ELIA GONZATO

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Summary

I am a Biostatistician focusing on methods to improve statistical tools and clinical trial designs in rare-diseases. My research interests are centered on causal inference, Bayesian data analysis and I am studying the opportunity to incorporate historical/external data to improve operational characteristics of interventional studies in small sample size settings. I have worked in Italy, Sweden and the Netherlands and have enjoyed meeting people from all over the world. I truly believe that working in a multidisciplinary team makes it possible to face challenging questions and provide meaningful answers.

Experience

Amsterdam University Medical Center Amsterdam, Netherlands
PhD Candidate - Department of Pediatric Neurology and Epidemiology and Data Science Jan. 2025 - Current

- Writing of statistical analysis plan, data analysis, management and reporting for Phase 1b/2a Single Arm Trial of Guanabenz in Vanishing White Matter.
- Design and implementation of simulation studies to evaluate operational characteristics of single arm trials in ultra-rare diseases with different causal inference methods.
- Planning of statistical designs, and evaluation through simulation studies, considering incorporation of external data to augment the sample size, while controlling statistical properties of the interventional study.

Position funded and in collaboration with Calico Life Science LLC/AbbVie
Supervisors:

- Marjo van der Knaap, Pediatric Neurology, Amsterdam UMC
- Hans Berkhof, Epidemiology and Data Science, Amsterdam UMC
- Rik van Eekelen, Epidemiology and Data Science, Amsterdam UMC

Erasmus University Medical Center Rotterdam, Netherlands
Junior Researcher - Department of Public Health Apr. 2024 - Jan. 2025

- Meta-analysis and Meta-Regression Bayesian Regularized Trimmed approach (MR-BRT). European project in collaboration with Institute of Health Metrics and Evaluation (IHME).
- Latent Markov modelling on multinational survey data to assess Quality of Life deterioration. Profiling of latent classes, mapping of symptoms with traditional methods and comparisons with explainability tools for machine learning.
- Preparation of manuscripts towards submission to scientific journals.

Karolinska Institutet Stockholm, Sweden
Visiting Researcher - Department of Cell Therapy and Stem Cells Sept. 2023 - Feb. 2024

- Analysis design, data management and visualization, contribution to development of ethical approval. Collaborations with clinicians in statistical analysis and interpretation of results.
- Developed and documented the R package *mtvc*, published on CRAN.

Supervisors:

- Karolinska Institutet: Valentini Davide, Ljungman Per.
- University of Milano-Bicocca: Bellocco Rino, Cantarutti Anna.

Education

PhD in Biostatistics, Vrije Universiteit, Amsterdam,Netherlands Jan. 2025 - Current

Course work: Advanced topics in Biostatistics, Randomized controlled trials, Causal Inference, Advanced Survival Analysis.

Thesis Title:Optimising rare disease registration, statistical design and trial tools

MSc in Biostatistics, University of Milano-Bicocca, Milan,Italy Oct. 2021 - Mar. 2024

Course work: Statistical Models in Epidemiology, Statistical Modelling Applied to Clinical Trial, SAS Programming, R Laboratory for Biostatistics, Bayesian and Statistical Inference.

Thesis Title: Effect of transplant characteristics and of complications on survival outcomes of allogeneic stem cell transplantation: the experience of Stockholm center.

BSc in Food Science, University of Padua, Padua,Italy Oct. 2018 - Oct. 2021

Course work: Biostatistics, Data Analysis and Design of Experiments (auditing), Plant and animal genetics, Principles of food microbial ecology, Xenobiotics, Risk evaluation and control procedures.

Thesis Title: Developing an Automatic System based on Near Infrared Reflectance. (Developed using MATLAB PLS-Toolbox)

Projects

mtvc - Multiple Time Varying Covariates Stockholm, Sweden
Link: `https://cran.r-project.org/web/packages/mtvc/index.html` Feb. 2024
Counting process structure is fundamental to model time varying covariates. This package restructures dataframes in the counting process format for one or more variable. Developed while working on my master thesis.

windows.pls Padua, Italy
Link: `https://cran.r-project.org/web/packages/windows.pls/index.html` Sep. 2023
Evaluation of prediction performance of smaller regions of spectra for Chemometrics. Segmentation of spectra, evolving dimensions regions and sliding windows as selection methods. Election of the best model among those computed based on error metrics.

SAS Curiosity Cup Milan, Italy
Link: `https://github.com/egonzato/procmi` Mar. 2023
International SAS hackathon for students, project based on assessing the association between stroke and snus. Statistical emphasis was put on handling missing data through multiple imputation and comparison with complete case analysis. Runner up in the Data Analysis category.

References

Periklis Charalampous, PhD, Erasmus University Medical Center
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Valentini Davide, PhD, Karolinska Institutet
Contacts: davide.valentini@ki.se || + 46.0724583858

Prof. Cesarini Mirko, PhD, University of Milano-Bicocca
Contacts: mirko.cesarini@unimib.it || + 39.0264485849

Hard skills

- **Programming:**
  - **Advanced:** R, SAS.
  - **Intermediate:** STATA, Python, Julia.
- **SAS Certifications:**
  - Base Programming Using SAS 9.4
  - Machine Learning Using SAS Viya

Soft skills

Teamworking **Creativity**
Eagerness **Enthusiasm**
Communication **Adaptability**

Social Activities

- Member of the Junior Researcher Committee at Erasmus Medical Center, whose aim was to gather complaints and suggestions from the Juniors of the Department of Public Health to reach improvements of working environments with the chair of the department.
- Member of the Social Committee at Erasmus Medical Center, involved in organization of events to enhance networking between researchers of different section within the same department.
- Blood Donor at the Italian Volunteering Association of Blood Donors (AVIS).