Evelyn Gutierrez

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

Orléans, France

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EDUCATION

PhD in Engineering - International Dual Degree
Université d'Orleans - PRISME Laboratoire, France
Pontifical Catholic University of Peru - LIM Laboratory, Peru *Sep. 2020 – Apr. 2023*
Thesis: Fusion of thermal and three-dimensional data for chronic wound monitoring

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

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

RESEARCH EXPERIENCE

PhD Student, *PRISME Laboratoire - Université d'Orléans, France* *Sep. 2020 – Mar. 2023*
Researched the combination of thermography and 3D modeling to provide objective wound monitoring metrics.
- Implementation of 3D computer vision methods to create thermal 3D models using low-cost devices.
- Managed the collection of images in 2 clinical centers, one in Peru and the other in France.
- Published results in conferences, and journals: 3 publications, and 2 preprints.
- Proposed and supervised 6 R&D sub-projects: 5 undergraduate students and 1 android developer.

Tools: 3D modeling, Python (OpenCV, Open3D, Scipy, Tensorflow, Pytorch, Numpy), R (RMarkdown, rgl, Shiny)

Research Engineer, *Medical Image Laboratory - PUCP, Lima, Peru* *Aug. 2019 – Oct. 2019*
Contribution to the characterization of diabetic plantar foot tissue using ultrasound images.
- Lead a team of 5 people for ultrasound image collection: 2 students, 1 medical technician and 1 engineer.
- Creation of visualization software to facilitate the data analysis of ultrasound imaging.
- Data analysis and support for paper writing, resulting in 2 journal publications.

Tools: Matlab, R, RMarkdown, RShiny, Shear Wave Elastography

Research Assistant, *Mathematical and Statistical Modeling for Evaluation - PUCP, Lima, Peru* *Oct. 2015 – Dec. 2016*
Researched Bayesian methods to improve disease prevalence. Contribution:
- Provided a comprehensive analysis of two bayesian methodologies for disease prevalence estimation.
- Efficiently implemented Reversible Jump MCMC using R and C++.
- Grant awarded by the Graduate Student Research Support Program (PAIP2016)

Tools: Bayesian Inference, Computational Statistics, R, C++, High Performance Computing

PROFESSIONAL EXPERIENCE

CR Modeling Specialist - Data Scientist, *LenddoEFL*, *Hybrid from Lima, Peru* *Mar. 2015 – Oct. 2018*
Within this FinTech startup, I developed credit scorecards for financial institutions in Africa, Asia and Latin America, leveraging multiple data sources: psychometric digital questionnaires, geolocation, metadata and digital presence.
- End-to-end model development: from data cleaning, research and modeling to production implementation.
- Monitoring and backtesting of existing models.
- Research and development to solve unbalanced data issues, interpretability of psychometric scoring models, and integration of new data sources.

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

Geointelligence Consulting Analyst, *Business Analytics*, *Lima, Peru* *Jan. 2014 – Mar. 2015*
Using big data, especially with geolocation information (GIS), I helped Peruvian companies understand their customers and find business opportunities.
- Analytics support on business problem identification and data-driven solution proposals.
- GIS data analysis, and geomarketing studies for customer profiling and customer behavior.
- Analysis of the retail distribution systems: market potential, cannibalization, and competitor studies.

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

Data Analyst, *Entrepreneurial Finance Lab (EFL)*, *Lima, Peru* *Sep. 2011 – Dec. 2013*
Performed data analysis and data engineering for a FinTech startup. Highlighted contribution:
- Database management and creation of a Data Warehouse.
- Led the development of web-based psychometric assessments.
- Data analysis and development of reporting tools.

Tools: Programming, Data Management, Stata, R, VBA Excel

TEACHING EXPERIENCE

Part-time Lecturer, *Pontifical Catholic University of Peru (PUCP)*, *Lima, Peru* *2017 - 2022*

- Part-time lecturer in charge of the following courses:
  Applied Statistics (1EST12), Statistics for Engineering (EST218), Statistics for Social Science (EST103), Statistics for Science General Studies (EST145), Experimental Design and Analysis (1INF07)
- Lecturing in short courses for graduates:
  Regression, and Time Series Techniques; Inference and applied Statistics with R; Basic statistical methods with R and SPSS.

Freelance Instructor, *National University of Engineering (UNI)*, *Lima, Peru* *2020 - 2022*

- Instructor for short courses:
  RMarkdown workshop; Dashboards with flexdashboard; Handling data Balancing, and Missing Data.

VOLUNTEERING

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

I organized events to promote science and tech in women and to discuss and share experiences on using R. RLadies Lima is part of a worldwide organization to promote gender diversity in the R community.

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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SKILLS & OTHERS

Statistics: Probability, Experimental Design, Generalized Linear Models, Computational Statistics.
Machine Learning: Supervised and Unsupervised Learning, Ensemble Methods.
Computer Vision: Camera Calibration, 3D modeling, Structure from Motion, SLAM, Deep Learning.
Programming: Excellent in Python and R. Proficient in C++, SQL, Stata, and VBA.

LANGUAGES

Spanish (Native), English (Professional working Proficiency), and French (Upper Intermediate B2).