) *(DIS)parità di genere nelle discipline STEM*, for the International Women’s Day, University of Brescia (IT).
- (March 3, 2021) *Matematica e differenze di genere: riflessioni e spunti didattici*, University of Bergamo (IT).
- (November 4, 2020) *STEM e differenze di genere: alcune riflessioni*, University of Brescia (IT).
- (October 21, 2020) *Matematica in poltroncina. Viaggio tra matematici e matematiche nell'immaginario cinematografico*, Cagliari FestivalScienza 2020 (IT).
- (December 3, 2019) *La trasferibilità delle conoscenze: il caso di diritto e matematica*, La didattica delle scienze economico giuridiche nei percorsi 24 CFU, University of Brescia (IT).

- (November 6, 2019) *Diritto e Matematica: l'uso di strumenti matematici nelle applicazioni economico-giuridiche*, University of Brescia (IT).
- (October 10, 2018) *Perché gli studenti fanno sempre gli stessi errori?*, XXXV convegno UMI-CIIM, University of Cagliari. (IT).

Teaching

A.Y. 2022/2023

- **Teaching assistant of the course “Ricerca Operativa”** (MAT/09). Department of Management, Information and Production Engineering, University of Bergamo.
- **Teaching assistant of the course “Analisi Matematica I”** (MAT/05). Department of Management, Information and Production Engineering, University of Bergamo.

A.Y. 2021/2022

- **Teaching assistant of the course “Ricerca Operativa”** (MAT/09). Department of Management, Information and Production Engineering, University of Bergamo.
- **Teaching assistant of the course “Corso di alfabetizzazione di matematica”** (SECS-S/06). Department of Management, University of Bergamo.

A.Y. 2020/2021

- **Teaching assistant of the course “Statistica”** (SECS-S/01). Department of Management, University of Bergamo.
- **Teaching assistant of the course “Corso di alfabetizzazione di matematica”** (SECS-S/06). Department of Management, University of Bergamo.

A.Y. 2019/2020

- **Adjunct professor of the course “Elementi di Matematica”** (SECS-S/06). Department of Management, Economics and Quantitative Methods, University of Bergamo.
- **Lecturer of the course “Didattica speciale: codici del linguaggio logico e matematico (scuola primaria)”** (M-PED/03). Corso di formazione per il conseguimento della specializzazione per le attività di sostegno (scuola primaria) - University of Bergamo.
- **Teaching assistant of the course “Statistica”** (SECS-S/01). Department of Management, University of Bergamo.
- **Teaching assistant of the course “Geometria e Algebra Lineare”** (MAT/03). Department of Management, Information and Production Engineering, University of Bergamo.
- **Teaching assistant of the course “Mathematical Methods for Engineers”** (MAT/05). Department of Management, Information and Production Engineering, University of Bergamo.
- **Teaching assistant of the course “Analisi Matematica e Geometria”** (MAT/05). Department of Management, Information and Production Engineering, University of Bergamo.

- **Teaching assistant of the course “Analisi Matematica I”** (MAT/05). Department of Management, Information and Production Engineering, University of Bergamo.
- **Teaching assistant of the course “Corso di alfabetizzazione di matematica”** (SECS-S/06). Department of Management, Economics and Quantitative Methods, University of Bergamo.

A.Y. 2018/2019

- **Teaching assistant of the course “Geometria e Algebra Lineare”** (MAT/03). Department of Management, Information and Production Engineering, University of Bergamo.
- **Teaching assistant of the course “Mathematical Methods for Engineers”** (MAT/05). Department of Management, Information and Production Engineering, University of Bergamo.
- **Teaching assistant of the course “Analisi Matematica I”** (MAT/05). Department of Management, Information and Production Engineering, University of Bergamo.
- **Teaching assistant of the course “Corso di alfabetizzazione di matematica”** (SECS-S/06). Department of Management, Economics and Quantitative Methods, University of Bergamo.

A.Y. 2017/2018

- **Teaching assistant of the course “Geometria e Algebra Lineare”** (MAT/03). Department of Management, Information and Production Engineering, University of Bergamo.
- **Teaching assistant of the course “Analisi Matematica I”** (MAT/05). Department of Management, Information and Production Engineering, University of Bergamo.

Work experiences

- (October, 2022 - present) **Trainer in Didactics of Mathematics for primary school teachers, on behalf of INDIRÈ.**
Project: “Piano d’intervento per la riduzione dei divari territoriali in Istruzione - Formazione sulle competenze di base” (project code 10.2.7.A4-FSEPON-INDIRE-2021-1).
- (October, 2017 - present) **Collaborator and founder of the association “Diamo i Numeri”.**
Organization of collaborative maths activities and teacher training courses at primary and middle schools. Planning and development of applied mathematical topics in high schools. Experiences:
 - Istituto Comprensivo “Bagnatica” (Bagnatica). School years 2018/2019, 2019/2020, 2020/2021.
 - Liceo “Don Milani” (Romano di Lombardia). School year 2020/2021.
 - Istituto Comprensivo “S. Lucia” (Bergamo). School year 2020/2021.
 - Istituto Comprensivo “Gorle” (Gorle). School years 2020/2021, 2022/2023.
 - Istituto Comprensivo “A. Moro” (Gorlago). School years 2017/2018, 2018/2019, 2019/2020.
 - Istituto Comprensivo “Borgo di Terzo” (Borgo di Terzo). School years 2017/2018, 2018/2019, 2019/2020.
 - Istituto Comprensivo “A. Tiraboschi” (Paladina). School year 2018/2019.
- (September, 2018 - September, 2022) **Collaborator of the MatNet-CQIA center**, University of Bergamo.
Organization and realization of mathematical laboratories for high school students and teachers. Experiences:

- Design and management of the entry test MatNet in Mathematics for high school students (February 2022 - September 2022).
 - Summer School “Matematica e Scienze della Vita: modelli e algoritmi della salute” (September 5, 2022 - September 7, 2022), San Pellegrino Terme.
 - Design and management of the entry test MatNet in Mathematics for high school students (May 2021 - September 2021).
 - Summer School “Matematica e società: genere, algoritmo, democrazia” (September 1, 2021 - September 3, 2021), Bergamo.
 - “Progetto PLS-POT” (March 1, 2021 - April 16, 2021). Online labs for high-school students preparing for admission tests in Economics and Management.
 - “Waiting for Summer School” (September 2, 2020 - September 10, 2020).
 - Design and management of the entry test MatNet in Mathematics for high school students (May 2020 - September 2020).
 - “Progetto PAEC-POT” (November 4, 2019 - April 30, 2020). The project has been performed in three different high schools: IS “L. Lotto” (Trescore Balneario), Scuola “IMIBERG” (Bergamo), ITCTS “Vittorio Emanuele II” (Bergamo).
 - “Laboratorio PLS di autovalutazione” (April 16, 2019 - May 22, 2019), performed at high school “L. Einaudi” (Dalmine).
 - Design and management of the entry test MatNet in Mathematics for high school students (May 2019 - September 2019).
 - Summer School “La matematica oggi” (September 2, 2019 - September 4, 2019), San Pellegrino Terme.
 - Summer School “La matematica tra il nulla e il tutto” (September 3, 2018 - September 5, 2018), San Pellegrino Terme.
- (September 4, 2021 - June 30, 2022) **Mathematics teacher** at Istituto Superiore “L. Lotto”, Trescore Balneario.
 - (October 8, 2020 - June 30, 2021) **Mathematics and Physics teacher** at Istituto Superiore “L. Federici”, Trescore Balneario.
 - (September 11, 2018 - June 30, 2019) **Mathematics and Physics teacher** at Scuola d’Arte Applicata “A. Fantoni”, Bergamo.
 - (May 2018) **Osservatore esterno per la rilevazione degli apprendimenti del Sistema Nazionale di Valutazione** at Istituto Comprensivo “San Paolo D’Argon”.
 - (September 10, 2017 - June 30, 2018) **Mathematics teacher** at Scuola d’Arte Applicata “A. Fantoni”, Bergamo.
 - (June 19, 2017 - August 25, 2018) **Remedial courses in Mathematics and Physics** at Istituto di Istuzione superiore “G. Natta”, Bergamo.
 - (June 19, 2017 - July 5, 2017) **Remedial courses in Mathematics and Physics** at Liceo Scientifico “F. Lussana”, Bergamo.
 - (May 12, 2017 - June 29, 2017) **Mathematics and Science teacher** at Scuola secondaria di primo grado “S. Lucia”, Bergamo.

- (November 22, 2016 - December 22, 2016) **Mathematics and Physics teacher** at Liceo delle scienze umane e Liceo musicale “P. Secco Suardo”, Bergamo.

Languages

- Italian (Native language)
- English (Proficient)
- French (Conversant)
- Portuguese (Proficient) - level B1, exam DEPLE (10/01/2023)

Computer skills

- ECDL full
- Realization and management of simple web pages in WordPress
- Strong knowledge of LaTeX system
- Strong knowledge of MatLab
- Basic knowledge of Stata
- Basic knowledge of AMPL
- Basic knowledge of GAMS
- Basic knowledge of Julia Programming

Additional information

- **Fellow of the course “Ricerca Operativa”** (MAT/09). Department of Management, Information and Production Engineering, University of Bergamo. Academic year 2021/2022.
- **Fellow of the course “Statistica”** (SECS-S/01). Department of Management, University of Bergamo. Academic years 2019/2020, 2020/2021, 2021/2022.
- **Fellow of the course “Elementi di Matematica”** (SECS-S/06). Department of Management, University of Bergamo. Academic years 2020/2021, 2021/2022.
- **Fellow of the course “Analisi Matematica I”** (MAT/05). Department of Management, Information and Production Engineering, University of Bergamo. Academic years 2018/2019, 2019/2020, 2022/2023.
- (September 29, 2022 - present) **President of the association “Diamo i Numeri”**
Webpage: <https://diamo-i-numeri.it>