Thuener Silva

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Senior Data Scientist at Greensill

Dual citizenship Brazil and Portugal, living in the UK(pre-settled status)

Education

- **Pontifical Catholic University of Rio de Janeiro** — Rio de Janeiro, Brazil
  Doctor of Science in Computer Science – Optimization. — *July 2010 – May 2015*
  Advisor: Marcus Vinicius Soledade Poggi de Aragao , Co-Advisor: Davi Michel Valladão
  Dissertation: "Optimization Under Uncertainty for Asset Allocation" (Scholarship: CNPq)
- **Pontifical Catholic University of Rio de Janeiro** — Rio de Janeiro, Brazil
  Master of Science in Computer Science – Optimization. — *Feb. 2008 – June 2010*
  Advisor: Eduardo Sany Laber
  Thesis: "Experimental Study of Techniques for Portfolio Optimization" (Scholarship: CAPES)
- **Pontifical Catholic University of Rio de Janeiro** — Rio de Janeiro, Brazil
  Bachelor of Computing — *Feb. 2004 – Dec. 2007*
  Advisor: Raúl Renteria
  Final Project: "Subjective Analysis of Text Content Applied to Portuguese"

Experience

- **Greensill** — Warrington, United Kingdom
  Senior Data Scientist — *Dec. 2020 – Present*
  - **Forecasting**: On Greensill, I'm working on the research and development of a forecasting tool to predict future earnings. The objective is to provide reliable estimates of future income for each one of the clients. The development involved testing several time series and machine learning solutions that should be versatile, robust, and scalable. We adapted and extended state-of-art solutions to achieve these goals.
- **ExACTa Iniciative** — Rio de Janeiro, Brazil
  Research Manager — *Dec. 2019 – Present*
  - **R&D Projects**: I was the manager of several research groups. My responsibility was to coordinate and orientate the team on the research and development of solutions for Petrobras, one of the largest oil production companies in the world. We work with different research lines, like, optimization, artificial intelligence, computer vision, real-time analytics, and process mining. In 2020 we implanted several state-of-the-art research solutions that had an amazing impact on the company, saving millions of dollars. For that, ExACTa earned an innovation award from Petrobras research center.
- **Pontifical Catholic University of Rio de Janeiro** — Rio de Janeiro, Brazil
  Postdoctoral & Teaching & Tutor — *June. 2015 – Present*
  - **Postdoctoral at Department of Industrial Engineering**: I was a teaching assistant in graduate courses at the department in Decision and Risk Analysis, Capital Markets, and Mathematical Modeling. I advise and co-advise undergraduate and master thesis in topics related to asset allocation, corporate finance, energy markets, and metaheuristics. Also, participate in the examination board of Masters's programs in different departments (Industrial Engineering and Mathematics). Scholarship from Escola Nacional de Seguros (ENS).
  - **Courses**: I taught courses on Mathematical Modeling in Julia at PUC-Rio and Getulio Vargas Foundation (FGV) and postgraduate courses for Risk Trading at CEE PUC-Rio.
  - **Journal Reviewer**: I am currently a reviewer for some journals such as European Journal of Operational Research, Computational Optimization and Applications, Computers & Operations Research, and Applied Mathematical Modeling.
- **Laboratory of Applied Mathematical Programming and Statistics** — Rio de Janeiro, Brazil
  Research Associate — *June. 2015 – Nov. 2019*

- **R&D Projects**: I work in several R&D projects with companies of the Brazilian electric, oil and gas, and finance industries. The projects involve the creation of innovative methodologies using mathematical models for optimization. The main objective is to provide customers with a decision support system to help maximize profitability. The projects stand out for presenting a practical application for academic research with performance, which involves several challenges. The central part of the research was developed in Julia to have a better performance.
  - **Coordinator for a R&D with Petrobras**: Coordinated a R&D project entitled "Stochastic Optimization Models for Short-Term Oil Production" for Petrobras. The main challenge of this project was to provide engineers with a decision support system to assist in maximizing oil production under uncertainty. This project was done in conjunction with Tecgraf, professors Tito Homem-de-Mello and Bernardo Pagnoncelli from Universidad Adolfo Ibáñez (UAI) and professor Davi Valladão from PUC-Rio. Our results showed that it is possible to increase oil production by almost 1.5% if the optimization model accounts for the uncertainty.
  - **Development Advisor for a R&D with Energisa**: Development advisor on a R&D "Incorporating the effect of climate variability and contingencies in the optimal contracting strategy of transmission-usage amounts". The main goal was to develop a computational tool capable of accounting for the uncertainty due to contingencies and climate variability in the optimal transmission-usage contracting strategy for a distribution company with a high integration of renewable-distributed generation. Our product is used to contract millions of Reais every year, mitigating the risk exposure of the company. Nowadays, 70% of the contracts of the company is done using our software.
  - **Research Advisor for a R&D with Stone**: Research advisor for Machine Learning research in credit card fraud and churn detection. The purpose of this project was to build a tool using state-of-the-art methods for fraud and churn detection on credit card machines. In this project, we have to deal with a massive amount of transaction data. It was a challenge to process all data and to construct a machine learning that can deal with this.

- **Ápis-IS** — Rio de Janeiro, Brazil
  Co-funder and Owner — *Nov. 2009 – Dec. 2012*
  - **Researcher**: I researched methods for quantitative finance, portfolio optimization to mitigate risk exposition and increase return.
- **Accenture** — Rio de Janeiro, Brazil
  Trainee — *June 2007 – June 2008*
  - **Quality Assurance Analyst**: I joined OI's billing group initially as a developer of simplified demands and later started as a quality assurance analyst (C code).

Main Publications

- **Journal Articles:**
  - **Thuener Silva**, Davi Valladão and Tito Homem-de-Mello, "A Data-Driven Approach for a Class of Stochastic Dynamic Optimization Problems" *Submitted, under review.*
  - Carlos E. Andrade, **Thuener Silva** and Luciana S. Pessoa "Minimizing flowtime in a flowshop scheduling problem with a biased random-key genetic algorithm," *Expert Systems with Applications*, Aug. 2019.
  - Davi Valladão, **Thuener Silva** and Marcus Poggi "Time-consistent risk-constrained dynamic portfolio optimization with transactional costs and time-dependent returns," *Annals of Operations Research*, Aug. 2018.
  - **Thuener Silva**, Plácido R. Pinheiro and Marcus Poggi "A More Human-like Portfolio Optimization," *European Journal of Operational Research*, Jan. 2017.

Complementary Skills and Experience

- **Programming Languages:** Julia, Python, C++, C, Java, Matlab.
- **Optimization Software:** Gurobi, CPLEX, JuMP, PuLP.
- **Techniques:** Optimization under Uncertainty (SDDP, SAA, Robust Optimization), MILP (branch-and-cut), Metaheuristic (Genetic Algorithm), Machine Learning (SVM, Boosting, Neural Networks, Deep learning).
- **Languages:** Native Portuguese, Fluent English, Basic French and Spanish.