Pedro Nascimento de Lima

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SUMMARY

I am an assistant policy researcher at RAND, a Ph.D. candidate at Pardee RAND, an Adjunct Instructor at USC, and a Visiting Student at the Argonne National Laboratory. I have a B.S. and an M.S. in production engineering from UNISINOS University in Brazil and an M.Phil in Policy Analysis from Pardee RAND Graduate School.

My early professional trajectory in Brazil included a diverse set of experiences. I led a software development team, then migrated to academia to work as a research intern. As an undergraduate student, I also initiated a student-led regional conference. Upon completion of my master's degree, I became a Lecturer at my alma mater University.

Now at RAND and Argonne, I use my prior expertise in software development and modeling and my recent training in Policy analysis on applied health policy research projects. I thrive working on research projects that benefit from a mix of software development and simulation modeling skills. My first dissertation paper, titled *Reopening California: Seeking Robust, Non-Dominated COVID-19 Exit Strategies*, uses the Robust Decision Making approach to stress-test reopening strategies in the wake of COVID-19 vaccination roll-out.

EDUCATION

Pardee RAND Graduate School, *Santa Monica, CA*
Ph.D. in Policy Analysis — *Exp. Jun 2023*
Dissertation Tentative Title: Improving Health Policy Under Deep Uncertainty.
Advisor: Robert Lempert
M.Phil. in Policy Analysis — *Dec 2020*

UNISINOS University, *São Leopoldo, Brazil*
M.S. in Production Engineering — *Feb 2018*
B.S. in Production Engineering — *Dec 2015*

EXPERIENCE

RAND Corporation — *Santa Monica, CA*
Assistant Policy Researcher — *Sep. 2019 - Present*

- I am a CISNET junior investigator working with the Colorectal Cancer group. CISNET is a consortium of NCI-sponsored investigators who use simulation modeling to improve our understanding of cancer control interventions. My current CISNET-funded research is evaluating the robustness of cancer screening policies with the Robust Decision Making approach (PI: Carolyn Rutter).
- I developed the R package containing the epidemiological model and the analytic data pipeline underlying RAND's COVID-19 State Policy Tool. The modules implemented are responsible for calibrating and running the model for all US states, and integrating results from the economic model. The tool ultimately became RAND's most popular research of 2020 and was honored with a RAND Silver Medal Award. (PIs: Jeanne Ringel, Raffaelle Vardavas).
- Developed the famexplorer R package - an **R/Shiny**-based visualization web app allowing researchers to create interactive visualization tools for their microsimulation analyses. The first

paper using the visualization tool was nominated h (PIs: Roland Sturm and Patricia Herman). processes) is an R package for handling missing data. (PI: Michael Robbins).

University of Southern California *Los Angeles, CA*
Adjunct Instructor - *USC Sol Price School of Public Policy* *Aug. 2021 - Present*

- I teach Essential Statistics at Price's MPA program.

Argonne National Laboratory *Lemont, IL*
Visiting Graduate Student - *Decision and Infrastructure Sciences Division* *Dec. 2020 - Present*

- The visiting student appointment allows me to collaborate with Argonne researchers and use its High-Performance Computing resources to perform large-scale experiments in my simulation-based research. Argonne-developed scientific computing languages and frameworks (Swift/T and EMEWS) are key resources that allow me to work on cancer prevention policy questions that would be too intractable with limited computing power. (PI: Jonathan Ozik).

UNISINOS University *São Leopoldo, Brazil*
Lecturer - Polytechnic School *Feb. 2018 - Jun. 2019*

- Taught the following disciplines in undergraduate and MBA classes: Operations Research - Linear Programming; Simulation Modeling (Discrete Event Simulation); System Dynamics Simulation; Operations Management; Information Systems Management.
- Advised undergraduate and MBA students in their capstone research projects, one of which received the Best Brazilian Production Engineering Undergraduate Dissertation Award from ABEPRO (2019).

Master Research Assistant - GMAP — UNISINOS Research Group *Feb. 2016 - Feb. 2018*

- Developed a Monte Carlo Simulation package in R for cost-benefit analysis of Organizational Safety and Health Initiatives.
- Developed algorithms for exploratory modeling and analysis of system dynamics models in R.
- Developed a competition dynamics model for the Professional Additive Manufacturing Industry.

Undergraduate Research Intern - GMAP — UNISINOS Research Group *Jun. 2013 - Feb. 2016*

- Developed a model of global competition between iron ore producers, taking into account regional comparative advantages and detailed substitution dynamics among different iron ore types.
- Developed a VBA tool to run simulations, aggregate and summarize simulation results.
- Conducted Business Process Modeling of productivity and innovation induction programs for government agencies in Southern Brazil (AGDI and SEBRAE/RS).

Rede Industrial *Presidente Lucena, Brazil*
Chief Analyst *Jan. 2012 - Jun. 2013*

- Oversaw SIGMA's (a CMMS) software development and support teams.
- Conceptualized most of the new features included in the 2012 release, including the SIGMA's interagration module, Sigma SMS module and SIGMA's Android App.

Business Analyst *Jan. 2009 - Jan. 2012*

- Conducted software requirements analysis for internal and external clients.
- Developed SQL queries for database reporting and bug troubleshooting.
- Streamlined software development processes implementing and customizing Jira workflows.

DISTINCTIONS AND AWARDS

RAND Silver Medal Award *RAND Corporation, 2021*
Alongside Lawrence Baker, Raffaele Vardavas, Alyson Youngblood and Heather Mackracken, for deveoping RAND's COVID-19 State policy tool.

Innovation Spotlight Award *RAND Corporation, 2020*
For developing the FAM Explorer R package - An interactive visualization tool for FAM-based dynamic microsimulation models.

Best Brazilian Production Engineering Undergrad Dissertation (Advisor) *ABEPRO, 2019*
Title: Process Mining and SLA violation prediction at a multinational software company. Student: Eduardo Mazzuco.

Best Brazilian Production Engineering Masters Dissertation (Author) *ABEPRO, 2018*
Title: Strategic Decision Making Under Deep Uncertainty in the 3D Printing Industry: A Robust Decision Making Analysis. (**full text**).

Best Brazilian Production Engineering Undergrad Dissertation (Author) *ABEPRO, 2016*
Title: Problem Structuring Methods: A Review of Methods to address Complex Problems. (**full text**).

PROSUP M.Sc. Scholarship *CAPES, 2016*

Inovapps 2015 Prize *Brazilian Communications Ministry, 2015*
For proposing and developing the open-source Avalia Brasil Android App. Collaborators: Nataniel Schling and Klaus Klein. (**github repository**)

PROFESSIONAL AFFILIATIONS AND ACTIVITIES

MIDAS Network

MIDAS Student Committee volunteer *2020 - Present*

Society for Decision Making Under Deep Uncertainty

Communications and Outreach Chair *2019 - 2020*

Member, Communications Team Volunteer *2017 - 2018*

NUGEEP - Rio Grande do Sul State Student Chapter - ABEPRO

President *2015 - 2016*

PUBLICATIONS

Pedro Nascimento de Lima, Raffaele Vardavas, Lawrence Baker, Jeanne Ringel, Robert Lempert, Carolyn M. Rutter, Jonathan Ozik (2021) **Reopening Under Uncertainty: Stress-Testing California's COVID-19 Exit Strategy.** Santa Monica, CA: RAND Corporation, 2021.

Pedro Nascimento de Lima, Robert Lempert, Raffaele Vardavas, Lawrence Baker, Jeanne Ringel, Carolyn M. Rutter, Jonathan Ozik, Nicholson Collier (2021) **Reopening California: Seeking Robust, Non-Dominated COVID-19 Exit Strategies.** Santa Monica, CA: RAND Corporation, 2021.

Raffaele Vardavas, **Pedro Nascimento de Lima**, Lawrence Baker (2021) **Modeling COVID-19 Nonpharmaceutical Interventions: Exploring Periodic Strategies** Santa Monica, CA: RAND Corporation, 2021.

Vardavas, Raffaele, Aaron Strong, Jennifer Bouey, Jonathan William Welburn, **Pedro Nascimento de Lima**, Lawrence Baker, Keren Zhu, Michelle Priest, Lynn Hu, and Jeanne S. Ringel (2020) **The**

Health and Economic Impacts of Nonpharmaceutical Interventions to Address COVID-19: A Decision Support Tool for State and Local Policymakers. Santa Monica, CA: RAND Corporation, 2020. https://www.rand.org/pubs/tools/TLA173-1.html.

Pedro Nascimento de Lima, PhuongGiang Nguyen, Patricia M. Herman, Roland Sturm. **How Would a Better Diet Affect Health and Economic Outcomes in the United States?**. Santa Monica, CA: RAND Corporation, 2020. https://www.rand.org/pubs/tools/TL363.html.

Lima, P. N., Dresch, A., Larcerda, D. P. (2019). **Do socio-economic contextual factors influence SMEs' service quality? A cross-sector and cross-city SERVPERF analysis**. International Journal of Business Performance Management, 20(3), 195-211.https://doi.org/10.1504/IJBPM.2019.101998

Veit, D. R., Larcerda, D. P., **Lima, P. N.** (2019). **The impacts of Additive Manufacturing on production systems**. In J. Mula, R. Barbastefano, M. Díaz-Madroñero, Raúl Poler (Eds.), Lecture Notes in Management and Industrial Engineering (pp. 187–194). https://doi.org/10.1007/978-3-319-93488-4

Dresch, A., Veit, D. R., **Lima, P. N.**, Lacerda, D. P., Collatto, D. C. (2019). **Inducing Brazilian manufacturing SMEs productivity with Lean tools**. International Journal of Productivity and Performance Management, 68(1), 69–87. https://doi.org/10.1108/IJPPM-10-2017-0248

SOFTWARE: R PACKAGES AND TOOLS

I often contribute to research projects by developing R packages. I find it helpful to build internal R packages, not only to facilitate reproducibility but to build models and tools in a way that makes them reliable and useful to solve future problems. These packages include:

randcast.wtchp: Cost Forecasts for CDC's WTC Health Program *RAND, 2021*
This package creates ensembles of forecasting models for CDC's World Trade Center Health Program. Under active development.

crcrdm: Robust Decision Making Tools for Colorectal Cancer models *RAND, 2021*
This package is a tool to facilitate the use of RDM methods with CRC models.

c19randepimod: RAND's COVID-19 Epidemiological Models *RAND, 2020*
The c19randepimod package is the R package behind RAND's COVID-19 State Decision Support Tool.

gerbil: Generalized Efficient Regression-Based Imputation with Latent Processes *RAND, 2021*
I made minor contributions to Michael Robbins' imputation package.

famexplorer: A Visualization tool for the FAM Microsimulation Model *RAND, 2019*
The famexplorer package reads data from the creates a shiny app on-the fly for the FAM Model. The package is flexible enough to be reused across projections.

TECHNICAL SKILLS

Programming	**R** (my primary language), python, STATA, SAS (as needed)
High-Performance Computing	slurm, Swift/T, EMEWS with R and python
Web Apps Development	R's Shiny Package
Relational Databases	mySQL, MS SQL Server
Modeling and Simulation	iThink, Arena, deSolve R package
Other Tools	Tableau, Wordpress, Git
Github profile	github.com/pedroliman
Blog with R-related posts	www.pedronl.com