Evelyn Gutiérrez

Website | **Google Scholar** | **LinkedIn**

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EDUCATION

PhD student - International Dual Degree *Sep. 2020 – Mar. 2023*
University of Orleans - PRISME Laboratoire, Orléans, France
Pontifical Catholic University of Peru - Laboratory of Medical Images, Lima, Peru
Thesis: *Chronic wound monitoring based on thermal and color images from a portable device*

Master in Statistics Lima, Peru *Mar. 2015 – Dec. 2016*
Pontifical Catholic University of Peru (PUCP)
Thesis: *Estimation of the disease prevalence when diagnostic tests are subject to classification error: Bayesian Approach.*

National University of Engineering (UNI) ***Lima, Peru*** *Mar. 2006 – Mar. 2011*
BSc. in Statistical Engineering
Placement: First Place

RESEARCH EXPERIENCE

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

Research Engineer | ***Medical Image Laboratory, LIM-PUCP*** | ***Lima, Peru*** *Aug. 2019 – Oct. 2019*
Major participation in acquiring and analyzing data for ultrasound-based characterization of diabetic plantar foot tissue.
- Organization, planning, and managing of the ultrasound data acquisition.
- Development of data analysis and visualization tool of ultrasound images and data.

Main tools: Matlab, R, RMarkdown, RShiny, Shear Wave Elastography

Research Assistant | ***MMEPE-PUCP*** | ***Lima, Peru*** *Oct. 2015 – Dec. 2016*
Innovative Disease prevalence estimation through Bayesian methodology. Reversible Jump RJ-MCMC efficiently implemented in R and C++. Simulations performed with parallel computing.
Main tools: Computational statistics, Bayesian Inference, R, C++, High Performance Computing

PROFESSIONAL EXPERIENCE

Credit Risk Modeling Specialist, Data Scientist | ***LenddoEFL*** | ***Hybrid*** *Mar. 2015 – Oct. 2018*
I helped lenders in Africa, Asia, and Latin America serve individuals without a credit history by creating credit scoring models using unconventional data sources: digital psychometric questionnaires, metadata, and digital presence.
- Data management and feature engineering.
- Analysis and deployment of statistical and machine learning models.
- Reporting and model performance evaluation.
- R & D: Unbalanced data issues, psychometric model interpretability, incorporation of new data sources.

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

Consulting GeoIntelligence Analyst | ***Business Analytics*** | ***Lima, Peru*** *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 responsabilities:
- 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

Credit Risk Analyst | ***Entrepreneurial Finance Lab (EFL)*** | ***Lima, Peru*** *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. Responsabilities:
- Data management: data preparation, ETL, and automation.
- Data analysis and reporting.

Software: Stata, R, VBA Excel

TEACHING EXPERIENCE

Lecturer | ***Pontifical Catholic University of Peru (PUCP)*** | ***Lima, Peru*** *Aug. 2017 - Dec. 2022*

- Undergraduate: (1IBM18) 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.

Instructor | ***National University of Engineering (UNI)*** *2020 - 2022*

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

VOLUNTEERING

Co-organizer | ***RLadies Lima*** | ***Lima, Peru*** *2018 - 2021*

As part of a community of R programmers, I organized events to discuss and share experiences on 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.
- **Gutierrez, E.**, Castañeda, B., Treuillet, S., Hernandez, I.: *Multimodal and Multiview Wound Monitoring with Mobile Devices*. Photonics. 8, 424 (2021), doi: 10.3390/photonics8100424
- Romero, S.E., Naemi, R., Flores, G., Allan, D., Ormachea, 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
- 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

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
- **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$_1$0
- **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

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LANGUAGES

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

REFERENCES

To be presented upon request.