Arthur Novaes de Amorim

Contact Information

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Education

Ph.D. Economics, University of Calgary	Expected 08/2023
M.A. Economics, University of Ottawa	2016
B.Mus. Piano, West Virginia University	2014

Technical Skills

Programming: R (tidyverse, sf, igraph, caret, mlr3, forecast), Python (pandas, scikit-learn, Keras, NLTK), Stata, SAS, MATLAB, GAUSS

Visualization: Tableau, R Markdown, LaTeX

Work Experience

2017 – Present   **Research Assistant**, University of Calgary
• Led a team on Dr. Alex Whalley's lab to link individuals across large data sets of patents, publications, and scientific personnel using a clustering-based disambiguation algorithm. • Led a team on Dr. Lucija Muehlenbachs lab to parse and combine financial records and environmental litigation textual data. Collaborated with Muehlenbachs to build a prediction model for the seasonal opening/closure dates of ice roads in Canada.

2019 – 2020   **Senior Analyst**, Alberta Health Services
• Delivered a machine learning ensemble method for forecasting influenza-like illness activity at hospitals in Alberta. • Designed a Tableau dashboard for visualizing model forecasts. • Quantified healthcare savings due to a mental health peer support program in Edmonton using Geographic Information System.

2016   **Junior Economist**, Natural Resources Canada
• Maintained a database of energy savings due to adoption of energy-efficient household appliances. • Used econometric methods (bunching estimator) to compute causal estimates of energy savings due to the ENERGY STAR program.

2015   **Junior Analyst**, Environment Canada
• Developed an upward feedback online tool for the department's respectful workplaces initiative. • Wrote a report on respect at work and job satisfaction.

Teaching & Leadership

2020   **Instructor – Use of Statistics in Economics**, University of Calgary
• Taught economic applications of statistics using R to a class of 55 students.

2016 – Present   **Teaching Assistant**
• Planned and delivered weekly tutorials with exercises supporting materials learned in lectures. Courses include (asterisk denotes graduate course): Econometrics I; Econometrics II; Use of Statistics in Economics; Labour Economics[*]; Microeconomic Theory II[*]; Econometrics II[*]; Environmental Economics[*].

2017–2019   **VP Academic**, Economics Graduate Association
• Helped organize a week-long course in Machine Learning for economics.

Publications

"Research Universities and Regional Growth." *Forthcoming. KDI/EWC series on Economic Policy.* With Alex Whalley.

• We discuss when and how research universities can be anchor institutions for a local economic development strategy. The paper provides econometric evidence and data visualizations of a positive impact of universities on regional growth by increasing wages and jobs over the medium term.

"A Stacked ensemble method for forecasting influenza-like illness visit volumes at emergency departments." *Plos one, 16*(3), e0241725. With Rob Deardon and Vineet Saini.

• We propose a data-driven stacking method for averaging contributions of multiple forecasters in an ensemble. We leverages six years of training data and compute ensemble weights for averaging predictions from linear regression, quantile regression forest, Empirical Bayes, and ARIMA. We show the ensemble outperforms contributing models in a retrospective analysis in two Canadian hospitals.

Working Papers

"Agricultural Change in the United States: Evidence from the Golden Age of Radio."

• I study the effects of mass media on agricultural productivity by documenting how the introduction of farm radio programming in the early 20th century shaped agriculture in the United States. Panel data regression analysis shows that regions with higher exposure to farm radio induced by variation on signal strength due to topography experienced greater medium-run growth in the value of crops and farmland and in crop yields.

"Outside Options in the Labor Market: Evidence from Vietnam Draft Avoidance" With Alex Whalley and Shawn Kantor.

• We investigate how scientists' outside options affect their wages and knowledge production. Using difference-in-differences and a triple differences analysis we show scientist wages are sensitive to outside option changes induced by the end of graduate student draft deferrals during Vietnam War.

"Clouded Thoughts: Air Pollution and Cognitive Performance."

• I measure the cognitive performance of individuals using a neural network to benchmark move quality in a strategy board game setting. I use this measure for estimating the impact of shocks in particulate matter pollution exposure on the performance of professional game players.

Graduate Coursework

- ❏ Labour Economics
- ❏ Environmental Economics
- ❏ International Trade
- ❏ (Structural) Topics in Econometrics
- ❏ Computational (Bayesian) Statistics
- ❏ Economic Development

Honors and Awards

2020	Victor Yang Song Teaching Excellence Award ($1000)
2020	Dissertation Prize runner-up ($1000)
2019	James D. Gaisford Best 2nd Year Paper Research Prize ($1000)
2016–2021	Eyes High Doctoral Scholarship (Total value of $150,000)

References

Alex Whalley, Associate Professor
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Lucija Muehlenbachs, Associate Professor
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