

# Vilma Susana Romero Romero

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<https://vilmaromero.github.io>

- **Education:** **M.Sc. Statistics**, Lancaster University, UK, overall **69%**, dissertation **74%**. **B.Sc. Engineering Statistics**, National University of Engineering (UNI), Lima, Peru, **A+**, **First place**.
- **Statistics Teaching employment includes:** 2019-present, **Lecturer of Statistics** at ULima and Course Coordinator of Applied Statistics since 2022. 2020, **Instructor** at PUCP, "**Applied Statistics for Data Analytics**". 2016-2018, **Lecturer** at UNI. 2018, **Lecturer of Data Mining** at ESAN. 2017-2019, **Instructor** at UPROBYS-FIEECS-UNI, "**Advanced Data Analysis**". **Instructor of R** to different professionals.
- **Statistics/Research employment includes:** 2023, **R Package Developer** at IDIC ULima. 2019, **Research Collaborator** at MABLAB, University of Florida. 2018, **Statistical Consultant** at Environmental Resources Management. 2016, 2014, 2013, **Collaborator in different projects** at the Research Institute for Development (IRD). 2014, **Contributor to R package** ImapreTools.
- **Programming:** **R** (Advanced), **Python** (Basic).
- **English:** **Advanced**. **Spanish:** **Fluent** (native language).

## Education

2014 – 2015 **M.Sc. in Statistics**, *Lancaster University*, United Kingdom, **Merit (69%)**.

Dissertation Title: "Longitudinal Multidimensional Item Response Modelling in Preschool Children's Mental State Understanding". **Distinction (74%)**

- The thesis comprised the analysis of the responses to false-belief tests performed by 3 years old children in order to identify relevant latent factors related to the ability of attributing thoughts and beliefs to others. Subsequently, the evolution of these factors was analyzed in a Bayesian framework and a causal diagram was obtained.
- Core modules: Likelihood Inference, Generalised Linear Models, Bayesian Inference, Computational Intensive Methods, Statistics in Practice (R/SAS/Scientific Writing).
- Optional modules: Extreme Value Theory, Longitudinal Data Analysis, Survival and Event History Analysis, Environmental Epidemiology, Genomics.
- Master accredited by The Royal Statistical Society, United Kingdom.

2013 – 2014 **Statistical Engineer Professional Title**, *National University of Engineering*, Lima-Peru.

Thesis Title: "Identification of prey capture attempts using accelerometry data in South American Fur Seals". **Dissertation grade: 19/20**

- Degree obtained after dissertation, thesis conducted in collaboration with the Institute of The Sea of Peru (IMARPE) and the French Research Institute for Development (IRD).
- Study of the South American Fur Seal feeding behaviour by the detection of prey capture attempts in the accelerometry signals through an analysis of time and frequency based on the Continuous Wavelet Transformation. Then, the dive success (at least one prey capture attempt) was modeled considering its features by a Logistic Regression.

2008 – 2012 **B.Sc. with a major in Statistics Engineering**, *National University of Engineering*, Lima-Peru, **Placement: A+, First place**.

- 5-year program of training in the mainstream statistical topics. Main modules: Linear Models, Multivariate Analysis, Time Series, Computational Statistics, Regression Analysis, Databases, Statistical Quality Control.

## Complementary Education

Mar 2023 **Course "Data Visualization Fundamentals and Best Practices"**, Observable.

- Mar–Apr 2022 **“Certificate in EMI Skills: English as a Medium of Instruction”**, Cambridge English Language Assessment.
- Dec 2019 **Course “Decision Trees with IBM SPSS Statistics”**, INFÓRMESE, Lima-Peru.
- Mar 2019 **Course “Machine Learning for Decision Making”**, ESAN University, Lima-Peru.
- Jan–Feb 2013 **Virtual Course “Computing for Data Analysis”**, Ph.D. Roger D. Peng, Johns Hopkins Bloomberg School of Public Health, Achievement with distinction - Coursera.
- Nov 2012 **Data Mining Workshop**, Data Mining Consulting, Lima-Peru.
- Oct 2011 **Course “SQL Server for Data Analysis”**, Data Mining Consulting, Lima-Peru.

## Experience

### Teaching

- Apr 2019 – **Lecturer**, *University of Lima, Faculty of Engineering*, Lima-Peru.
- Present - In charge of the theory and practice hours of the following undergraduate courses:
- **Applied Statistics** Academic Periods 2023-II, 2023-I, 2022-II, 2022-I
  - **Statistics and Probability** Academic Period 2022-I
  - **Statistics and Probability I** Academic Periods 2019-I, 2019-II, 2020-I, 2020-II, 2021-I, 2021-II
  - **Statistics and Probability II** Academic Periods 2020-I, 2020-II
- Course Coordinator of Applied Statistics.
- Feb 2020 – **Instructor**, *Pontificia Universidad Católica del Perú (PUCP)*.
- Jan 2021 ○ **Applied Statistics** in the Specialization Program in Data Analytics. Editions 2020-I, 2020-II
- Jun 2017 – **Instructor**, *UPROBYS-FIEECS, National University of Engineering*, Lima-Peru.
- Dec 2019 Specialization Program in Business Intelligence & Business Analytics (PEBIBA).
- **Advanced Data Analysis** Program editions I, II, III, IV, V, VI
  - **Data Analysis Introduction** Program editions II, III, IV, V, VI
- July 2018 – **Instructor**, *Data Mining Consulting*, Lima-Peru.
- July 2019
- **R for Data Science** in the Analytical Specialization Program: Big Data Science Professional.
  - **R Essentials** in the Analytical Specialization Program: Data Science Fundamentals.
  - **Feature Engineering** in the Analytical Specialization Program: Big Data Science Professional.
- Ago 2016 – **Lecturer**, *National University of Engineering, Statistical Engineering School*, Lima-Peru.
- Dec 2018 In charge of the theory, practice and laboratories hours of the following undergraduate courses:
- **Statistics I** Academic Periods 2018-II (only theory), 2018-I
  - **Statistics II** Academic Periods 2018-II (only theory), 2017-II, 2017-I
  - **Computing II** Academic Periods 2018-I, 2017-II, 2017-I, 2016-II
  - **Biostatistics (Elective)** Academic Period 2016-II
- Mar – Jul 2018 **Lecturer**, *ESAN University, School of Engineering in Information Technology and Systems*, Lima-Peru.
- In charge of the theory, practice and laboratories hours of the following undergraduate course:
- **Advanced Data Mining (Elective)** Academic Period 2018-I
- Ago – Nov 2017 **Teaching Assistant**, *National University of San Marcos, Professional School of Statistics*, Lima-Peru.
- In charge of practice and laboratories hours for the following undergraduate course:
- **Parametric Statistical Inference** Academic Period 2017-II
- Jun 2016 – **Instructor**, *Institute of Planning and Statistical Studies (IPLE)*, Lima-Peru.
- Jul 2016 In charge of the In-House Training on **“Data Mining using R”** addressed to the analytical team of Human Resources of Peru Credit Bank (BCP).

- 2014 **Instructor**, *Peruvian Institute of Marine Research*, Callao-Peru.
- **Data Analysis in R** March, 2014
  - **Introduction to  $\LaTeX$**  July 17, 2014
  - **Knitr: Dynamic Reports in R** September 15, 2014
- Apr – Jul 2011 **Teaching Assistant**, *National University of Engineering, Statistical Engineering School*, Lima-Peru. In charge of the solution of practice material of the following undergraduate course.
- **Bayesian Statistics** (Elective) Academic Period 2011-I

### Research, Consultancy and Professional Experience

- Apr 2023 – Present **R Package Developer**, *The Scientific Research Institute (IDIC) of University of Lima*, Peru. In charge of the development of an R package which estimates control charts for the variance in Phase II of the statistical quality control of a process considering the effect of estimated parameters.
- Ago – Oct 2019 **Research Collaborator**, *Movement and Habitant Lab (MABLAB)*, University of Florida. Identifying latent topics behind the abstracts of some scientific publications in the field of movement ecology using machine learning techniques such as the Latent Dirichlet Allocation model.
- Apr – May 2019 **Consultant**, *EMERITUS Institute of Management*. Review of the content material of the Online Certificate Course: Practical Machine Learning with R.
- Apr – Jun 2018 **Statistical Consultant**, *Environmental Resources Management (ERM)*. Assessment of the decline in the frequency of environmental data collection for cost optimization, without significant information loss for marine monitoring in Pisco (Ica-Peru).
- May – Aug 2016 **Research Project Collaborator**, *French Research Institute for Development (IRD)*. Identifying behavior patterns of seabirds from their trajectories obtained from radar images captured during campaigns tuna boats.
- Dec 2015 – Mar 2016 **Analyst of Models**, *Interbank*, Lima-Peru. Support in the replicas and analysis of predictive models for the different products of Interbank such as Credit Card, ExtraCash, Salary Account and Millionaire Account.
- Jun – Sep 2014 **R Package Developer**, *Institute of The Sea of Peru (IMARPE)*, Callao-Peru. Contribution on the development of ImarpeTools Package which automates the preparation of graphs and tables used in the routine technical reports of IMARPE.
- Jan 2013 – May 2014 **Research Assistant**, *French Research Institute for Development (IRD)*, Callao-Peru.
- Prediction of foraging areas for Black Guillemots on Cooper Island, Alaska. Study made in collaboration with the Nonprofit Scientific Organization "Friends of Cooper Island".
  - Study of the South American Fur Seal feeding behaviour by the analysis of accelerometry data employing spectral analysis (wavelets) and statistical techniques. Project made in collaboration with the Peruvian Institute of Marine Research.
- May – Dec 2012 **Actuarial Intern**, *Pacifico Insurance Company*, Lima-Peru.
- Support in the analysis of the behaviour of the business lines of Annuities and SCTR (Supplementary Insurance of the Worker at Risk).

### Computer skills

**Statistical Software** R, Minitab, SPSS, SAS, OpenBUGS

**Office** Microsoft Excel, Word, Power Point

**Databases** SQL Server at query level, PL-SQL, Microsoft Access

**Others**  $\LaTeX$ , Markdown, Matlab, Python, Visual Basic

### Languages

Spanish **Fluent**

*Native language*

English **Advanced**

*Reading, listening, speaking, writing*

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## Academic Awards

- Aug 2019 **Grant Assistance**, Latin American Conference about the Use of R in Research + Development (LatinR), Santiago-Chile.
- Mar 2018 **Honorable Mention Sofia Kovalevskaia**, Kovalevskaia Foundation, Lima-Peru.  
Given in recognition of the merits and achievements in the undergraduate thesis.
- Dec 2017 **Advisor of the winner group - Category I**, *Fair and Project Competition EPIES 2017-II*, Statistical Engineering School, National University of Engineering, Lima-Peru.
- Jul 2017 **Advisor of the winner group - Category I**, *Fair and Project Competition EPIES 2017-I*, Statistical Engineering School, National University of Engineering, Lima-Peru.
- Aug 2014 **International Master Scholar**, *Beca Presidente de la República 2014-II*, PRONABEC (Peruvian Government), Lima-Peru.  
Full scholarship to pursue Master studies at Lancaster University (Top 400 university).
- Apr 2014 **Scholar**, *BCP-ProUNI Scholarship*, National University of Engineering, Lima-Peru.  
20,000 USD Scholarship to pay for postgraduate studies.
- Sep 2012 **First Place**, *Scientific Initiation Contest of the XIV National Congress of Statistical Students*, UNMSM, Lima-Peru.
- Jul 2012 **First Place**, *Scientific Initiation Contest of the II Latin American Congress of Statistical Students*, Metropolitan Technological Institute, Medellin-Colombia.
- Jul 2012 **Second Place**, *Knowledge Contest of the II Latin American Congress of Statistical Students*, Metropolitan Technological Institute, Medellin-Colombia.
- Dec 2011 **Distinction**, *Manuel Pardo and Lavalle President for Academic Merit*, The Board of Trustees of the National University of Engineering.
- Sep 2011 **First Place**, *Knowledge Contest of the XIII National Congress of Statistical Students - I Latin American Congress of Statistical Students*, UNSAAC, Cusco-Peru.

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## Publications

- Alvarado L., Falcon C., Gutierrez J., **Romero V.** (2022). Teaching of the Yupana with the Tawa Pukllay method for developing the Computational Thinking in children. 2022 IEEE World Engineering Education Conference (EDUNINE), pp. 1-5, doi: 10.1109/EDUNINE53672.2022.9782386.
- Joo R., Picardi S., Boone M. E., Clay T. A., Patrick S. C., **Romero V.**, Basille M. (2022). Recent trends in movement ecology of animals and human mobility. *Movement Ecology* 10, 26.
- Guerrero A., Gutierrez J., **Romero V.**, Ayma V. (2020). Comparison of Classifiers Models for Prediction of Intimate Partner Violence. Series of Springer: Advances in Intelligent Systems and Computing. Proceedings of the Future Technologies Conference (FTC) 2020, Volume 2:469-488.
- Vargas E., Cárdenas D., Gutierrez J., **Romero V.** (2020). Virtual Reality Application to Teach Dangerous over Exposure to UV Radiation. Series of Springer: Advances in Intelligent Systems and Computing. Proceedings of the Future Technologies Conference (FTC) 2020, Volume 3:100-112.
- Romero V.** (2015). Longitudinal Multidimensional Item Response Modelling in Preschool Children's Mental State Understanding, master dissertation.
- Romero V.** (2014). Identification of prey capture attempts using accelerometry data in South American Fur Seals, undergraduate dissertation.

Chacon E., **Romero V.**, Quispe L., Camero J. (2014). Methodology for estimating process capability indices in non-normal data, Scientific-Technical Magazine of the Research General Institute of the National University of Engineering, 24(1):43-52.

## Conference Presentations, Invited Talks, Workshops and Posters

- Apr 2022 **Speaker** at the online event "Discover the Career of Data Science", Women In It Fest, Lima-Peru.
- Sep 2020 "*Interactive Web Applications with Shiny*", **Contributor** in the **workshop** prepared for *LatinR Conference*. Material available in [https://github.com/flor14/latinr\\_shiny\\_2020](https://github.com/flor14/latinr_shiny_2020).
- Jun 2019 **Presenter** in the VI Latin American Meeting on Bayesian Statistics (COBAL). "*Longitudinal Multidimensional Item Response Modelling in Preschool Children's Mental State Understanding*".
- Mar 2019 "*Built your first app with Shiny and R in 45 minutes*", **workshop** prepared for the event Women's Day: For more women in technology. Material available in <https://github.com/VilmaRomero/TallerShiny-WomensDay>.
- Dec 2018 "*Reproducible Reports with R*", **workshop** prepared for the Fourth Meetup of R-Ladies Lima. Material available in <https://github.com/VilmaRomero/R-Ladies-Lima-rmarkdown>.
- Sep 2018 "*Longitudinal Multidimensional Item Response Modelling in Preschool Children's Mental State Understanding*". **Poster** presented at *LatinR Conference*, Buenos Aires-Argentina.
- Mar 2018 **Member** of the panel of experts in the event *Women in Data Science*, University of Lima.
- Oct 2017 **Presenter** in the *I International Conference on Stochastic Processes, Random Phenomena and its Applications*, Lima-Peru. Master Thesis exhibition.
- Dec 2015 **Honorary Speaker** at the Academic Event "Statistician Day", National University of Engineering, Lima-Peru. Master Thesis exhibition.
- Jun 2014 **Presenter** in the IV Congress of Peruvian Marine Sciences, Lima-Peru. Undergraduate Thesis exhibition.

## Service to Profession, Department and University

- 2018 - 2021 Co-Organizer of "R-Ladies Lima", chapter of the world-wide organization called "R-Ladies".
- 2018 Reviser of the Chapter 5 in the Collaborative Project of Spanish translation of the book "R for Data Science - Hadley Wickham, Garrett Golemund" (<https://github.com/cienciadedatos/>).
- 2016 Interpreter for the three day ABET accreditation process for the Statistical Engineering School at the National University of Engineering.
- 2009 Collaborator in the organization of the Scientific Event for the "Peruvian Statistician Day", National University of Engineering.

## Personal References

**Dr. Martín Cornejo Sarmiento**  
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