Niccolò Cao | Curriculum Vitae

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Education

Department of Statistical Sciences "Paolo Fortunati", University of Bologna
PhD in Statistical Sciences (*SECS-S/01*) *2023–present*
Project: "Modern statistical learning for complex data in health-related sciences"
Advisor: prof. Silvia Cagnone

FISPPA, University of Padova
M.Sc. in Psychology (*LM-51*) *2020–2022*
Final grade: 110/110 cum Laude
Thesis: "Mixture CFA model for heterogeneous samples: A simulation study"
Advisor: prof. Antonio Calcagnì

DPSS, University of Padova
B.Sc. in Psychology (*L-24*) *2017–2020*
Final grade: 110/110 cum Laude
Thesis: "Latent Dirichlet Allocation based methods for applied text-mining in psychology"
Advisor: prof. Antonio Calcagnì

Teaching Experiences

DPSS, University of Padova
Tutorship for "Statistical methods and data analysis in developmental psychology" (*M-PSI/03*) *2023*
- 20 hours
- Seminars (e.g., simulations, cross-validation, shrinkage methods, random forest)
- Laboratories in `R`

Research Experiences

DPSS, University of Padova
Undergraduate Internship *2021–2022*
- Development of a statistical model to analyze decision uncertainty in rating data with `R` software applications
- Duration: 6 months
- Supervisor: prof. Antonio Calcagnì

Publications

Peer-reviewed journal articles:

- Cao, N., Finos, L., Lombardi, L., & Calcagnì, A. (2024). **A novel CFA+EFA model to detect aberrant respondents**. *Journal of Royal Statistical Society Series C: Applied Statistics*, 1-25. `https://doi.org/10.1093/jrsssc/qlae036`.
- Cao, N., & Calcagnì, A. (2022). **Jointly modeling rating responses and times with fuzzy numbers: An application to psychometric data**. *Mathematics*, 10(7), 1025, 1-11. `https://doi.org/10.3390/math10071025`.
- Calcagnì, A., Cao, N., Rubaltelli, E., & Lombardi, L. (2022). **A psychometric modeling approach to fuzzy rating data**. *Fuzzy Sets and Systems*, 447, 76-99. `https://doi.org/10.1016/j.fss.2022.01.008`.

Conference proceedings:

- Cao, N., Calcagnì, A., & Finos, L. (2022). **Twitting about COVID-19: An application of Structural Topic Models to a sample of Italian tweets**. Lombardo, R., Camminatiello, I., Simonacci, V. (eds) *10th International Conference IES 2022 Innovation and Society 5.0: Statistical and Economic Methodologies for Quality Assessment.* PKE, 549-554. ISBN: 9788894593365.

Communications in Scientific conferences and meetings

- Cao, N., Finos, L., Lombardi, L., & Calcagnì, A. **A new factor mixture model to detect aberrant respondents**. *2024 International Meeting of the Psychometric Society (IMPS 2024)*, Symposium: *Latent variable models for complex data structures*, Prague, Czech Republic, July 16-19 2024.
- Cao, N., Calcagnì, A. & Finos, L. **Mixing CFA and EFA to handle data heterogeneity**. *51st Meeting of the European Mathematical Psychology Group (EMPG)*, Rovereto, Italy, September 5-7 2022.
- Cao, N., Calcagnì, A., & Finos, L. **Twitting about COVID-19: An application of Structural Topic Models to a sample of Italian tweets**. *10th International Conference IES 2022 Innovation and Society 5.0: Statistical and Economic Methodologies for Quality Assessment*, Capua, Italy, January 27-28, 2022
- Cao, N., & Calcagnì, A. **Fuzzy Regression Analysis of fIRT-Tree-based data**. *4th AFU International Conference TASK4-21*, Online conference (Dubai), May 19-20 2021.

Additional courses

Julia High Performance (CINECA) *2023*
Python for Scientific Computing (CINECA) *2023*
Introduction to Fortran for Scientific Computing (CINECA) *2022*

Languages

Italian: Mothertongue
English: Proficiency

Programming skills

Advanced: `R`, `Julia`, LaTeX
Intermediate: `Fortran`, `Mathematica`
Basic: `MATLAB`, `Python`, `bash`

Memberships of Scientific Societies

Psychometric Society: member of the Graduate Student Committee *since 2024*
Italian Statistical Society *since 2024*

"This résumé is provided pursuant to and for the purposes of Articles 46 and 47 of the Presidential Decree (D.P.R.) No. 445/2000. The processing of the personal data contained herein is authorized solely for the purpose of the procedure in question.
Bologna, 31 October 2024