

# Marcelo Gallardo

MATHEMATICS · PUCP

San Isidro, Lima, Peru

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## Education

### Pontificia Universidad Católica del Perú

B.S. AND LIC. MATHEMATICS

- **Master courses:** Optimal Transport, Stochastic Processes, Advanced Microeconomics
- 18.7/20

Lima, Pe

2020 - Present

### Q-LAB

PUCP

- **Courses:** Machine Learning for Social Sciences, Time Series and Machine Learning for Macroeconomics, Finance, Applied Econometrics, Asset Pricing, Empirical Industrial Organization

Lima, Pe

January-February 2022, 2023 and 2024

### École Polytechnique Fédérale de Lausanne

CYCLE PROPÉDEUTIQUE PHYSICS

- **Courses 2019:** Advanced Real Analysis for Physicists, Advanced Linear Algebra for Physicists, Advanced Mechanics
- **Courses 2020-2021:** Numerical Physics I, Numerical Physics II

Lausanne, SW

September 2019 - January 2020

## Experience

### Pontificia Universidad Católica del Perú

Teaching Assistant

- **Mathematics for economists 3.** Undergraduate. With Professor PhD Jorge R. Chávez.
- **Mathematics for economists 4.** Undergraduate. With Professor PhD Jorge R. Chávez.
- **Convex Optimization.** Undergraduate. With Professor PhD Jorge R. Chávez.
- **Functional Analysis.** Undergraduate. With Professor PhD Percy Fernández.
- **Microeconomics 2.** Undergraduate. With PhD Pavel Coronado.

Lima, Pe

March 2022 - November 2022 and March

2024-present

### Grupo de Análisis para el Desarrollo

RESEARCH ASSISTANT

- Collaborating with PhD Juan L. Jara Almonte.
- Creation of lecture notes for the course Fundamentals of Econometrics.
- Working paper: innovation indicator in Peruvian universities. Data collection, processing, k-means clustering and confirmatory factor analysis.
- Explore and eventually develop a statistical package and test to study structural changes in parameters.

Lima, Pe

March 2022 - November 2022 and

October 2023-present

### Pontificia Universidad Católica del Perú

RESEARCH ASSISTANT

- Collaborating with PhD Jorge R. Chávez.
- Pre-published book about Linear Algebra and Static Optimization for Economists.
- Working book about Dynamical Systems and Optimal Control in continuous time.

Lima, Pe

March 2021-present

### UNSW Sydney

RESEARCH ASSISTANT

- Collaborating with PhD Juan Carlos Carbajal.
- Literature review, expositions, mathematical derivations, academic and logistical support.

Sydney, Au

March 2024-present

## Working papers, papers and others

**Harnessing Twitter and GPT for a Novel Political Uncertainty Index for Peru: Implications for USD/PEN Exchange Rate Fluctuations** with Manuel Loaiza and PhD Gabriel Rodríguez.

**Innovation in Peruvian universities** with PhD Juan L. Jara.

**Brouwer fixed point theorem and applications in general equilibrium** with Carlos Cosentino and Eduardo Llamoca.

**Lecture notes in Optimal Transport: Entropic Regularization and Applications to Economics and Finance** with Carlos Cosentino and mentored by PhD Johel Beltrán.

**Lecture notes in Econometrics:** with PhD Juan L. Jara.

## Books

**Linear Algebra and Optimization for Economists (pre-published)** with PhD Jorge R. Chávez.

**Dynamical Systems and Optimal Control Theory in Continuous Time for Economists (working)** with PhD Jorge R. Chávez.

## Awards, & achievements

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12/2018 **Mention d'excellence au BAC, top mark 19.91/20**, Colegio Franco Peruano, Lima PE  
05/2019 **Admission to l'X Bachelor Program**, Paris, France  
12/2020 **Contest initiation to scientific research**, PUCP Lima, PE  
12/2021 **Contest initiation to scientific research**, PUCP Lima, PE  
2022-2023 **Ranked first in Economic courses**, PUCP Lima, PE  
2022- **Top 1% Faculty of Sciences and Engineering**, PUCP Lima, PE  
2022- **Ranked first in my class in the Mathematics major**, PUCP Lima, PE

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900 s/.

## Skills

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**Programming:** Python,  $\text{\LaTeX}$ , Matlab, STATA

**Languages:** Spanish (Native), French (Proficient), English (Proficient).

## Research interests

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Economic theory. Optimization and convex analysis. Optimal control theory. Optimal Transport. Quantitative methods applied to economics.

## References

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1. **Jorge R. Chávez Fuentes.** Professor of the Mathematics Department at Pontificia Universidad Católica del Perú.
2. **Juan L. Jara Almonte.** Professor of the Economics Department at Pontificia Universidad Católica del Perú and Research Associate at GRADE.
3. **Juan Carlos Carbajal.** Associate Professor Post-Graduate Coordinator (PhD program) School of Economics, UNSW Sydney
4. **Alfredo B. Poirier Schmidt.** Professor of the Mathematics Department at Pontificia Universidad Católica del Perú.
5. **Johel V. Beltrán Ramírez.** Professor of the Mathematics Department at Pontificia Universidad Católica del Perú and Visiting Professor at Fundação Getulio Vargas.
6. **Pavel Coronado.** Professor of the Economics Department at Pontificia Universidad Católica del Perú and Q-LAB director.
7. **Percy Fernandez.** Professor, Faculty Coordinator and Graduate School Director of the Mathematics Department at Pontificia Universidad Católica del Perú.