Felipe Feijoo, Ph.D.

Education

- **Postdoctoral Research Fellow** — Baltimore-Cambridge, USA
  Johns Hopkins University - Massachusetts Institute of Technology — *May. 2015 – August. 2016*
- **Postdoctoral Research Associate** — Washington DC
  Pacific Northwest National Laboratory's Joint Global Change Research Institute — *August. 2016 – August. 2017*
- **Doctor of Philosophy, Industrial Engineering** — Tampa, FL
  University of South Florida — *August. 2010 – May. 2015*
- **Industrial Engineering, Engineering Sciences, Computer Science** — Temuco, Chile
  Universidad de La Frontera — *March. 2006 – May. 2010*

Academic Appointment

Current Appointments

- **School of Industrial Engineering, Pontificia Universidad Catolica de Valparaiso** — Valparaiso, Chile
  Assistant Professor — *August 2017 - Present*
- **Johns Hopkins University** — Baltimore, MD
  Visiting Scholar — *August 2016 - Present*

Past Appointments

- **King Abdullah Petroleum Studies and Research Center** — Riadh, Saudi Arabia
  Visiting Consultant Researcher — *August 2016 -August 2017*
- **University of South Florida** — Tampa, FL
  Research and Teaching Assistant — *August 2010 - May 2015*

Publications

Peer Reviewed

1. ***US energy system transitions under cumulative emissions budgets*** Felipe Feijoo, Gokul Iyer, Jae Edmonds, Matthew Binsted, Leon Clarke. Climatic Change, 1-17, 2020. https://doi.org/10.1007/s10584-020-02670-0
2. ***Stranded Asset Implications of the Paris Agreement in Latin America and the Caribbean.*** Matthew Binsted, Gokul Iyer, James A. Edmonds, Adrien Vogt-Schilb, Ricardo Arguello, Angela Cadena, Ricardo Delgado, Felipe Feijoo, Andr F. P. Lucena, Haewon C. McJeon, Fernando Miralles-Wilhelm, Anjali Sharma. Environmental Research Letters, 2019.
3. ***Climate and carbon budget implications of linked future changes in CO2 and non-CO2 forcing.*** Felipe Feijoo, Bryan K Mignone, Haroon S Kheshgi, Corinne Hartin, Haewon McJeon and Jae Edmonds. Environmental Research Letters, Volume 14, Number 4, 2019.
4. ***The Economic Impact of Price Controls on China's Natural Gas Supply Chain.*** Bertrand Riouxa, Philipp Galkin, Frederic Murphy, Felipe Feijoo, Axel Pierru, Artem Malov, Yan Li, Kang Wu. Energy Economics 80, 394-410, 2019.
5. ***The Future of Natural Gas Infrastructure Development in the United States.*** Felipe Feijoo, Gokul Iyer, Pralit Patel, Marshall Wise, Leon Clarke, Sriram Sankaranarayanan, and Sauleh Siddiqui. Applied Energy, Volume 228, 15 October 2018, Pages 149-166.
6. ***Sensitivity and covariance in stochastic complementarity problems with an application to North American natural gas markets.*** Sriram Sankaranarayanan, Felipe Feijoo, and Sauleh Siddiqui. European Journal of Operational Research. Volume 268, Issue 1, 1 July 2018, Pages 25-36.

7. ***Prolonged Wait Time is Associated with Increased Mortality for Chilean Waiting List Patients with Non-Prioritized Conditions*** Diego Martinez, Haoxiang Zhang, Magdalena Bastias, Felipe Feijoo, Jeremiah Hinson, Rodrigo Martinez, Jocelyn Dunstan, Scott Levin, Diana Prieto. BMC Public Health, 19, 1, 2019.
8. ***U.S. Energy Sector Impacts of Technology Innovation, Fuel Price, and Electric Sector CO2 Policy: Results from the EMF 32 Model Intercomparison Study.*** Elke L. Hodson, Maxwell Brown, Stuart Cohen, Sharon Showalter, Marshall Wise, Frances Wood, Justin Caron, Felipe Feijoo, Gokul Iyer, Kathryne Cleary. Energy Economics, Volume 73, June 2018, Pages 352-370.
9. ***North American Natural Gas Model: Impact of cross-border trade with Mexico.*** Felipe Feijoo, Daniel Huppmann, and Sauleh Siddiqui. Energy (2016), Volume 112C, pp. 1084-1095, DOI: 10.1016/j.energy.2016.06.133. (DIW Berlin, Discussion Paper, 2016.)
10. ***Emissions control vial carbon policies and microgrid generation: A bilevel model and Pareto analysis.*** Felipe Feijoo, Tapas K. Das. Energy, Volume 90, p. 1545-1555, ISSN 0360-5442.
11. ***Design of Pareto Optimal CO2 cap-and-trade Policies for Deregulated Electricity Networks.*** Felipe Feijoo, Tapas K. Das. Applied Energy, Volume 119, April-15, Pages 371-383, 2014.
12. ***A strategic gaming model for health information exchange markets.*** Diego Martnez, Felipe Feijoo, Tapas K. Das, and Jose Zayas-Castro. Health care management science 21 (1), 119-130. 2018.
13. ***A Computationally Efficient LMP Forecast Model for Real Time Electricity Markets.*** Felipe Feijoo, Walter Silva, and Tapas K. Das, Energy Conversion and Management 113 (2016) 2735.
14. ***Pgcamdata: An R Package for Preparation, Synthesis, and Tracking of Input Data for the GCAM Integrated Human-Earth Systems Model*** Ben Bond-Lamberty, Kalyn Dorheim, Ryna Cui, Russell Horowitz, Abigail Snyder, Katherine Calvin, Leyang Feng, Rachel Hoesly, Jill Horing, G. Page Kyle, Robert Link, Pralit Patel, Christopher Roney, Aaron Staniszewski, Sean Turner, Min Chen, Felipe Feijoo, Corinne Hartin, Mohamad Hejazi, Gokul Iyer, Sonny Kim, Yaling Liu, Cary Lynch, Haewon McJeon, Steven Smith, Stephanie Waldhoff, Marshall Wise, Leon Clarke. Journal of Open Research Softwar, 7, 6 2019.
15. ***Where is my Infusion Pump? Harnessing Network Dynamics for Improved Hospital Equipment Fleet Management.*** Diego A. Martinez, Jiarui Cai, Jimi B. Oke, Andrew S. Jarrell, Felipe Feijoo, Jeffrey Appelbaum, Eili Klein, Sean Barnes, Scott R. Levin. JAMIA, 2020.
16. ***Key indicators of phase transition for clinical trials through machine learning .*** Felipe Feijoo, Michele Palopoli, Jen Bernstein, Sauleh Siddiqui, Tenley E. Albright. Drug Discovery Today, Volume 25, Issue 2, 2020, Pages 414-421, ISSN 1359-6446, https://doi.org/10.1016/j.drudis.2019.12.014.
17. ***Application of a SVM-based model for day-ahead electricity price prediction for the single electricity market in Ireland*** C Lynch, J Kehoe, R Bain, F Zhang, J Flynn, C OLeary, G Smith, R Linger, K Fitzgibbon, F Feijoo. International Symposium on Forecasting, 2019.

In Review - Preparation

1. ***Meeting the Chilean Paris Agreement goals: Cap-and-Trade versus CO2 tax strategies.*** In review, Applied Energy, 2020.
2. ***Bilevel Conic Optimization Model for Routing and Charging of Electric Vehicles.*** In review, IEEE Transactions on Smart Grids, 2020.
3. ***When Nash meets Stackelberg.*** In review, Operations Research, 2020.
4. ***Nash Bargaining Solutions for the Chilean Waiting List Management.*** In review, Health Care Management Science, 2020.
5. ***Scalable prediction of adverse event risks in clinical trials*** In review, JAMIA, 2020.

Technical Reports

1. ***Implicaciones de activos abandonados con relacin al Acuerdo de Pars en Amrica Latina y el Caribe.*** Matthew Binsted, Gokul Iyer, James A. Edmonds, Adrien Vogt-Schilb, Ricardo Arguello, Angela Cadena, Ricardo Delgado, Felipe Feijoo, Andr F. P. Lucena, Haewon C. McJeon, Fernando Miralles-Wilhelm, Anjali Sharma. IDB-DP-00699, Banco Interamericano de Desarrollo, Division de Cambio Climatico, 2019.
2. ***Scheduling Optimization of the Stevedoring and Coalfield activities at the Tampa Electric Company (TECO) Power Generation Plant.*** Felipe Feijoo et.al. Fall 2014.
3. ***KEM-China: Natural Gas Module. King Abdullah Petroleum Studies and Research Center (KAPSARC)*** Felipe Feijoo et.al. Summer 2016.
4. ***The Economic Impact of Price Controls on Chinas Natural Gas Supply Chain.*** B Rioux, P Galkin, F Murphy, A Pierru, A Malov, F Feijoo, Y Li, K Wu. KAPSARC Publications, 2018

Grants and Awards

Grants

- **The National Fund for Scientific and Technological Development.** FONDECYT, 2018.
  ROLE: PI. *$75M CLP - $150.000 USD. FONDECYT INICIACION*
  - **Project**: Energy Transitions for Reaching Climate Targets: The 1.5C Energy-Water-Food Nexus (ENTER-1.5N).
- **Advance Human Capital Attraction Grant - MEC 2018.** CONICYT, 2018.
  ROLE: PI. *$7.6M CLP - $15.000 USD.*
  - **Project**: Longitudinal analysis of clinical trial data: Risk factors associated with success rates and length of trial.
- **DI Initiation grant.** PUCV, 2018.
  ROLE: PI. *$2M CLP - $4.000 USD.*
  - **Project**: Energy Transitions for Reaching Climate Targets: The 1.5C Energy-Water-Food Nexus (ENTER-1.5N).
- **Provosts Postdoctoral Diversity Fellowship.** Johns Hopkins University, 2017.
  ROLE: PI. *$63,639 USD.*
  - **Project**: North American Natural Gas Market Model: Infrastructure needs and Trade in North America.
- **Student Competition Award (1st place.)** Power Up Energy EXPO, 2013.
  ROLE: PI. *$500 USD.*
  - **Project**: CO2 Pareto optimal cap-and-trade policies for deregulated electricity networks.

Awards

- **Provosts Postdoctoral Diversity Fellowship.** Johns Hopkins University, 2017.
  Fellowship for $63,639 USD.
- **College of Engineering Research Week** University of South Florida, 2014.
  Poster Award, 1st place.
- **The INFORMS Student Chapter Annual Award** INFORMS, 2012.
  Summa cum laude to the University of South Florida.
- **The INFORMS Student Chapter Annual Award** INFORMS, 2013.
  Summa cum laude to the University of South Florida.
- **President of Omega Rho at USF, the honor society of INFORMS.** INFORMS, 2013-2015.
  The University of South Florida.
- **Florida Association of Science Teachers.** Florida, 20111.
  Outstanding Educator of the Year - STARS NSF K-12 project.

Invited talks, Seminars, and Presentations

1. **INFORMS** Annual Meeting, 2019, Seattle, WA. *Energy Transitions For Reaching Climate Targets: the Case of 1.5C Energy-water-food Nexus in Latin America.*
2. **INFORMS** Annual Meeting, 2019, Seattle, WA. *GCAM-LAC: the Role of Natural Gas in South America Under Climate Change Constraints.*
3. **INFORMS** Annual Meeting, 2019, Seattle, WA. *A Bilevel Conic Optimization Model For Routing and Charging of Electric Vehicles..*
4. **INFORMS** Annual Meeting, 2019, Seattle, WA. *A two stage stochastic programming for natural gas production planning under chance and conic-flow constraints.*
5. **AGU** Fall Annual Meeting, 2018, Washington DC. *The Future of Natural Gas Infrastructure Development in the United States.*
6. **INFORMS** Annual Meeting, 2018, Phoenix, AZ. *The Future of Natural Gas Infrastructure Development in the United States.*
7. **INFORMS** Annual Meeting, 2018, Phoenix, AZ. *The Economic Impact of Price Controls on Chinas Natural Gas Supply Chain.*
8. **INFORMS** Annual Meeting, 2018, Phoenix, AZ. *A Framework for Calibrating Transportation Models: A Spatial Price Equilibrium Based Method.*
9. **DPHARM** Disruptive Innovations conference, Boston, 2018. *Prediction of drug phase success with Machine Learning models: Key parameters for clinical success.*
10. **Johns Hopkins Carey Business School**, Baltimore, 2018. *Mathematical Complementarity Problems (MCP) for Energy System Models: The case study of the Chinese natural gas sector.*
11. **Texas Tech University**, Lubbock, 2018. *Mathematical Complementarity Problems (MCP) for Energy System Models: The case study of the Chinese natural gas sector.*
12. **AGU** Fall Annual Meeting, 2017, New Orleans, Louisiana. *Overshoot and Non-Overshoot Pathways to 1.5C and above: The temperature Tunnel.*
13. **National academies of sciences engineering and medicine**, 2017, Washington DC. *The clinical trial system project: MIT collaborative initiatives.*
14. **INFORMS** Annual meeting, 2017, Houston , Texas. *Scenarios with and Without Overshoot for End of Century Climate Goals.*
15. **INFORMS** Annual meeting, 2017, New Orleans, Louisiana. *Overshoot and Non-Overshoot Pathways to 1.5C and Above: The Temperature Tunnel.*
16. **INFORMS** Annual meeting, 2016, Nashville , Tennessee.*First Order Approximation Methods For Estimating Decision Covariance In Stochastic Optimization.*
17. **INFORMS** Annual meeting, 2016, Nashville , Tennessee.*North America Natural Gas Model: Impacts of Market deregulation in Mexico.*
18. **INFORMS** Annual meeting, 2016, Nashville , Tennessee.*The North American Natural Gas Model: Analysis Of Long Term Natural Gas Exhaustion.*
19. **INFORMS** Annual meeting, 2016, Nashville , Tennessee.*Predicting Likelihood Of Drug Approval From Clinical Trials*
20. **INFORMS** Annual meeting, 2015, Philadelphia, Pennsylvania. *A natural gas model for North America: Impact of cross-border flows of natural gas with Mexico.*

21. **Federal Energy Regulatory Commission (FERC)**, Washington DC 2015. *A natural gas model for North America: Impact of cross-border flows of natural gas with Mexico.*

22. **NASA** - International workshop on environment and Alternative Energy, Kennedy Space Center NASA, 2014. *Impact of microgrids on smart grids under carbon emissions control.*

23. **ISERC**, IIE confernece, Annual meeting, 2014, Montreal, Canada. *Joint Operational Model for Smartgrid with Community Microgrids under Carbon Emissions Control.*

24. **INFORMS** Annual meeting, 2013, Minneapolis, Minnesota. *A bi-level model for optimal operation of micro-grids in a deregulated electricity network.*

25. **INFORMS** Annual meeting, 2012, Phoenix, Arizona. *Developing design guidelines for CO2 cap and trade policies for deregulated electricity networks.*

26. F**lorida Energy Systems Consortium**, 2011, University of Florida. *Strategies for Redistribution of Revenue from CO2 Emissions Control Schemes.*

Teaching

- **Pontificia Universidad Catolica de Valparaiso** — Valparaiso, Chile
  Assistant Professor — *August 2017 - Present*
  - **Operations Research**: 40+ students from industrial engineering major.
  - **Stochastic Models**: Graduate level (Ph.D). industrial engineering major.
  - **Advance Analytic and Machine Learning**: Graduate level (Master level). industrial engineering major.
  - **Game Theory and complementarity optimization**: Graduate level (Ph.D). industrial engineering major.
- **University of South Florida** — Tampa, FL
  Instructor — *August 2010 - May 2015*
  - **Probability and Statistics for Engineers**: Large junior level class (120+ students) from all engineering disciplines. In-class and online sections.
  - **Teacher Assistant**: Statistical models (masters and Ph.D. level), stochastic decisions models I (Masters and Ph.D. level), probability and statistics for engineering (undergraduate and master level), Operation Research, Globalization and technology.
- **Universidad de La Frontera** — Temuco, Chile
  Teacher Assistant — *August 2006 - May 2010*
  - **Teacher Assistant**: Probability and Statistics, Stochastic Processes I, Operation Research, Computer programming, Calculus I-II.

Service

1. Cluster chair for the Energy cluster of Energy, Natural Resources and the Environment (ENRE), INFORMS, 2018 and 2019.

2. Chair of the 2017 ENRE Best Paper Award, INFORMS.

3. Student mentorship (*co-advise or guidance):

   (a) Yolanda Matamala, Ph.D student. PUCV. 2019-current.

   (b) Francisco Flores, Ph.D student. PUCV. 2020-current.

   (c) Andrea Arriet, Ph.D student. PUCV. 2017-current.

   (d) *Abishake Kundu, Ph.D student. Texas Tech University. 2017-current.

   (e) *Guillermo Droppelmann, Ph.D student. Universidad Catolica de Murcia. 2018-current.

   (f) Nicolas Bustos, Master degree (IE). PUCV. 2019-current.

   (g) Manuel Tello, Master degree (IE). PUCV. 2018-current.

   (h) Sebastian Gonzalez, Master degree (IE). PUCV. 2018-current.

(i) *Alireza Ghalebani, Ph.D student. University of South Florida. 2013-2014.

(j) *Vignesh Subramanian, Ph.D. student. University of South Florida. 2014-2015.

(k) *Sriram Sankaranarayanan, Ph.D. student. Johns Hopkins Univeristy. 2016-2017.

(l) Larissa Sakiyama, Undergraduate visiting student, Johns Hopkins University. 2016-2017.

(m) Daniel Kamsler, undergraduate student, University of South Florida. 2013.

4. Volunteer at STEM Achievement in Baltimore Elementary Schools (SABES) program 2015-2016.
5. Power Up! Code and Data Boot camp: INFORMS@USF. Workshop in survival (reliability) models.
6. President of the Omega Rho Honor Society at USF, INFORMS, 2014.
7. Journal Reviewer: Nature Energy, International Journal of Electrical Power and Energy Systems, Applied Energy, IEEE Transactions on Power Systems, Energy.

Other Skills

- **Languages**: JAVA, C/C++, R, MATLAB, R, Python, GAMS, CEPLEX, GUROBI, Javascript
- **Technical skills**: Data analytics (prediction, classification, and forecasting), machine learning (SVM, SVR, Random Forest, Neural Networks), game theory, complementarity modeling, bi-level programming, mixed integer programming.
- **Research areas**: Energy systems, Energy economics, Integrated Assessment Modelling, Climate change, energy forecasting, health care, clinical trials, pharmaco-economics, network optimization