# Gustavo Varela-Alvarenga

## Statistician

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## About me

I am a statistician with **5 years** of experience with textbfeconometric research and over **10 years** of experience with quantitative and qualitative data analysis. I won an **award** for a paper in which I evaluated the impact of a public policy in Brazil. I am currently a **PhD candidate in Statistics** developing a new method for **time series forecasting** (theory, R package and Shiny app).

## Stat Methods

Time-series analysis
Generalized Linear and Mixed models
ANOVA/MANOVA/ANCOVA
Instrumental variable models
Selection models
Matching algorithms
Hypothesis Testing
Monte Carlo simulations
Bootstrap methods
Descriptive statistics
Survey methodology

## Analytical Skills

Impact Evaluation
Research
Econometric analysis
Data analysis and management
Critical and model thinking
Problem solving
Qualitative and quantitative analysis
Web scrapping
Data visualization

## Experience

**08/13 - 07/14** — Think Tank — Brasilia, Brazil

**Lead Statistician** — Brazilian Agency for Industrial Development (ABDI)
- Worked with a multidisciplinary team in the development of studies and research papers/whitepapers to assess the impact of public policies towards Brazilian industrial development by gathering data from different sources and surveys, and analyzing it;
- Presented the results to the Brazilian Minister of Industry.

**08/12 - 07/14** — University — Brasilia, Brazil

**Lecturer - Applied Statistics** — Universidade de Brasilia
- Taught applied statistics to undergrad students from areas outside STEM (e.g. social sciences, psychology & others);
- Found ways to convey complex concepts to a non-technical audience.

**01/09 - 08/13** — Think Tank — Brasilia, Brazil

**Researcher** — Institute for Applied Economic Research (IPEA)
- Evaluated the impact of public policies towards Industrial Innovation using a wide range of statistical methods and recommended actions for policy improvement based on results of simulations (see section Publications);
- Handled, processed and analyzed large datasets from multiple sources.

## Education

**08/14 - 12/19 (expected)** — Maryland, USA

**Ph.D. Candidate in Statistics** — University of Maryland at College Park
Dissertation: A new method for time series forecasting.
Adviser: Dr. Benjamin Kedem

**08/09 - 12/11** — Brasilia, Brazil

**Master in Economics of the Public Sector** — Universidade de Brasilia, Brazil
Title of thesis: *Impacts of the Brazilian science and technology sector funds on industrial firms' R&D inputs and outputs: new perspectives using a dose-response function*.
Adviser: Dr. Donald Pianto

**02/04 - 12/08** — Brasilia, Brazil

**Bachelor of Science in Statistics** — Universidade de Brasilia, Brazil
Title of monograph: *The Empirical Characteristic Function Applied to Operational Risk Modeling*.
Adviser: Dr. Raul Matsushita

## Awards

**12/2012** — Pernambuco, Brazil

**CNI National Economy Award** — 2nd Place (Prêmio CNI de Economia)
Award granted to the paper: "Impacts of the Brazilian science and technology sector funds on industrial firms' R&D inputs and outputs: new perspectives using a dose-response function".
Click here for the full paper in English and here for more info about the award.

## Software

R - 9 years

Shiny - 2 years

SAS & PROC SQL - 8 years

LaTeX - 6 years

STATA - 3 years

SPSS - 2 years

MATLAB - 2 years

Python - < 1 year

JavaScript - < 1 year

## Datasets

Experience with large datasets, including data from household surveys. Had to, efficiently, combine several datasets - with around **50 million lines each** and 15 GB each - by an unique identification number. Used **SQL** procedures in SAS (PROC SQL) for data extraction and manipulation due to the size and complexity of the datasets.

## Data Visualization

R packages:
ggplot2
plotly
highcharter
dygraph
googlevis
ggiraph
shiny

## Languages

Portuguese - Native

English - Fluent

## Selected Publications

**Demand for air ticket in economy: a co-integration analysis.**
*Journal of Transport Literature. Vol. 5, number 3, pp. 64 – 88. April, 2011.*
Click here for the full paper in Portuguese with abstract in English.

**Counter-cyclical policies in the automobile industry: a co-integration analysis of the impacts of IPI reduction on vehicle sales**
*Texto para Discussão No. 1512. Instituto de Pesquisa Econômica Aplicada (IPEA), 2010.*
Click here for the full paper in Portuguese with abstract in English.

For a full list of publications, see my Google Scholar profile.

## Short Courses

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|---|---|---|
| 2018 | **Learn Python - Online Course** | Codecademy |
| 2018 | **Introduction To JavaScript - Online Course** | Codecademy |
| 2012 | **Game Theory - Online Course** | Stanford University |
| 2012 | **Model Thinking - Online Course** | University of Michigan |
| 2012 | **Topics in Real Analysis - Summer Course** | Universidade de Brasilia |

## Other Info

**Teaching:** Teaching assistant for the following courses at University of Maryland, College Park:
- STAT100: Elementary Statistics and Probability
- MATH240: Introduction to Linear Algebra

**CPR/First Aid Certified** by the American Red Cross

**StackExchange**
R related answers (including Data Visualization-related answers): https://goo.gl/aoRJ6W
Statistical-related answers: https://goo.gl/HcEdri
Probability-related answers: https://goo.gl/d71GN3

**LinkedIn Profile:** https://www.linkedin.com/in/gustavo-varela-alvarenga/

**For a complete resume, see my website:** www.ogustavo.com

**For a list of my publicly available Shiny apps, go to:** apps.ogustavo.com