Pedro Nascimento de Lima

Associate Engineer, RAND Corporation

www.pedrodelima.com

SUMMARY

Dr. Nascimento de Lima is an Associate Engineer at the RAND Corporation. He uses his background in Engineering and Policy Analysis to inform policy decisions under uncertainty. His recent research includes stress-testing state-level COVID-19 mitigation plans and national cancer prevention strategies using modeling and high-performance computing. His research also used models to examine policies to close Black-white wealth gaps in the United States.

Dr. Nascimento de Lima also contributes to the dissemination of rigorous decision-making methods by serving as the Membership Chair of the Society for Decision Making Under Deep Uncertainty. He holds a B.S. and an M.S. in production engineering from UNISINOS University (Brazil) and a Ph.D. in Policy Analysis from Pardee RAND Graduate School.

EDUCATION

Pardee RAND Graduate School, *Santa Monica, CA*

Ph.D. in Policy Analysis — *Oct 2022*

M.Phil. in Policy Analysis — *Dec 2020*

UNISINOS University, *São Leopoldo, Brazil*

M.S. in Production Engineering — *Feb 2018*

B.S. in Production Engineering — *Mar 2016*

PROFESSIONAL EXPERIENCE

RAND Corporation — *Santa Monica, CA*

Associate Engineer — *Oct. 2022 - Present*

- Lead and contribute to research grants and contracts sponsored by organizations including the National Institutes of Health (NIH), the National Science Foundation (NSF), and the United States Air Force.
- Led and co-authored multiple peer-reviewed publications analysing policies to control the COVID-19 and future pandemics, and their effects on cancer outcomes.

Assistant Policy Researcher — *Sep. 2019 - Oct. 2022*

- Developed the R package containing the epidemiological model and the analytic data pipeline underlying RAND's COVID-19 State Policy Tool. The tool became RAND's most popular research of 2020 and was honored with a RAND Silver Medal Award.
- Developed the famexplorer R package - an R/Shiny-based visualization web app allowing researchers to create interactive visualization tools for their microsimulation analyses.

Argonne National Laboratory *Lemont, IL*
Visiting Graduate Student - *Decision and Infrastructure Sciences Division* *Dec. 2020 - Dec 2022*

- This appointment allowed me to leverage Argonne's High-Performance Computing resources to perform large-scale (e.g., > 50,000 CPU hours) computational experiments and answer policy questions that would be intractable with limited computing resources.

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

- Taught Essential Statistics at USC Sol Price School of Public Policy.

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 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 competitive dynamics model of iron ore producers, accounting for regional comparative advantages and detailed substitution dynamics among different iron ore types.
- Developed a VBA tool to run 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 integration 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.

PUBLICATIONS

This list includes peer-reviewed papers and peer-reviewed publicly-available RAND publications.

Nascimento de Lima, P., Lamb, J., Osoba, O., & Welburn, J. (2023, August). Modeling America's Racial Wealth Disparities. *Notices of the American Mathematical Society*, *70*(07), 1. doi:10.1090/noti2743

Nowak, S. A., **Nascimento de Lima**, P., & Vardavas, R. (2023). Optimal non-pharmaceutical pandemic response strategies depend critically on time horizons and costs. *Scientific Reports*, *13*(1), 2416. doi:10.1038/s41598-023-28936-y

Osoba, O. A., Welburn, J. W., Lamb, J., **Nascimento de Lima**, P., & Kumar, K. B. (2023). *Exploring Intergenerational Wealth Transfer Dynamics with Agent-Based Models*. RAND Corporation. doi:10.7249/WRA1259-8

van den Berg, D. M., **Nascimento de Lima**, P., Knudsen, A. B., Rutter, C. M., Weinberg, D., Lansdorp-Vogelaar, I., ... de Jonge, L. (2023, July). NordICC Trial Results in Line With Expected Colorectal Cancer Mortality Reduction After Colonoscopy: A Modeling Study. *Gastroenterology*, (August), 1–3. doi:10.1053/j.gastro.2023.06.035

Nascimento de Lima, P. (2022). *Robust Decision Making in Health Policy: Applications to COVID-19 and Colorectal Cancer*. RAND Corporation. doi:10.7249/RGSDA2531-1

Rutter, C. M., **Nascimento de Lima**, P., Lee, J. K., & Ozik, J. (2022). Too Good to Be True? Evaluation of Colonoscopy Sensitivity Assumptions Used in Policy Models. *Cancer Epidemiology Biomarkers Prevention*, cebp.1001.2021. doi:10.1158/1055-9965.EPI-21-1001

Welburn, J. W., **Nascimento de Lima**, P., Kumar, K. B., Osoba, O. A., & Lamb, J. (2022). *Overcoming Compound Racial Inequity: Policies and Costs for Closing the Black-White Wealth Gap*. RAND Corporation. doi:10.7249/RRA1259-2

Nascimento de Lima, P., Lempert, R., Vardavas, R., Baker, L., Ringel, J., Rutter, C. M., ... Collier, N. (2021). Reopening California: Seeking robust, non-dominated COVID-19 exit strategies. *PLOS ONE*, *16*(10), e0259166. doi:10.1371/journal.pone.0259166

Nascimento de Lima, P., Vardavas, R., Baker, L., Ringel, J., Lempert, R. J., Rutter, C. M., & Ozik, J. (2021). *Reopening Under Uncertainty: Stress-Testing California's COVID-19 Exit Strategy* (tech. rep. No. May). RAND Corporation. Santa Monica, CA. doi:10.7249/PEA1080-1

Vardavas, R., **Nascimento de Lima**, P., & Baker, L. (2021). Could periodic nonpharmaceutical intervention strategies produce better COVID-19 health and economic outcomes? *Journal on Policy and Complex Systems*, *7*(1). doi:10.18278/jpcs.7.1.8

Vardavas, R., **Nascimento de Lima**, P., Davis, P. K., Parker, A. M., & Baker, L. (2021). Modeling Infectious Behaviors: The Need to Account for Behavioral Adaptation in COVID-19 Models. *Journal on Policy and Complex Systems*, *7*(1), 21–32. doi:10.18278/jpcs.7.1.3

Vardavas, R., Strong, A., Bouey, J., Welburn, J., **Nascimento de Lima**, P., Baker, L., . . . Ringel, J. (2020). *The Health and Economic Impacts of Nonpharmaceutical Interventions to Address COVID-19: A Decision Support Tool for State and Local Policymakers*. RAND Corporation. doi:10.7249/tla173-1

Dresch, A., Veit, D. R., **Nascimento de Lima**, P., 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. doi:10.1108/IJPPM-10-2017-0248

Nascimento de Lima, P., Dresch, A., & Lacerda, D. P. (2019). Do Socioeconomic Contextual Factors Influence SMEs Service Quality? A cross-sector and cross-city SERVPERF analysis. *International Journal of Business Performance Management*.

Veit, D. R., Larcerda, D. P., Morandi, M. I. W. M., Dresch, A., & **Nascimento de Lima**, P. (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). Springer. doi:10.1007/978-3-319-93488-4

DISTINCTIONS AND AWARDS

RAND Silver Medal Award *RAND Corporation, 2021*

Alongside Lawrence Baker, Raffaele Vardavas, Alyson Youngblood, and Heather McCracken, for developing 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**).

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**)

SOFTWARE: R PACKAGES AND TOOLS

I often contribute to projects by developing R packages to make the code base more reliable, portable, and valuable for future projects.

optic: Simulation Tool for Causal Inference Using Longitudinal Data *RAND, 2023*
The optic package allows statisticians to perform simulation studies evaluating candidate causal inference methods using their longitudinal data.

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.

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've made minor contributions to help Michael Robbins organize his multiple imputation package.

famexplorer: A Visualization Tool for the FAM Microsimulation Model *RAND, 2019*
The famexplorer package reads output data and creates a shiny app for the FAM Model. The package is flexible enough to be reused across projects. It creates a dynamic user interface given a prior specification of modules the researcher wants to see in the web app.

PROFESSIONAL AFFILIATIONS AND ACTIVITIES

Society for Decision Making Under Deep Uncertainty

Membership Chair *2023 - present*

Communications and Outreach Chair *2019 - 2020*

Member, Communications Team Volunteer *2017 - 2018*

MIDAS Network

MIDAS Student Committee volunteer *2020 - 2022*

NUGEEP - Rio Grande do Sul State Student Chapter - ABEPRO

President *2015 - 2016*

TECHNICAL SKILLS

Programming	**R** (my primary language). python and Julia (if needed).
High-Performance Computing	slurm, Swift/T, EMEWS with R
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
Personal website	www.pedrodelima.com