Lucia Guastadisegni

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Personal information

Date of birth May 16, 1993

Nationality Italian

Current position

Mar 2023- **Junior assistant professor (fixed-term)**, *SSD: STAT-01/A Statistica, University of Bologna, Department of Statistical Sciences, Rimini*

Previous positions

Feb 2022- Feb 2023 **Post-doctoral fellowship**, *University of Bologna, Department of Statistical Sciences*
New developments in latent variable models for categorical data. Supervisor: Prof. Laura Anderlucci

Apr 2018 - Oct 2018 **Research fellowship**, *University of Bologna, Department of Statistical Sciences*
Statistical methods for the question/answering classification. Supervisor: Prof. Cinzia Viroli

Education

2018–2022 **PhD in Statistical Sciences**, *University of Bologna, Department of Statistical Sciences*

Thesis title: *Assessing the fit of unidimensional IRT models for binary data under model misspecification.* Supervisor: Prof. Silvia Cagnone (University of Bologna), Co-Supervisors: Prof. Irini Moustaki (London School of Economics and Political Science), Prof. Vassilis Vasdekis (Athens University of Economics and Business). Final exam on June 27^{th} 2022.

2015–2017 **Second Cycle Degree (MSc) in Statistical Sciences (curriculum Methodological Statistics)**, *University of Bologna, Department of Statistical Sciences*

Thesis title: *Goodness-of-fit tests for latent trait models under the presence of sparse data.* Supervisor: Prof. Silvia Cagnone, Co-Supervisor: Prof. Vassilis Vasdekis. Final mark: 110/110 with honors.

2012–2015 **First Cycle Degree (BSc) in Statistical Sciences (curriculum Statistics and Mathematics)**, *University of Bologna, Department of Statistical Sciences*

Thesis title: *A latent growth model for the analysis of the perceived health status.* Supervisor: Prof. Silvia Cagnone. Final mark: 110/110 with honors.

Visiting positions

Sep 2019 - Mar 2020 **Visiting student**, *London School of Economics and Political Science*, Erasmus+ Scholarship, Supervisor: Prof. Irini Moustaki

Mar 2017 - Jun 2017 **Visiting student**, *Athens University of Economics and Business*, Supervisor: Prof. Vassilis Vasdekis

Research Interest

Goodness-of-fit tests for latent variable models for categorical data, estimation methods for generalized linear latent variable models for panel data.

Talks and seminars

Guastadisegni L., Cagnone S., Bianconcini S., *Latent variable models for panel data: comparison of estimation methods*, Invited session at IMPS 2024, Prague, 16-19 July 2024.

Greco F., Guastadisegni L., Trivisano C., *An R-shiny application for statistical matching*, SIS 2024, Bari, 17-20 June 2024.

Cagnone S., Bianconcini S., Guastadisegni L., *Latent variable models for panel data: comparison of estimation methods*, Workshop "Latent variable models for complex data", University of Udine, Italy, 4 June 2024.

Guastadisegni L., Cagnone S., Moustaki I., Vasdekis V., *A novel test for detecting non-normality of the latent variable distribution with binary outcomes*, Invited session at CMStatistics 2023 (online talk), Berlin, Germany, 16-18 December 2023.

Guastadisegni, L., Moustaki, I., Cagnone, S.,Vasdekis, V., *A statistical test to assess the non-normality of the latent variable distribution*, CLADAG 2023, Salerno, September 11-13, 2023.

Guastadisegni L., Moustaki I., Cagnone S., Vasdekis V., *Detecting latent variable non-normality through the generalized Hausman test*, Invited session at IMPS 2022, Bologna, 12-15 July 2022.

Guastadisegni L., *Use of the Lagrange Multiplier test for assessing measurement invariance under model misspecification*, Statistics Seminars 2021, Department of Statistical Sciences, University of Bologna, online, 11 March 2021.

Guastadisegni L., Moustaki I., Vasdekis V., Cagnone S., *Assessing IRT model misspecification through different Lagrange Multiplier tests*, IMPS 2020, Online, 13-17 July 2020.

Publications

Scientific Journals

Guastadisegni, L. , Cagnone, S., Moustaki, I., Vasdekis, V. (2022), *Use of the Lagrange Multiplier test for assessing measurement invariance under model misspecification*, Educational and Psychological Measurement, vol 82(2), 254-280.

Guastadisegni, L. , Cagnone, S., Moustaki, I., Vasdekis, V. (in press), *The generalized Hausman test for detecting non-normality in the latent variable distribution of the two-parameter IRT model*, British Journal of Mathematical and Statistical Psychology

Proceedings

Greco, F., Guastadisegni, L., Trivisano, C. (in press), *An R-shiny Application for Statistical Matching*, in: Book of Short Papers - SIS 2024

Guastadisegni, L., Moustaki, I., Cagnone, S., Vasdekis, V. (2023), *A statistical test to assess the non-normality of the latent variable distribution*, in: BOOK OF ABSTRACTS AND SHORT PAPERS 14th Scientific Meeting of the Classification and Data Analysis Group Salerno, September 11-13, 2023, Pearson, 2023, pp. 511 - 514

Guastadisegni, L., Moustaki, I.,Vasdekis, V., Cagnone, S. (2023), *Detecting Latent Variable Non-normality Through the Generalized Hausman Test*, In: Marie Wiberg; Dylan Molenaar; Jorge González; Jee-Seon Kim; Heungsun Hwang, Quantitative Psychology: The 87th Annual Meeting of the Psychometric Society, Bologna, Italy, 2022, 107 - 118. Springer.

Guastadisegni, L. , Cagnone, S., Moustaki, I., Vasdekis, V. (2021), *The asymptotic power of the Lagrange Multiplier tests for misspecified IRT models*, In M. Wiberg, D. Molenaar, J. González, U. Böckenholt, & J.-S. Kim (Eds.), Quantitative Psychology: The 85th annual meeting of the Psychometric Society, virtual, 275–284. Springer.

Working papers and others

Guastadisegni, L. (2022), *Assessing the fit of unidimensional IRT models for binary data under model misspecification*, Doctoral thesis, Department of Statistical Sciences, University of Bologna

Bianconcini, S. , Cagnone, S., Guastadisegni, L. (2024), *Latent variable models for panel data: comparison of estimation methods* (working paper).

Greco, F. , Guastadisegni, L., Trivisano, C. (2024), *ShinyDataMatcher: a User-Friendly Application for Integrating Complex Data Surveys* (working paper).

Teaching activity

Undergraduate course

2023-2025 **Statistics**, *First cycle degree programme in Business Economy (Financial and Business Management)*, SECS-S/01, 75 hours, Teaching language: English

2022-2023 **Multivariate Statistical Methods for Credit Scoring**, *First cycle degree programme in Finance, Insurance and Business*, SECS-S/01, 50 hours, Teaching language: Italian

Didactic Tutor

2022-2023 **Latent Variable Models**, *MSc in Statistical Sciences*, SECS-S/01, 15 hours, Teaching language: English, Teacher: Prof. Silvia Cagnone

2022-2023 **Fundamental concepts of statistics**, *MSc in Statistical Sciences*, SECS-S/01, 20 hours, Teaching language: English, Teacher: Prof. Cinzia Viroli

2022-2023 **Data Science**, *BSc in Genomics*, SECS-S/01, 10 hours, Teaching language: English, Teacher: Prof. Laura Anderlucci

2022-2023 **Statistics for high dimensional data**, *MSc in Economics*, SECS-S/01, 25 hours, Teaching language: English, Teacher: Prof. Silvia Cagnone

2021-2022 **Latent Variable Models**, *MSc in Statistical Sciences*, SECS-S/01, 10 hours, Teaching language: English, Teacher: Prof. Silvia Cagnone

2021-2022 **Fundamental concepts of statistics**, *MSc in Statistical Sciences*, SECS-S/01, 15 hours, Teaching language: English, Teacher: Prof. Cinzia Viroli

2021-2022 **Data Science**, *BSc in Genomics*, SECS-S/01, 10 hours, Teaching language: English, Teacher: Prof. Laura Anderlucci

2021-2022 **Statistics for high dimensional data**, *MSc in Economics*, SECS-S/01, 25 hours, Teaching language: English, Teacher: Prof. Silvia Cagnone

2020-2021 **Latent Variable Models**, *MSc in Statistical Sciences*, SECS-S/01, 10 hours, Teaching language: English, Teacher: Prof. Silvia Cagnone

2020-2021 **Fundamental concepts of statistics**, *MSc in Statistical Sciences*, SECS-S/01, 15 hours, Teaching language: English, Teacher: Prof. Cinzia Viroli

2020-2021 **Data Science**, *BSc in Genomics*, SECS-S/01, 12 hours, Teaching language: English, Teacher: Prof. Laura Anderlucci

2020-2021 **Statistics for high dimensional data**, *MSc in Economics*, SECS-S/01, 25 hours, Teaching language: English, Teacher: Prof. Silvia Cagnone

2020-2021 **Statistical software**, *MSc in Statistical Sciences*, 10 hours, Teaching language: English, Teacher: Prof. Giulia Zardi

2019-2020 **Data Science**, *BSc in Genomics*, SECS-S/01, 12 hours, Teaching language: English, Teacher: Prof. Laura Anderlucci

Tutor for internationalization

2020-2021 20 hours, Delegate of the International Relations for the Department of Statistical Science: Prof. Silvia Cagnone

2019-2020 48 hours, Delegate of the International Relations for the Department of Statistical Science: Prof. Silvia Cagnone

2018-2019 60 hours, Delegate of the International Relations for the Department of Statistical Science: Prof. Silvia Cagnone

Master thesis Co-Supervision

2022 **Assessing the fit of latent variable models for binary data with the Generalized Hausman test**, *Alberto Muscella*, MSc in Statistical Sciences, University of Bologna, Supervisor: Prof. Silvia Cagnone

Professional experience

Sep 2017 - Mar 2018 **Internship**, *MediNeos Observational Research*, Modena

Software

Programming: R

Design and composition: LaTeX, MS Office

Languages

Mother tongue: Italian.

Others: English (Certificate: IELTS Academic (2018), final score: 7.5 - C1 level)