

Evelyn Gutiérrez

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EDUCATION

University of Orleans - PRISME Laboratoire, Orléans, France

Pontifical Catholic University of Peru - Laboratory of Medical Images, Lima, Peru

Sep. 2020 – Mar. 2023

PhD student - International Dual Degree

Thesis: Chronic wound monitoring based on thermal and color images from a portable device

Pontifical Catholic University of Peru (PUCP) Lima, Peru

Mar. 2015 – Dec. 2016

Master in Statistics

Thesis: Estimation of the disease prevalence when diagnostic tests are subject to classification error: Bayesian Approach.

Dissertation result: Outstanding

National University of Engineering (UNI) Lima, Peru

Mar. 2006 – Mar. 2011

BSc. in Statistical Engineering

Placement: First Place

RESEARCH EXPERIENCE

PRISME Laboratoire, Université d'Orléans | PhD Student (Co-supervised)

Mar. 2020 – Mar. 2023

I researched the combination of 3D models with thermal information to monitor chronic wounds, especially using portable and low-cost devices. Selected experience:

- Development of methodology to create thermal 3D models, particularly for chronic wounds.
- Data acquisition for clinical studies in France and Peru.
- Implementation of a thermal 3D model creation system including interactive visualization tools.
- Supervised three undergraduate students.

Main tools: 3D modeling, Python (OpenCV, Open3D, Scipy, Pytorch, Numpy), R (RMarkdown, rgl (OpenGL for R))

Medical Image Laboratory, Pontifical Catholic University of Peru | Research Engineer

Aug. 2019 – Oct. 2019

Contribution to a research project: Investigation of different ultrasound tissues of the diabetic plantar foot.

- Organization, planning, and managing execution of the ultrasound data acquisition protocol
- Development of data analysis and visualization tool of ultrasound images.

Main tools: Matlab, R, RMarkdown, RShiny.

Group of Mathematical and Statistical Modelling for Evaluation | Research Assistant

Oct. 2015 – Dec. 2016

Research on estimating disease prevalence using a Bayesian framework. Implementation of Reversible Jump MCMC with R and C++. *Main tools: Computational statistics, R, C++, Parallel computing.*

PROFESSIONAL EXPERIENCE

LenddoEFL | Data Scientist, Credit Risk Modeling Specialist

Mar. 2015 – Oct. 2018

I helped lenders in Africa, Asia and the Americas make better decisions to serve people with no credit history. Credit risk scoring models with various alternative data sources: digital psychometric questionnaires, metadata, and digital presence. Selected experience:

- Data management and feature engineering.
- Analysis and deployment of statistical models and machine learning models.
- Reporting and model performance evaluation.
- R & D: Unbalanced data problems, interpretability of psychometric models, inclusion of new data sources.

Software: R, Python, SQL, PostgreSQL, MongoDB, AWS, Watson IBM

Business Analytics | Consulting GeoIntelligence Analyst

Jan. 2014 – Mar. 2015

Exploiting big data, especially with geolocation information (GIS), I helped Peruvian retail and financial companies understand their customers and find better business opportunities. Selected responsibilities:

- Technical advice in problem definition and customer needs exploration.
- GIS data analysis, Geomarketing, and predictive modeling.

Software: R, Statistica, ArcGIS, PostgreSQL, SQL, Azure ML, QGIS

Entrepreneurial Finance Lab (EFL) | Credit Risk Analyst

Sep. 2011 – Dec. 2013

I contributed to the analysis, evaluation, and monitoring of psychometric credit risk models used in African banks serving micro-entrepreneurs in Kenya, Nigeria, South Africa, Tanzania, and Botswana. Responsibilities:

- Data management: data preparation, ETL, and automation.
- Data analysis and reporting.

Software: Stata, R, VBA Excel

TEACHING EXPERIENCE

Pontifical Catholic University of Peru (PUCP) | *Lecturer*

Aug. 2017 - Dec. 2022

- Undergraduate: (IIBM18) Biomedical Engineering Professional Development, (1EST12) Applied Statistics, (EST218) Statistics for Engineering, (EST103) Statistics for General Studies in Humanities, (EST145) Statistics for General Studies in Science, (1INF07) Numerical Experimentation
- Continuous Education, Short courses: Forecasting, Regression, and Time Series Techniques; Inference and applied Statistics using R; Basic statistical methods in R and SPSS.

National University of Engineering (UNI) | *Instructor*

2020 - 2022

- Continuous Education, Short courses: RMarkdown workshop, Dashboards with flexdashboard, Handling data Balancing, and Missing Data.

VOLUNTEERING

RLadies Lima | *Co-organizer*

2018 - 2021

Along with other R programmers, I planed and organized presential and online events to discuss and share experience on different R applications.

RLadies Lima is part of a worldwide organization to promote gender diversity in the R community. Our mission is to actively promote women's participation by organizing meetings (gatherings) in a friendly environment and collaborative space. We aspire to have more women programming, developing, teaching and creating R packages.

PUBLICATIONS

Journals:

- Naemi, R., Romero Gutierrez, S.E., Allan, D., Flores, G., Ormaechea, J., **Gutierrez, E.**, Casado-Pena, J., Anyosa-Zavaleta, S., Juarez, M., Casado, F., Castaneda Aphan, B., *Diabetes Status is Associated With Plantar Soft Tissue Stiffness Measured Using Ultrasound Reverberant Shear Wave Elastography Approach*. J Diabetes Sci Technol. 16, 478–490 (2022), doi: [10.1177/1932296820965259](https://doi.org/10.1177/1932296820965259).
- **Gutierrez, E.**, Castañeda, B., Treuillet, S., Hernandez, I.: *Multimodal and Multiview Wound Monitoring with Mobile Devices*. Photonics. 8, 424 (2021), doi: [10.3390/photonics8100424](https://doi.org/10.3390/photonics8100424)
- Romero, S.E., Naemi, R., Flores, G., Allan, D., Ormaechea, J., **Gutierrez, E.**, Casado, F.L., Castaneda, B., *Plantar Soft Tissue Characterization Using Reverberant Shear Wave Elastography: A Proof-of-Concept Study*. Ultrasound in Medicine Biology 48, 35–46, (2021), doi: [10.1016/j.ultrasmedbio.2021.09.011](https://doi.org/10.1016/j.ultrasmedbio.2021.09.011)
- Niri, R. and **Gutierrez, E.** and Douzi, H. and Lucas, Y. and Treuillet, S. and Castaneda, B. and Hernandez, I., *Multi-View Data Augmentation to Improve Wound Segmentation on 3D Surface Model by Deep Learning*, in IEEE Access, vol. 9, pp. 157628-157638, (2021), doi: [10.1109/ACCESS.2021.3130784](https://doi.org/10.1109/ACCESS.2021.3130784)

Conferences:

- **Gutierrez, E.**, Castañeda B., Treuillet S., and Lucas Y. (February, 2021) *Combined thermal and color 3D model for wound evaluation from handheld devices*, Proc. SPIE 11601, Medical Imaging 2021: Imaging Informatics for Healthcare, Research, and Applications, 1160108, doi: [10.1117/12.2580669](https://doi.org/10.1117/12.2580669)
- **Gutierrez, E.**, Castañeda B., Treuillet S. (February, 2020) *Correction of Temperature Estimated from a Low-Cost Handheld Infrared Camera for Clinical Monitoring*, Advanced Concepts for Intelligent Vision Systems (Vol. 12002, pp. 108–116). Springer International Publishing, doi: https://doi.org/10.1007/978-3-030-40605-9_10
- **Gutierrez, E.** (August, 2019) *Estimation of the disease prevalence when diagnostic tests are subject to classification error: Bayesian approach*, Latin American Bayesian Congress (COBAL), Lima-Peru

LANGUAGES

Spanish (native), English (professional working proficiency), and French (Upper Intermediate B2).

REFERENCES

To be presented upon request.