

Scientific Papers — Summary

Hedibert Freitas Lopes · 101 papers/reports · Summary as of April 15th, 2026

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1. Papers by Subject Area

The 101 papers span 17 thematic clusters. Below each cluster is identified with its paper count, representative journals, and a brief characterisation.

Subject Area	#	Papers	Description & Journals
Stochastic Volatility	15	#6, 7, 16, 30, 33, 38, 39, 41, 42, 68, 70, 72, 80, 81, 89	The single largest cluster. Covers multivariate, factor-based, Markov-switching, semi-parametric, skewness-augmented, and intraday stochastic volatility. Methodological innovations include Cholesky-based SV, variance-gamma jumps, and particle-learning estimation. <i>Journals: JFE, JCGS, Econometric Reviews, ASMBI, Econometrics & Statistics, IJF, Entropy</i>
Factor Models & Latent Structure	15	#3, 9, 14, 15, 19, 21, 39, 46, 50, 52, 59, 62, 78, 90, 94–96	Sparse/dynamic Bayesian factor analysis, GLT-based identification, spatial dynamic factor models, and model assessment. Includes the landmark 2024 Bayesian Analysis paper (with discussion) on sparse factor analysis when the number of factors is unknown. <i>Journals: Bayesian Analysis, Journal of Econometrics, Statistica Sinica, AAS, CSDA</i>
Particle Learning & Sequential Monte Carlo	10	#10, 33, 42, 47, 48, 49, 57, 65, 66, 77	Sequential Bayesian computation using particle filters, particle learning, and smoothing. Includes the seminal Statistical Science paper (2010) and the Bayesian Statistics 9 invited discussion paper on particle learning for sequential computation. <i>Journals: Statistical Science, Bayesian Analysis, Statistics & Computing, Econometric Reviews</i>
Dynamic Models & Time Series	12	#11, 13, 18, 34, 43, 49, 58, 84, 85, 88, 97, 98	State-space models, smooth-transition autoregressions, dynamic sparsity, mixed-frequency density pooling, and multivariate forecasting. Several handbook and edited-volume contributions systematise the field. <i>Journals: BJPS, IJF, Journal of Forecasting, JTSA, Statistics & Computing</i>
Financial Econometrics	11	#4, 12, 21, 25, 26, 31, 36, 37, 67, 76, 99–101	Long-run stock volatility, exchange rates, IV regression with many instruments, BART-based macroeconomic forecasting, momentum/portfolio strategies, and multiplicative sunspot equilibria. Top outlet: American Economic Review (2019). <i>Journals: AER, JASA, JBES, Journal of Econometrics, IJF, QREF</i>
Causal Inference & Treatment Effects	5	#5, 40, 44, 45, 74	Bayesian instrumental variables, treatment effects with Heckman, regression-discontinuity designs with BART, and tree-based treatment effect analysis. <i>Journals: Econometric Reviews, Bayesian Analysis (submitted)</i>

Bayesian Computation / MCMC	5	#1, 2, 32, 71, 82	Efficient sampling algorithms for Gaussian linear regression, generative hyperparameter tuning, bootstrap-to-generator frameworks, and computational methods applied to biomedical and financial problems. <i>Journals: JCGS; book chapters in OUP and Taylor & Francis volumes</i>
Spatial & Environmental Statistics	7	#27, 34, 52, 59, 61, 78, 87	Spatio-temporal factor models, malaria incidence mapping, sea-level trend prediction, and exceedance regression for environmental data. Bridges Bayesian methodology with climate and public-health applications. <i>Journals: Environmetrics, AAS, CSDA, Environmental & Ecological Statistics</i>
Extreme Value Theory	4	#43, 53, 61, 91	Threshold estimation, semiparametric extreme-value models, time-varying extreme patterns via dynamic models, and exceedance regression. Collaboration primarily with Nascimento and Gamerman. <i>Journals: Test, Statistics & Computing, Statistical Modelling, Environmental & Ecological Statistics</i>
Integer-Valued & Count Time Series	3	#10, 22, 28	Bayesian generalisations of the INAR model, prior sensitivity in semiparametric count-data models, and MCMC/particle filtering for dynamic INAR processes. <i>Journals: ASMBI, Journal of Applied Statistics, Entropy</i>
Bayesian Nonparametrics & Mixture Models	6	#3, 29, 63, 66, 92, 93	Gaussian-process mixture models, heavy-tailed semiparametric inference, particle learning for mixtures, and meta-analysis with multivariate mixture priors. <i>Journals: Bayesian Analysis, Biometrics, CSDA; Advances in Econometrics volume</i>
Hypothesis Testing & Prior Sensitivity	4	#23, 35, 54, 60	Resampling-sampling perspective on Bayesian statistics, Bayesian hypothesis testing redux, the illusion of sparsity, and prior/likelihood sensitivity analysis. Conceptual and methodological contributions. <i>Journals: BJPS, Annual Review of Economics</i>
Copula Models	3	#67, 73, 79	Time-varying copulas, Bayesian copula model selection, and copula-based risk measurement. Co-authored primarily with M.C. Ausin. <i>Journals: CSDA, Statistics & Computing; book chapter in Rethinking Risk Measurement</i>
Epidemiology & Public Health	2	#24, 51	State-space SEIR model for tracking influenza with Google Flu Trends (JASA 2012), and an assessment of COVID-19 vaccination impact on hospitalisations in São Paulo. <i>Journals: JASA, Clinics</i>
Genetics & Evolutionary Biology	4	#55, 56, 69, 75	Drosophila genetics: meiotic sex chromosome inactivation, postmeiotic transcription during spermatogenesis, and retrograde genomic movement. Interdisciplinary collaboration with biologists at the University of Chicago. <i>Journals: PLoS Genetics, BMC Evolutionary Biology, BMC Biology, Genetics</i>
Machine Learning & Probabilistic Classification	3	#2, 17, 20	Probabilistic nearest-neighbour classification, deep-learning models for inflation forecasting, and generative Bayesian hyperparameter tuning. Growing recent cluster. <i>Journals: Entropy, ASMBI</i>
Brazilian Macroeconomics (Early Career)	5	#97, 98, 99, 100, 101	Forecasting Brazilian GDP, inflation, and industrial production; dynamic effects of supply/demand shocks; stochastic trend estimation. Published in Portuguese and English in Brazilian economics journals

		(1993–2000). <i>Journals: Pesquisa e Planejamento Econômico, Revista Brasileira de Economia, Brazilian Review of Econometrics, CSDA</i>
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2. Papers by Journal Relevance

Journals are grouped into four tiers based on standing in statistics, econometrics, and adjacent disciplines. Technical reports and book chapters are listed separately. Submitted/R&R papers are shown with their target journal.

Tier 1 — Elite General Statistics & Econometrics

Journal	#	Papers
Journal of the American Statistical Association (JASA)	2	#36 (<i>long-run stock volatility</i> , 2018), #51 (<i>Google Flu/SEIR</i> , 2012)
Statistical Science	2	#8 (<i>Conversation with Mike West</i> , accepted 2025), #65 (<i>Particle learning & smoothing</i> , 2010)
Annals of Applied Statistics	1	#52 (<i>Spatially hierarchical factor models</i> , 2012)
Biometrics	1	#93 (<i>Bayesian meta-analysis, longitudinal data</i> , 2003)
American Economic Review	1	#31 (<i>Multiplicative sunspots</i> , 2019)
Journal of Econometrics	1	#21 (<i>Parsimony-inducing priors for state-space models</i> , 2022)
Bayesian Analysis	4	#14 (<i>sparse factor analysis</i> , 2024), #57 (<i>particle learning</i> , 2011), #66 (<i>mixtures</i> , 2010); #15 (<i>shrinkage/selection in factor analysis</i> , 2024)

Tier 2 — High-Quality Specialised Journals

Journal	#	Papers
Journal of Business & Economic Statistics (JBES)	3	#4 (<i>Minnesota BART</i> , submitted), #37 (<i>factor shrinkage for IV</i> , 2018)
Journal of Computational & Graphical Statistics (JCGS)	2	#32 (<i>efficient sampling for Gaussian regression</i> , 2019), #39 (<i>multivariate factor SV</i> , 2017)
Journal of Financial Econometrics	1	#7 (<i>fast/slow level shifts in intraday SV</i> , R&R)
Annual Review of Economics	1	#60 (<i>prior convictions / sensitivity analysis</i> , 2011)
Statistica Sinica	1	#90 (<i>Bayesian model assessment in factor analysis</i> , 2004)
PLoS Genetics	1	#75 (<i>Drosophila spermatogenesis</i> , 2009)

Tier 3 — Strong Specialised Journals

Journal	#	Papers
Statistics and Computing	4	#9 (2026), #49 (2013), #53 (2012), #79 (2008)
Econometric Reviews	4	#33 (2019), #42 (2016), #44 (2014), #45 (2014)
International Journal of Forecasting	2	#6 (<i>intraday volatility</i> , R&R), #13 (<i>density pooling</i> , 2025)
Journal of Time Series Analysis	1	#84 (<i>smooth transition AR</i> , 2006)
Journal of Statistical Planning and Inference	1	#80 (<i>factor SV</i> , 2007)
Computational Statistics and Data Analysis	4	#59 (2011), #67 (2010), #81 (2007), #92 (2004)
Entropy	3	#16 (2024), #17 (2024), #28 (2020)
Environmetrics	2	#27 (<i>sea-level trends</i> , 2020), #87 (<i>malaria</i> , 2005)
Econometrics and Statistics	1	#41 (<i>Cholesky realised SV</i> , 2017)
Econometrics (MDPI)	1	#19 (<i>factor model identification</i> , 2023)
Test	1	#43 (<i>time-varying extremes</i> , 2016)
Journal of Forecasting	1	#58 (<i>particle filters in financial econometrics</i> , 2011)
Journal of Applied Statistics	1	#22 (<i>INAR model</i> , 2022)

Tier 4 — Regional, Interdisciplinary & Field Journals

Journal	#	Papers
Brazilian Journal of Probability and Statistics	5	#11 (2025), #35 (2019), #54 (2012), #86 (2006), #94 (2003)
Applied Stochastic Models in Business and Industry	5	#10 (accepted), #20 (2023), #30 (2019), #38 (2018), #68 (2010)
BMC Evolutionary Biology / BMC Biology / Genetics	3	#55 (2012), #56 (2012), #69 (2010)
Quarterly Review of Economics and Finance	1	#12 (exchange rate events, 2025)
Australian & New Zealand Journal of Statistics	1	#83 (ruin probabilities, 2007)
Statistical Modelling	1	#91 (extreme events, 2004)
Environmental and Ecological Statistics	1	#61 (exceedance regression, 2011)
Brazilian Review of Econometrics	2	#63 (2011), #97 (2000)
Clinics	1	#24 (COVID-19 vaccination, 2021)
Journal of Business Research	1	#64 (credit granting, 2011)
Estadística / ISBA Bulletin / others	2	#89 (factor SV), #95 (factor bibliography)

Book Chapters & Edited Volumes (approx. 18 contributions): Oxford University Press, Wiley, Chapman & Hall/CRC, Springer, Marcel Dekker/Taylor & Francis, Cambridge. Includes chapters in Bayesian Statistics 9, Handbook of Environmental & Ecological Statistics, Handbook of Applied Bayesian Analysis, Bayesian Theory and Applications, and Frontiers of Statistical Decision Making and Bayesian Analysis.

Technical Reports / Preprints (9 items): #1, 2, 3, 25, 26, 40, 74, 76, 77 — covering generative Bayesian methods, portfolio/momentum strategies, treatment effects, and DSGE estimation.

3. Papers by Co-Author

The table below lists every collaborator who appears on two or more papers, ordered by frequency. A handful of one-time collaborators are grouped at the end. The 4 genetics papers (#55, 56, 69, 75) involve a distinct biological-sciences cluster and are noted separately.

Co-Author	Affiliation	#	Papers	Key Topics
Nick Polson	<i>University of Chicago (UC)</i>	14	#1, 2, 35, 38, 42, 44, 51, 54, 57, 62, 65, 66, 70, 72	Particle learning, stochastic volatility, Bayesian hypothesis testing, computation
Carlos Carvalho	<i>UT Austin</i>	12	#4, 9, 15, 36, 47, 54, 57, 62, 65, 66, 80, 81	Factor models, particle learning, financial time series, sparsity, shrinkage
Dani Gamerman	<i>UFRJ</i>	9	#43, 53, 59, 61, 78, 88, 91, 96, 101	Spatial/dynamic models, extreme value theory, early Bayesian applications, Brazilian data
Helio Migon	<i>UFRJ</i>	5	#68, 86, 88, 96, 101	Dynamic models, stochastic volatility, Brazilian macroeconomics
Alexandra Schmidt	<i>McGill University</i>	5	#27, 34, 52, 87, 98	Spatial statistics, dynamic models, environmental and ecological applications
Esther Salazar		5	#52, 59, 78, 84, 85	Spatial dynamic factor models, smooth-transition time series
Audronė Virbickaitė	<i>CUNEF</i>	5	#6, 7, 13, 30, 33	Stochastic volatility, intraday volatility, density forecasting, semi-parametric methods
M.C. Ausin	<i>Universidad Carlos III Madrid</i>	4	#33, 67, 73, 83	Copulas, stochastic volatility, Bayesian risk measurement, insurance
Sylvia Frühwirth-Schnatter	<i>WU Vienna</i>	4	#14, 19, 39, 50	Sparse factor analysis, identification, multivariate factor SV
Igor Martins	<i>Örebro University</i>	4	#6, 7, 12, 16	Intraday stochastic volatility, exchange rate events, skewness selection

Robert McCulloch	<i>Arizona State University</i>	4	#21, 36, 71, 76	Financial econometrics, state-space models, Bayesian computation in finance
Maria Vibranovski	<i>USP</i>	4	#55, 56, 69, 75	Drosophila genetics — interdisciplinary cluster, distinct from rest of portfolio
Manyuan Long	<i>UC</i>	4	#55, 56, 69, 75	Drosophila genetics (same cluster as Vibranovski)
Timothy Karr	<i>ASU</i>	4	#55, 56, 69, 75	Drosophila genetics (same cluster)
Michael Johannes	<i>Columbia</i>	3	#57, 65, 71	Particle learning, Bayesian computation in finance
P. Richard Hahn	<i>ASU</i>	3	#5, 32, 37	Causal inference (RDD/CATE), efficient sampling, IV regression
Bruno Levy	<i>Inspir</i>	3	#18, 25, 26	Dynamic ordering in forecasting, momentum strategies, high-dimensional portfolio
Marcus Nascimento		3	#43, 53, 61	Extreme value theory, regression for exceedance data
Ajax Moreira	<i>IPEA</i>	3	#98, 99, 100	Brazilian macroeconomic forecasting (early career)
Gregor Kastner	<i>U Klagenfurt</i>	2	#39, 50	Multivariate factor stochastic volatility models
Henrique Bolfarine	<i>UT Austin</i>	2	#9, 15	Bayesian factor analysis, shrinkage and selection
James J. Heckman	<i>UC</i>	2	#45, 74	Treatment effects, human-capital aggregation
Maria Rios / Raquel Prado / others		2	#48, 49	Sequential parameter learning, structured AR models

Note: 48 of the 101 items have a single author (Lopes alone), making sole-authored work a significant part of the portfolio. The genetics cluster (#55, 56, 69, 75) is an outlier: it involves biologists rather than statisticians/econometricians and reflects a focused interdisciplinary collaboration with the Long lab at the University of Chicago during 2009–2012.

4. At a Glance

Metric	Value
Total items	101 (published papers, accepted, R&R, submitted, book chapters, and technical reports)
Most frequent collaborator	Nick Polson — 14 joint papers
Second most frequent	Carlos M. Carvalho — 12 joint papers
Top general-stats outlet	JASA (2 papers) · Statistical Science (2 papers)
Top economics outlet	American Economic Review (1 paper), Journal of Econometrics (1 paper)
Most productive subject	Stochastic Volatility & Factor Models (≈15 papers each)
Span	1993 – 2026 (33 years of active publication)
Interdisciplinary reach	Statistics, Econometrics, Finance, Epidemiology, Evolutionary Genetics, Environmental Science
Recent focus (2020–)	Intraday volatility, sparse factor analysis, causal inference with BART, probabilistic ML, INAR processes