FUNDAÇÃO GETULIO VARGAS
SCHOOL OF APPLIED MATHEMATICS

THIS IS MY NAME

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Rio de Janeiro

2021

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Bachelor dissertation presented to the School of Applied Mathematics (FGV/EMAp) to obtain the Bachelor's degree in Applied Mathematics.

Area of Study: what?

Orientador: Professor

Rio de Janeiro

2021

LUCAS MACHADO MOSCHEN

"PREVALENCE ESTIMATION AND BINARY REGRESSION METHODS FOR RESPONDENT-DRIVEN SAMPLING WITH OUTCOME UNCERTAINTY"

Trabalho de Conclusão de Curso - TCC apresentado ao Curso de Graduação em Matemática Aplicada da Escola de Matemática Aplicada para obtenção do grau de Bacharel (a) em Matemática Aplicada.

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ASSINATURA DOS MEMBROS DA BANCA EXAMINADORA

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Nos termos da Lei nº 13.979 de 06/02/20 - DOU nº 27 de 07/02/20 e Portaria MEC nº 544 de 16/06/20 - DOU nº 114 de 17/06/20 que dispõem sobre a suspensão temporária das atividades acadêmicas presenciais e a utilização de recursos tecnológicos face ao COVID-19, as apresentações dos Trabalhos de Conclusão de Curso, de forma excepcional, serão realizadas de forma remota e síncrona, incluindo-se nessa modalidade membros da banca e discente.

I dedicate this dissertation to you!

Acknowledgements

Thanks, guys!

*"One of the pervasive risks that we face in the
information age is that even if the amount of
knowledge in the world is increasing, the gap
between what we know and what we think
we know may be widening."*
Nate Silver

Abstract

Keywords:

Resumo

Palavras-chave:

List of Figures

List of Tables

List of abbreviations and acronyms

CDC   Centers for Disease Control and Prevention

HIV   Human immunodeficiency virus

List of symbols

$\in$ Belongs to

$\Sigma_{i=1}^{n} x_i$ Sum of the variables $x_1, x_2, \ldots, x_n$

$\Pr(A)$ Probability of an event A

M^T Transpose of matrix M

$\mathbb{1}$ Indicator function

$\text{tril}(M)$ Lower triangle matrix of M

$\mathbb{R}_{>0}$ Set of positive real numbers

$\det(M)$ Determinant of M

$\sim$ Is distributed as

iid Independent and identically distributed

Φ Normal cumulative distribution

$\exp$ Exponential

$\int$ Integral

$\mathbb{E}(X)$ Expected value of random variable X

$\text{Var}(X)$ Variance of random variable X

A^* Hermitian matrix of A

Contents

1 Introduction

Remember to cite every person (ROBERT, 2007).

2 Conclusions

References

ROBERT, Christian. **The Bayesian choice: from decision-theoretic foundations to computational implementation**. [S.l.]: Springer Science & Business Media, 2007.

Appendix