PEDRO VALLOCCI

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EDUCATION

Ph.D. in Economics   Expected 2024
University of California, Santa Cruz   *Santa Cruz, CA*
Exchange student at UC Berkeley and UCLA. *Advisor*: Prof. Galina Hale. *GPA*: 3.75
Relevant courses: Econometrics series, Machine Learning, Bayesian Inference, Statistical Data Analysis, Macrofinance, Asset Pricing
Research focus: Finance, Innovation, Productivity

M.Sc. in Electrical Engineering   2011
University of Kaiserslautern   *Kaiserslautern, Germany*
Relevant courses: Nonlinear and Linear Control Theory, Robust Control, Real-Time Systems

B.Sc. in Electrical Engineering   2007
University of Brasilia   *Brasilia, Brazil*
Relevant courses: Multivariate Calculus, Numerical Analysis, ODE, PDE, Linear Algebra, Information Theory

EXPERIENCE

Macro Research Intern @ SPX Capital Management LLC   *New York, NY* (Jun/23 - Aug/23)

- Summer intern at the Macro Research team of SPX, a global macro hedge fund with \$14.0B+ AUM.
- Developed a MIDAS mixed-frequency nowcasting model of US Consumption (PCE) using macroeconomic and news data (WSJ topic loadings, found by LDA). Performed variable selection with Random Forest and sparse-group LASSO, integrating dynamic factors. Outperformed SPF. Joint work with Quant team *(Python · R)*
- Integrated FRED API to retrieve vintage data for 100+ US macroeconomic variables, customized to our specific requirements

Ph.D. Candidate @ UCSC   *Santa Cruz, CA* (Aug/19 -)

- *Selected Research*:
    - **Measuring Knowledge Capital Risk**: I propose a methodology to identify firms that are vulnerable to knowledge capital-related risks, relying on a textual analysis of the risk factors disclosed in their annual reports. Further, the paper quantifies these risks through an examination of firms' return patterns. *(Python)*.
    - **Intangible Capital and Firm Hiring Dynamics** *(with Brenda Samaniego de la Parra)*: We examine the dynamics of how vacancy postings are influenced by firms' intangible capital. We find that firms with a higher intangibility are less inclined to disclose wage information, suggesting increased bargaining power for workers. *(Python · Stata)*
- *As Research Fellow*: Classified firms' operational scope as local or nationwide using NLP techniques on website content and a test set. Identified key websites for 50k firms via Python and Google Search API; scraped content with BeautifulSoup; processed text using NLTK; classified using Random Forest and SVM. *(R)*.
- *As Teaching Assistant*: Recognized with the 2023 Excellence in Teaching Award by the Econ Department. *Teaching Assistant* for Finance (grad-level), Machine Learning, Money and Banking, Int'l Trade, Intermediate Macro, Personal Finance, and more.
- *As Lecturer:* Graduate Student Instructor for Introductory Macroeconomics, with 90%+ favorable feedback.

Advisor @ Central Bank of Brazil (BCB) *Brasilia, Brazil* (Jun/14 -)

- Spearheaded design and implementation of an object-oriented inflation forecasting framework in MATLAB, substantially elevating forecasting accuracy, timeliness, and efficiency, boosting Brazilian scenario output to MPC by over 15-fold.
- Taught 20-hour course in Object-Oriented Programming in MATLAB at BCB's Corporate University.
- Contributed to team effort in adapting Bayesian estimation and Kalman filtering for BCB's DSGE model: Assisted in transitioning from Dynare to Julia, significantly enhancing its computational performance

Software Engineer @ Knorr-Bremse AG *Munich, Germany* (May/11 - Apr/13)

- Developed, documented, and tested on-site brake software for Stuttgart's Light-Rail trains (Stadtbahn)
- Verified and documented brake software for 5+ cities' underground train systems

PROFESSIONAL CERTIFICATES

Data Science Specialization (link) IBM
Financial Engineering and Risk Management, I and II (link) Columbia University

SKILLS

Technical: R, Python, MATLAB, Julia, STATA, SQL; Natural Language Processing, Machine Learning
Languages: Portuguese (native), English, German, Spanish (fluent); Italian and French (intermediate)

CITIZENSHIP

Brazil, Italy. US: STEM-OPT holder; I-140 approved

REFERENCES

Galina Hale (main advisor)
Professor
UC Santa Cruz
Department of Economics
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