

Jairo Fúquene-Patiño

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RESEARCH Bayesian Demography; Bayesian Methods for Official Statistics; Bayesian Methods for Small Area Estimation; Bayesian Model Selection; Bayesian Variable Selection; Bayesian Mixture Models; Bayesian Robustness; Bayesian Nonparametrics.

EDUCATION *Ph.D., Statistics (October 2018)*
University of Warwick, Coventry (United Kingdom)
Dissertation Title: Finite Mixture Modeling with Non-Local Priors
Advisor: Mark Steel and David Rossell
Award: Harrison Award for a Highly Commended PhD Thesis.

M.S., Statistics and Applied Mathematics (March 2013)
University of California, Santa Cruz (UCSC, USA)
Project Title: A Multivariate Bayesian Dynamic Model for fMRI
Advisor: Raquel Prado

M.S., Mathematics (August 2008)
University of Puerto Rico, San Juan, PR (UPR-RP, USA)
Concentration: Statistics
Project Title: A Case for Robust Priors with Applications to Clinical Trials
Advisor: Luis Pericchi
Award: Student Paper Competition Winner (2008). American Statistical Association. Section on Bayesian Statistical Science. Denver. USA.

B.S., Statistics (June 2004)
Universidad Nacional de Colombia, Bogotá, Colombia
Project Title: The P.P.T. Design with Categorical Variables to Estimate Dicho-Ratios
Advisor: Leonardo Bautista
Award: Honor Thesis.

PROFESSIONAL POSITIONS **Assistant professor.** Department of Statistics. University of California, Davis (July 2020-current)

Affiliate faculty member. Graduate Group in Biostatistics (GGB). University of California, Davis (September 2026-current)

Affiliate faculty member. Graduate Group in Epidemiology (GGE). University of California, Davis (July 2025-current)

Postdoctoral Associate. Duke University, Department of Statistical Science (September 2019- June 2020)

Statistical consultant to *Vital Strategies, on the Bloomberg Philanthropies Data for Health Initiative.* (October 2018 - July 2019).

Lecturer. Full Time. *University of Puerto Rico. Institute of Statistics. Business School. Rio Piedras Campus, San Juan, Puerto Rico.* (2008-2011)

- Courses for the Business School: Statistics Theory, Business Statistics I and II, Quantitative Methods I and II, Bayesian Statistics.

Statistician, Technical Adviser, and Instructor, National Statistical Office (DANE), Bogotá, Colombia (2004–2019): Household income and expenditure surveys; population and education censuses; survey sampling design; small area estimation of poverty; instructor in Bayesian models and Big Data.

SELECTED RECENT PUBLICATIONS

Tang X., and **Fúquene-Patiño, J.**, (2026). Measurement Error Models with Global-Local Priors for Small Area Estimation. **Bayesian Analysis**, (3), 1059-1084.

Fúquene-Patiño, J., Mendoza, A., Cristancho, C. and Ospina, M., (2025). A Bayesian Approach to Produce Subnational Population Estimates Using a Population Base Statistical Register. **Journal of Official Statistics**, 41(1), pp.172-201.

Fúquene-Patiño, J., and Adair, T., (2025). A Bayesian approach to estimate the completeness of death registration. **Statistical Journal of the International Association for Official Statistics (IAOS)**, 41(2), pp.421-428.

Fúquene-Patiño, J., and Betancourt, B., (2025). Ultra-sparse small area estimation with super heavy-tailed priors for internal migration flows. **The Annals of Applied Statistics**, 19(1), pp.121-146.

Fúquene-Patiño, J., C. Cristancho, M. Ospina and D. Morales (2021). Fay-Herriot Model-Based Prediction Alternatives for Estimating Households with Emigrated Members. **Journal of Official Statistics**.

Fúquene-Patiño, J., M. Steel and D. Rosell (2019). On choosing mixture components via non-local priors. 81, 5, 809-837. **Journal of the Royal Statistical Society, Series B**.

OTHER REFEREED PUBLICATIONS

Castañeda J., **Fúquene-Patiño, J.**, Téllez C. (2020). “An alternative for the estimation of the average income using small area methods”. **BEIO, Bulletin of Statistics and Operations Research**, 36(3).

Fúquene-Patiño, J., Betancourt, B., Pereira, J. B. M. (2017). “A weakly informative prior for Bayesian dynamic model selection with applications in fMRI”. **Journal of Applied Statistics**.

Fúquene-Patiño, J., (2015). “A semi-parametric Bayesian extreme value model using a Dirichlet process mixture of gamma densities”. **Journal of Applied Statistics**, 42(2), 267-280.

Fúquene-Patiño, J., Pérez, M. E., Pericchi, L. R. (2014). “An alternative to the Inverted Gamma for the variances to modelling outliers and structural breaks in dynamic models”. **Brazilian Journal of Probability and Statistics**, 28(2), 288-299.

Fúquene-Patiño, J., Delgado, M. (2012). “A note on Bayesian robustness for count data”. **Brazilian Journal of Probability and Statistics**, 279-287.

Fúquene-Patiño, J., Cook, J. D., Pericchi, L. R. (2009). “A case for robust Bayesian priors with applications to clinical trials”. **Bayesian Analysis**, 4(4), 817-846.

Fúquene-Patiño, J., Alvarez, M., Pericchi, L. R. (2015). “A robust Bayesian dynamic linear model for Latin-American economic time series: the Mexico and Puerto Rico cases”. **Latin American Economics review**, 36(3).

Delgado, M., Portnoy, A., **Fúquene-Patiño, J.** (2010). “Controlling the Oscillations of a

Variable Length Pendulum”. **Brazilian Journal of Probability and Statistics**

Fúquene-Patiño, J., Betancourt, B., Vega, J. (2011). “Heavy tailed priors: An alternative to non-informative priors in the estimation of proportions on small areas”. **Biometrics Brazilian Journal**, v.29, n.3, pg 520-533.

Fúquene-Patiño, J. (2009). “Robust Bayesian priors in clinical trials: An R package for practitioners”. **Biometric Brazilian Journal**, 27, 627-643.

Cook, J., **Fúquene-Patiño, J.**, Pericchi, L. (2011). “Skeptical and optimistic robust priors for clinical trials”. **Revista Colombiana de Estadística**, 34(2), 333-345.

Fúquene-Patiño, J., (2005). “Dico Ratio Estimation with Auxiliary Information in 3×3 Contingency Tables”. **Revista Colombiana de Estadística**, 28(2), 141-154.

Fúquene-Patiño, J., Bautista, S. (2005). “PPT designs with categorical variables for the estimation of dicho-ratios”. **Revista Colombiana de Estadística**, 28(1), 97-112.

SUBMITTED PAPERS

Fúquene-Patiño, J. and Brenda Betancourt, (2026). Regularized Small Area Estimation with Graph Laplacian Benchmarking priors. <https://arxiv.org/abs/2610.11266>

Watakajaturaphon S. and Fúquene-Patiño, J., (2026). On improving the estimates of the sampling variances via Global-Local priors in Small Area Estimation. <https://arxiv.org/abs/2607.08720>

Fúquene-Patiño, J., (2025). Fully Bayesian Spectral Clustering and Benchmarking with Uncertainty Quantification for Small Area Estimation. <https://arxiv.org/abs/2512.15643>

GRANTS

PI. **UCD² seed grant**. Titled: **FoodSpecAI**. With Claire Gormley (PI) (University College Dublin, Ireland) and Stephen F. Brown (CO-PI) (AI Institute for Food Systems, UC Davis). This project will develop Interpretable Artificial Intelligence tools to Analyse Spectroscopy Data. [AI and One Health drive new UCD² funding for UCD–UC Davis research](#). Amount: 20,000.

AWARDS AND HONORS

Second Place for Best TidBit Session (Junior Faculty Category) at the 2026 Best of Statistical Science Workshop (BOSS 2026), organized by the Department of Statistics at Texas AM.

Campos Scholar, University of California, Davis, USA (2020)

Harrison Award for Highly Commended PhD Thesis, University of Warwick, United Kingdom (2019)

Fellowship/Bursary, Department of Statistics, University of Warwick, United Kingdom (2013–2018)

Student Paper Competition Winner (2008). American Statistical Association. Section on Bayesian Statistical Science. Denver. USA.

Scholarship for Academic Merit and Exceptional Achievements, Dean for Graduate Studies and Research (DEGI), University of Puerto Rico (2006–2008).

Honor Thesis. (2006). National University of Colombia. Bogota. Colombia.

TRAVEL AWARDS

Travel Award, Best of Statistical Science Workshop, Department of Statistics at Texas AM, USA (2026)

ISBA Travel Award, Edinburgh, Scotland (2018)

ISBA Travel Award, Sardinia, Italy (2016)

Young ISBA Travel Award (Poster), COBAL IV (2015)

Travel Award, Joint San Francisco Chapter of the American Statistical Association, San Francisco, California, USA (2012)

Travel Award, 8th Workshop on Bayesian Nonparametrics, Veracruz, Mexico (2011)

Student Travel Award, DEGI, University of Puerto Rico, to International Bayesian Objective Conference, Pittsburgh, USA (2009)

Travel Grant Award, Joint Statistical Meeting, Department of Mathematics, University of Puerto Rico (2008)

Travel Grant Award, Bayesian Biostatistics Conference, University of Texas M.D. Anderson Cancer Center (2008)

ACADEMIC SERVICE

Editorial Boards

Associate Editor (Reviews), **Journal of the American Statistical Association** (2023 – 2025) - (2026-current).

Associate Editor (Reviews), **The American Statistician** (2023 – 2025) - (2026-current).

Referee

Colombian Journal of Statistics (2008, 2020, 2022), Biometric Brazilian Journal (2011), Forum Empresarial (2011), European Journal of Operational Research (2013), Journal of Applied Statistics (2014, 2022, 2025), Comunicaciones en Estadística (2014), Computational Statistics and Data Analysis (2014, 2023), Bayesian Analysis (2018, 2019, 2024, 2025, 2026), Journal of Statistical Analysis and Data Mining (2018), Journal of the American Statistical Association (2019, 2021, 2022, 2024, 2026), Annals of Applied Statistics (2021), Demographic Research (2021, 2023, 2024, 2025, 2026), The American Statistician (2023, 2024, 2025, 2026), Dependence Modeling (2023), The Journal of the International Actuarial Association (2023), Statistical Methods in Medical Research (2023).

Reviewer, **Section on Bayesian Statistical Science (SBSS)**, ASA Student Paper Competition (2022)

2026 International Indian Statistical Association Conference (Member of the Scientific Program Committee), Banaras Hindu University, Varanasi, India.

CFE-CMStatistics 2024 (Member of the Scientific Program Committee), London, UK

CFE-CMStatistics 2026 (Member of the Scientific Program Committee), Berlin, Germany

TEACHING

Assistant Professor, UC Davis (July 2020-)

- STA 220—Data Web Technologies for Data Analysis, Winter 2021, Winter 2022.
- STA 141A - Fundamentals of Data Science. Winter 2023.
- STA 108: Applied Statistical Methods: Regression Analysis, Spring 2021, Winter 2022, Spring 2023, Winter 2023, Spring 2024, Spring 2025.

- STA 199—Special Study for Advanced Undergraduates, 2021, 2024, 2025, 2026.
- STA 290: Seminar in Statistics, Spring 2021. Schedule: UC Davis Statistics Seminar Series
- STA 145: Bayesian Statistical Inference, Spring 2022. Spring 2023. Spring 2024, Winter 2025, Winter 2026.
- STA 35A: Statistical Data Science I, Spring 2024.
- STA 35B: Statistical Data Science II, Winter 2026.
- STA 141C: Big Data High Performance Statistical Computing, Winter 2025.

Lecturer, University of Puerto Rico (2008-2011)

- Courses taught for the Business School: Statistics Theory, Business Statistics I II, Quantitative Methods I II, Bayesian Statistics.

UNIVERSITY SERVICE

Graduate Student Internal Fellowship Reviews – Referee for Diversity Fellowships, Graduate Studies, UC Davis (2023, 2024, 2025)

Departmental Seminar Organizer, Department of Statistics, UC Davis (Spring 2021)

Colloquium Organizer, UC Berkeley / UC Davis Joint Colloquium, Department of Statistics, UC Davis (Spring 2021)

Graduate Program Admissions Committee Member (PhD Admissions), Department of Statistics, UC Davis (2021, 2022, 2023)

Graduate Program Admissions Committee Member (MS Admissions), Department of Statistics, UC Davis (2026)

Examiner for Ph.D. Qualifying Exam, Department of Statistics, UC Davis (Fall 2020, Summer 2021, Spring 2023, Spring 2025, Spring 2026)

Examiner for Ph.D. Qualifying Exam, Biostatistics, UC Davis (Spring 2023, Summer 2026)

Examiner for Ph.D. Qualifying Exam, Department of Mathematics, UC Davis (Winter 2023)

Examiner for Ph.D. Qualifying Exam, Graduate Group in Epidemiology, UC Davis (Winter 2026)

Diversity, Equity, and Inclusion Committee Member, UC Davis (2023, 2024, 2025)

PRESENTATIONS

Organized Invited Sessions

New machine learning and Bayesian techniques, CFE-CMStatistics, London, UK, 2025.

New Bayesian alternatives for record linkage and small area estimation, CFE-CMStatistics, London, UK, 2024.

Bayesian and Frequentist Innovations for SAE, Small Area Estimation Conference (SAE 2024), Lima, Peru.

Advances in Bayesian methods, 16th International Conference of the ERCIM WG on Computational and Methodological Statistics (CMStatistics 2023), Berlin, Germany, 16–18 December 2023.

Advances in Bayesian methods to record linkage and survey methodology, Computational and Methodological Statistics (CMStatistics 2022), London, UK, December 2022.

Bayesian model selection, Computational and Methodological Statistics (CMStatistics 2021), London, UK, December 2021.

Talks / Oral Presentations

8th International Conference on Econometrics and Statistics (2026), Tokyo, Japan.
Small Area Estimation Conference (Small Area Estimation Conference (SAE 2026)), Bucharest, Romania.

TidBit Session (Junior Faculty Category) at the 2026 Best of Statistical Science Workshop (BOSS 2026), Organized by the Department of Statistics at Texas AM. 2026
CFE-CMStatistics, London, UK, 2025.

Small Area Estimation Conference (Small Area Estimation Conference (SAE 2025)), Turin, Italy.

International Indian Statistical Association Conference, University of Nebraska-Lincoln, 2025.

CAMPOS Research Colloquia Seminar, The Center for the Advancement of Multicultural Perspectives on Science, Winter 2025.

Seminar, UC Davis, Biostatistics Department. 2024.

CFE-CMStatistics, London, UK, 2024.

Small Area Estimation Conference (Small Area Estimation Conference (SAE 2024)), Lima, Peru.

16th International Conference of the ERCIM WG on Computational and Methodological Statistics (CMStatistics 2023), Berlin, Germany, 16–18 December 2023.

CAMPOS Research Colloquia Seminar, The Center for the Advancement of Multicultural Perspectives on Science, Winter 2022.

Computational and Methodological Statistics (CMStatistics 2021), London, UK, December 2022.

Department of Statistics Seminar, UC Davis, USA, Fall 2022.

Oral presentation, UC Irvine, USA, Winter 2022.

Computational and Methodological Statistics (CMStatistics 2021), London, UK, December 2021.

Department of Statistics Seminar, UC Davis, USA, Fall 2021.

Plenary speaker, Workshop on Completeness in Vital Statistics, Bogotá, Colombia, 2018.

Invited participant, UNFPA Regional Meeting Workshop on Bayesian Population Projections, Puebla, Mexico, 2018.

Oral presentation, Simposio de Estadística, Colombia, 2018.

Oral presentation, ISBA 2018 World Meeting, Edinburgh, Scotland, 2018.

Invited Seminar, Universidade Federal do Rio de Janeiro, Brazil, 2018.

Oral presentation, Young Researcher's Meeting (YRM), Department of Statistics, University of Warwick, United Kingdom, May 2017.

Oral presentation, Young Researcher's Meeting, Department of Statistics, University of Warwick, 2014, England, United Kingdom.

Oral presentation, Joint Statistical Meetings, San Diego, California, 2012.

Oral presentation, VII Meeting in Data Science, Santo Domingo, Dominican Republic, 2011.

Invited Seminar, University of Puerto Rico, Department of Mathematics, San Juan, Puerto Rico, 2011.

Invited Speaker, Joint Statistical Meetings, Denver, Colorado, 2008.

Poster Presentations

Poster presentation, Bayes Comp 2020, Gainesville, Florida, 2020.

Poster presentation, Bayesian Young Statistician Meeting 2018, Coventry, UK.

Poster presentation, Latin American Bayesian Meeting, 2017, Guanajuato, Mexico.

Poster presentation, ISBA 2016 World Meeting, Sardinia, Italy.

Poster presentation, Latin American Bayesian Meeting, 2015, Medellín, Colombia.

Poster presentation, International 2009 Bayesian Objective Conference, Wharton School (University of Pennsylvania), Philadelphia, 2009.

Poster presentation, Bayesian Biostatistics Conference, The University of Texas and M.D. Anderson Cancer Center, 2008, Houston, Texas.

Poster presentation, Bayesian Biostatistics Conference, The University of Texas and M.D.

Anderson Cancer Center, 2007, Houston, Texas.

Poster presentation, Ninth Case Studies in Bayesian Statistics Workshop, Carnegie Mellon University, Pittsburgh, Pennsylvania, 2007.

MENTORING, (UC Davis)

Ph.D. students

Sirapat Watakajaturaphon (current)

Master students

Erin Moffat (2024), Ruitian Liu (2026)

Undergraduates

Current: Yuejia Zhu (2026).

Past: Winter and Spring (2026) Shinaya Arora, Yutong Bao (Current PhD student in Computer Science at Texas AM university), Arnay Bisht, David Cayapan, Sunny Liu, Nora Modica, Ariana Smith, (Current M.S. student in Big Data Analytics, San Diego State University), Saghana Shree Vijayragunath, Vivian Wong, Tina Yu.

Past: (2021-2025) Yutong Bao (2025), Alex Garcia (2025), Jingyuan Liu (2025), (Current M.S. student in data science, Johns Hopkins University), Tommy Ngo (2025), (Current M.S. student in statistics, UC Davis), Jamie Hui (2024), Huiwen Yang (2024), Shiman Zhang (2024), Xinyi Zhang (2024), Hayat Botan(2024), (Current M.S. student CSU Fullerton), Yili Chen (2021), Jake Cheng (2021).

Mentor for the NSF LSAMP/CAMP program and MURPPS Program at UC Davis.

Wengel Semma (Undergraduate Student — Statistics), - Undergraduate Student (Statistics), Summer 2024 Currently M.S. Student in Statistics, UC Berkeley.

COMPUTER SKILLS

Proficient in R and C++.

Experience with SAS, SPSS programming, Rcpp and R package development.

Experience with OpenMP parallelization of C++ programs.

Python. Julia interface with Jupiter Scripts.