




# CLAUDIO ZANDONELLA CALLEGHER

## PhD Student - University of Padua

My research interests concern the formalization of psychological theories and research hypotheses as statistical models, using informative priors within a Bayesian framework. I am also involved in Open Science, promoting the importance of Design Analysis and developing workflows to enhance research reproducibility and transparency. I am enthusiastic about the solutions and opportunities offered by programming software. In particular, I am an active R programmer and developer of R packages.



## EDUCATION

- Current |
- **PhD in Psychological Sciences - Department of Developmental Psychology and Socialization**  
University of Padua  Padua, Italy  
• Predicting social-emotional adjustment in childhood: a Bayesian approach with informative priors Supervisors: Prof. Gianmarco Altoè and Prof. Livio Finos
  - 2018 | ● **M.S. in Clinical Developmental Psychology - 110 cum laude**  
University of Padua  Padua, Italy  
• Analyzing the role of father attachment in middle childhood: a Bayesian approach. Supervisor: Prof. Gianmarco Altoè
  - 2016 | 2013 ● **B.S. Psychological sciences and techniques - 110 cum laude**  
University of Padua  Padua, Italy  
• Proximity: evidence of possession in childhood. Supervisor: Prof. Teresa Farroni

## ACADEMIC EXPERIENCE

- 2020
- **Research Internship**  
Department of Methodology and Statistics, Utrecht University  Utrecht, the Netherlands  
• Formalization of statistical models according to experts' prior knowledge in the Attachment Theory (3 months). Supervisor: Prof. Rens van de Schoot
  - 2018 ● **Pre-Graduate Internship**  
Medè SNC  Padua, Italy  
• Study of clinical cases concerning psychopathology in childhood and adolescence (4 months). Supervisor: Dot. Valentina Boscolo
  - 2016 ● **Pre-Graduate Internship**  
Department of Psychology, University of Padua  Padua, Italy  
• Study of indices of possession in childhood through visual preference. Data collection and analysis (5 months). Supervisor: Prof. Teresa Farroni

## CONTACT INFO

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## PROGRAMMING SKILLS

Statistics: R, Python, STAN  
Database: MySQL  
Website: HTML, CSS, HUGO  
Other: Git, Docker, Bash, LaTeX

## LANGUAGE SKILLS

Italian: native language  
English: proficient  
German: beginner

Made with the R package [pagedown](https://cran.r-project.org/web/packages/pagedown/index.html).

Last updated on 2021-02-02.



## WORKING AND TEACHING EXPERIENCE

- 2020 ● **Data Science Internship**  
Kode s.r.l. 📍 Pisa, Italy  
• Data Visualization and development of web application (Shiny) in Industry 4.0 (3 months). Supervisor: Dot. Davide Massidda
- 2019 ● **Supplementary teaching**  
Department of Psychology, University of Padua 📍 Padua, Italy  
• Laboratory fundamentals of R statistical software (10 hours) in the course Psychological Testing (PSP6075525) Prof. Antonio Calcagni.
- 2018 ● **Organizing committee**  
Department of Psychology, University of Padua 📍 Padua, Italy  
• International Winter Shool 2019, Beyond  $p < .05$ : Modern statistica approaches in psychological science

I am passionate about Data Science. Experience in industry 4.0 allowed me to learn modern solutions to data analysis and data visualization. I also like to share my experience by writing tutorials and teaching about different programming software.



## EDUCATIONAL EXPERIENCE

- 2021 ● *Mediterranean Machine Learning summer school*
- 2020 ● *Introduction to Generalized Additive Models with R and mgcv*  
● *useR!2020*  
● *European R users meeting (eRum)*  
● *CAPRI-HPC: Theory and Practice in Sequential and Parallel Job Scheduling*. Course at the Department of Information Engineering (20 hours)  
● *Best Practices for Writing Reproducible Code*  
● *Bayesian Non-parametrics for Complex Data*
- 2019 ● *Summer School on Statistical Methods for Linguistics and Psychology*. Advanced Bayesian methods using Stan.  
● *StanCon2019*. Hierarchical modeling and model selection with Stan  
● *IV SIPS International Conference*. Society for the Improvement of Psychological Science  
● *Theory and Methods of Inference*. PhD course held by Prof. A. Salvan at the doctoral programme in Statistics at University of Padua (64 hours)  
● *SHefffield ELicitation Framework (SHELF) Training*. Elicitation of probability distributions from experts knowledge  
● *Beyond  $p < .05$ : Modern statistical approaches in psychological science*.
- 2018 ● *Functional Analysis*. PhD course held by Prof. A. Cesaroni at the doctoral programme in Statistics at University of Padua (24 hours)

I believe in the importance of continuous learning, experimenting with new techniques and solutions together with the development of strong theoretical knowledge.



## PUBLICATIONS

2020

- Altoè, G., Bertoldo, G., **Zandonella Callegher, C.**, Toffalini, E., Calcagni, A., Finos, L., & Pastore, M. (2020). Enhancing Statistical Inference in Psychological Research via Prospective and Retrospective Design Analysis. *Frontiers in Psychology*, 10. <https://doi.org/10.3389/fpsyg.2019.02893>
- Altoè, G., **Zandonella Callegher, C.**, Toffalini, E., & Pastore, M. (2020). Incorporating Expert Knowledge in Structural Equation Models: Applications in Psychological Research. *Book of Short Papers - SIS 2020*. 50th Meeting of the Italian Statistical Society, Pisa, Italy. <https://it.pearson.com/content/dam/region-core/italy/pearson-italy/pdf/Docenti/Universit%C3%A0/Pearson-SIS-2020-atti-convegno.pdf>
- Benavides-Varela, S., **Zandonella Callegher, C.**, Fagiolini, B., Leo, I., Altoè, G., & Lucangeli, D. (2020). Effectiveness of digital-based interventions for children with mathematical learning difficulties: A meta-analysis. *Computers & Education*, 157, 103953. <https://doi.org/10.1016/j.compedu.2020.103953>
- Valori, I., McKenna-Plumley, P. E., Bayramova, R., **Zandonella Callegher, C.**, Altoè, G., & Farroni, T. (2020). Proprioceptive accuracy in Immersive Virtual Reality: A developmental perspective. *PLOS ONE*, 15(1), e0222253. <https://doi.org/10.1371/journal.pone.0222253>
- **Zandonella Callegher, C.**, & Altoè, G. (2020). Data and supplemental material of the paper "Effectiveness of digital-based interventions for children with mathematical learning difficulties: A meta-analysis". *Data in Brief*, 31, 105976. <https://doi.org/10.1016/j.dib.2020.105976>

Under Review

- Agnoli, F., Melchiorre, F., **Zandonella Callegher, C.**, & Altoè, G. Stereotype Threat Effects on Italian Girls' Mathematics Performance: A Failure to Replicate. *Developmental Psychology*.
- Bayramova, R., Valori, I., McKenna-Plumley, P. E., **Zandonella Callegher, C.**, & Farroni, T. Integration of Vision and Proprioception Facilitates Encoding but not Storage: An Immersive Virtual Reality Study. *Attention, Perception, & Psychophysics*
- Bertoldo, G., **Zandonella Callegher, C.**, & Altoè, G. Designing Studies and Evaluating Research Results: Type M and Type S Errors for Pearson Correlation Coefficient. *Meta-Psychology*
- Fadda, D., Pellegrini, M., Vivanet, G., & **Zandonella Callegher, C.** (n.d.). Effects of digital games on student motivation in mathematics: A meta-analysis in K-12. *American Educational Research Journal*



## SOFTWARE

2020

- Gambarota, F., & **Zandonella Callegher, C.** (2020). *Psicostat Personal Website Template* (v1.0). Zenodo. <https://doi.org/10.5281/zenodo.4464826>
- **Zandonella Callegher, C.**, Pastore, M., Andreella, A., Vesely, A., Toffalini, E., Bertoldo, G., & Altoè, G. (2020). *PRDA: Prospective and retrospective design analysis* (v1.0.0.900). Zenodo. <https://doi.org/10.5281/zenodo.4044214>  
R-package available on CRAN <https://cran.r-project.org/web/packages/PRDA/index.html>

I am a fervent supporter of the fundamental role of replicability and transparency in the research. In each project I collaborate, I adopt the best practice and solution to guarantee replicability and transparency.

I am an active developer of R-packages and web applications using Shiny to offer new instruments to other researchers as well as students.

- 2019 ● **Zandonella Callegher, C.**, Toffalini, E., & Altoè, G. (2019). *Eliciting Effect Size—Shiny App*. <http://doi.org/10.5281/zenodo.2564852>



## SELECTED TALKS AND POSTERS

- 2020 ● **Zandonella Callegher, C.**, Marci, T., & Altoè, G. (2020). *Verba volant, mathematica manent: Formalizing psychological theories as models*. Cognitive Science Arena (7-8 February 2020; Brixen, Italy)
- **Zandonella Callegher, C.**, Vesely, A., Andreella, A., Bertoldo, G., Toffalini, E., Altoè, G., & Pastore, M. (2020). *PRDA package: Enhancing Statistical Inference via Prospective and Retrospective Design Analysis*. useR!2020 (July, 2020; Munich, Germany)
- 2019 ● **Zandonella Callegher, C.**, Marci, T., & Altoè, G. (2019). *The role of mother and father attachment in children's socioemotional-adjustment: A Bayesian model comparison approach*. XIX European Conference on Developmental Psychology (Athens, Greece, 29 August-1 September 2019)
- **Zandonella Callegher, C.**, Toffalini, E., & Altoè, G. (2019). *Elicitazione e utilizzo del parere degli esperti (transl. Elicitation and formalization of experts' knowledge)*. XXV AIP National Congress Experimental section, Italian association of psychology (18-20 September 2019; Milan, Italy)
- **Zandonella Callegher, C.**, Toffalini, E., & Altoè, G. (2019). *Eliciting and formalizing experts' knowledge about effect sizes*. Conference, Society for the Improvement of Psychological Science (7-9 July, 2019; Rotterdam, the Netherlands)