

# Luna Fazio

Dortmund, Germany

+49 177 1472345 | [bmfaziol@gmail.com](mailto:bmfaziol@gmail.com) | [github.com/lunafazio](https://github.com/lunafazio)

## Education

### TU Dortmund, Department of Statistics

Dortmund, Germany

PH.D. IN STATISTICS

2022 - Present

- Supervisor: Prof. Dr. Paul-Christian Bürkner
- Research project: Bayesian distributional latent variable models

### Pontificia Universidad Católica del Perú

Lima, Peru

M.Sc. IN STATISTICS

2017 - 2021

- Supervisor: Prof. Dr. Giancarlo Sal Y Rosas
- Thesis: Endpoint-inflated beta-binomial regression for correlated count data.

### Universidad Peruana Cayetano Heredia

Lima, Peru

B.Sc. IN BIOLOGY

2010 - 2015

## Work experience

### Private client

Remote

STATISTICAL CONSULTANT

2025 - Present

- Development of guidelines and software for prior elicitation in models of large scale interventions for child development

### TU Dortmund, Department of Statistics

Dortmund, Germany

RESEARCH ASSOCIATE

2023 - Present

- Supervised by Prof. Dr. Paul Bürkner (DFG Project 497785967)
- Research on specification of complex latent variable models with applications in cognitive modeling

### University of Stuttgart

Stuttgart, Germany

RESEARCH ASSOCIATE

2022 - 2023

- Supervised by Prof. Dr. Paul Bürkner (DFG Project 497785967)
- Research on extensions to the Structural Equation Modeling framework

### Bernard van Leer Foundation

Lima, Peru

CONSULTANT

2021 - 2022

- Design and development of a web-based application for monitoring of public health interventions
- Developed Shiny and Tableau-based dashboards for data processing and visualization

### Deutsche Gesellschaft für Internationale Zusammenarbeit – Peru

Lima, Peru

CONSULTANT

2020

- Developed Tableau dashboards to monitor key indicators of municipality-level performance

### Delivery Unit – Presidencia del Consejo de Ministros

Lima, Peru

ANALYST

2019 - 2020

- Monitoring of key government interventions through survey and administrative data
- Technical assistance for the procurement of impact evaluation and data collection services.

### UNICEF

Lima, Peru

CONSULTANT

2018 - 2019

- Conducted a literature review on measurement of adolescent well-being
- Assisted in the design and estimation of an index for adolescent well-being

### Ministerio de Salud

Lima, Peru

ANALYST

2016 - 2018

- Design and measurement of health indicators for various national interventions

### Centro de Investigación Interdisciplinaria en Sexualidad, Sida y Sociedad

Lima, Peru

RESEARCH ASSISTANT

2015 - 2016

- Monitoring and analysis of longitudinal studies
- Provided statistical support to fellow researchers

- Data collection tasks involving healthcare personnel and patients
- Provided training and monitoring of field data collection via mobile apps
- Data processing and statistical analysis

**Institute for Molecular Pathology**

Vienna, Austria

- Collection and analysis of two-photon microscope data on synapse dynamics in mouse cortex

## Publications

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**Fazio L**, Scholz M, Aguilar JE, Bürkner PC. *Primed Priors for Simulation-Based Validation of Bayesian Models*. In review (available as arXiv preprint), 2025.

**Fazio L**, Bürkner PC. *Gaussian Distributional Structural Equation Models: A framework for modeling latent heteroscedasticity*. Multivariate Behavioral Research, 2025.

Allan-Blitz LT, Konda KA, Vargas SK, Wang X, Segura ER, **Fazio L**, Calvo GM, Caceres CF, Klausner JD. *The Development of an Online Risk Calculator for the Prediction of Future Syphilis among a High-Risk Cohort of Men Who Have Sex with Men and Transgender Women in Lima, Peru*. Sexual Health, 2018.

García PJ, **Fazio L**, Bayer AM, Lizarraga AG, Chiappe M, La Rosa S, Lazo M, López L, Valderrama M, Cárcamo CP. *Sexual health knowledge and practices and STI/HIV prevalence among long-distance truck drivers in Peru*. SAGE Open Medicine, 2017.

Egoavil MS, Condor DF, Pinazo-Vidal MA, Quezada JM, **Fazio L**, Bueno JC, Peña LE, Farfán J, De la Puente JG, Arce C, Malpartida B, Arostegui A, Pérez-Lu JE. *Qualitative Study for the Development of a Telemedicine System in Palliative Care*. Palliative Medicine and Hospice Care, 2017.

## Teaching

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**TU Dortmund, Department of Statistics (Course instructor, 2023 - 2025)**

Multilevel Modeling Seminar, Introduction to Julia, Intensive Statistics Course

**Pontificia Universidad Católica del Perú (Teaching assistant, 2017)**

Introduction to Statistics, Advanced Regression Techniques

**Universidad Peruana Cayetano Heredia (Teaching assistant, 2015 - 2016)**

Biostatistics, Epidemiology, Thesis Seminar

## Events and workshops

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**Replication Games at FU Berlin 2025**. Participating as replicator.

**Bayesian Data Analysis workshop**. Instructor for the Statistics Alumni association of the TU Dortmund (2025), jointly with Javier Aguilar.

**Bayesian Data Analysis workshop**. Instructor at DAGStat 2025, jointly with Javier Aguilar.

Fazio L, Aguilar JE, Ickstadt K, Bürkner PC. *Categories without enough observations? Merge levels at inference time with Bayes!* Poster at **Bayesian Methods for the Social Sciences II**, Amsterdam 2024.

Fazio L, Bürkner PC. *This Underrated Technique Might Be The Future of Structural Equation Models*. Poster at **ISBA World Meeting**, Venice 2024.

Bustamante MJ, Fazio L, Calvo GM, Lugo E, Konda KA. *Understanding gay couples: a new vision for HIV prevention in Peru*. Contributed to poster at **10th IAS Conference on HIV Science**, Mexico DF 2019.

Fazio L, Bayes C, Sal y Rosas G. *Approaches to Model Specification for Regression Analysis with Correlated, Endpoint-Inflated Bounded Count Data*. Poster at **VI Latin American Meeting on Bayesian Statistics**, Lima 2019.

**As attendee:** Bayes@Lund 2024, Introduction to Julia for High Performance Computing 2023, Informative Prior Elicitation Using Historical Data (BayesComp 2023).

## Supervision

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**Forough Asgari, student assistant.** Work on extensions of the R2D2 prior for non-gaussian likelihoods. Joint supervision with Javier Aguilar.

**Timo Stenz, student assistant.** Work on extensions of Structural Equation Models. Developed support for variational inference in the **SBC** R package.

## Skills

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<b>Programming</b>	R (tidyverse, targets, brms, shiny), Julia (Tidier, Turing), Python (NumPy, BayesFlow)
<b>Statistics</b>	Hierarchical models, latent variables, Bayesian inference, prior specification, simulation studies
<b>Tools</b>	SQL, git/GitHub, $\text{\LaTeX}$ , SLURM (HPC), Tableau, PowerBI
<b>Languages</b>	Spanish (native), English (fluent), German (basic)