

# Jeremy HENG

Associate Professor

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## RESEARCH INTERESTS

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Bayesian inference, Computational statistics, Computational statistics (such as sequential Monte

## EDUCATION

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2017 PhD in Statistics, University of Oxford, United Kingdom

2012 BSc in Statistics, University College London, United Kingdom

## EMPLOYMENT

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### Full-time academic positions

2024 - Present Associate Professor, ESSEC Business School, France

2019 - 2024 Assistant Professor, ESSEC Business School, Singapore

### Other affiliations and appointments

2025 - 2026 Head of the BUSINESS ANALYTICS METHODS (BAM) Track, ESSEC Business School, France

2017 - 2019 Postdoctoral Fellow, Harvard University, United States of America

## GRANTS AND HONORS

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### Awards and Honors

2022 2022 Blackwell-Rosenbluth Award, International Society for Bayesian Analysis,, United States of America

## PUBLICATIONS

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### Journal Articles

HENG, J., DE BORTOLI, V., DOUCET, A. and THORNTON, J. (2025). Simulating diffusion bridges with score matching. *Biometrika*, In press.

HENG, J., DE BORTOLI, V. and DOUCET, A. (2024). Diffusion Schrödinger Bridges for Bayesian Computation. *Statistical Science*, 39(1), pp. 90-99.

HENG, J., HOUSSINEAU, J. and JASRA, A. (2024). On Unbiased Score Estimation for Partially Observed Diffusions. *Journal of Machine Learning Research*, 25(66), pp. 1-66.

HENG, J., JASRA, A., LAW, K. and TARAKANOV, A. (2023). On Unbiased Estimation for Discretized Models. *SIAM/ASA Journal on Uncertainty Quantification*, 11(2), pp. 10.1137/21M1460788.

FULOP, A., HENG, J., LI, J. and LIU, H. (2022). Bayesian Estimation of Long-Run Risk Models Using Sequential Monte Carlo. *Journal of Econometrics*, 228(1), pp. 62-84.

JASRA, A., HENG, J., XU, Y. and BISHOP, A.N. (2022). A Multilevel Approach for Stochastic Nonlinear Optimal Control. *International Journal of Control*, 95(5), pp. 1290-1304.

JASRA, A., HENG, J., XU, Y. and BISHOP, A.N. (2022). A Multilevel Approach for Stochastic Nonlinear Optimal Control. *International Journal of Control*, 95(5), pp. 1290-1304.

DAI, C., HENG, J., JACOB, P. and WHITELEY, N. (2022). An invitation to sequential Monte Carlo samplers. *Journal of the American Statistical Association*, 117(539), pp. 1587-1600.

HENG, J., DOUCET, A. and POKERN, Y. (2021). Gibbs flow for approximate transport with applications to Bayesian computation. *Journal of the Royal Statistical Society: Series B (Statistical Methodology)*, 83(1), pp. 157-187.

HENG, J., YU, F. and HENG, J. (2020). Multilevel Particle Filters for the Non-Linear Filtering Problem in Continuous Time. *Statistics and Computing*, 30, pp. 1381-1402.

HENG, J., YU, F. and HENG, J. (2020). Multilevel Particle Filters for the Non-Linear Filtering Problem in Continuous Time. *Statistics and Computing*, 30, pp. 1381-1402.

HENG, J. and JACOB, P. (2019). Unbiased Hamiltonian Monte Carlo with couplings. *Biometrika*, 106(2), pp. 287-302.

HENG, J., BISHOP, A.N., DELIGIANNIDIS, G. and DOUCET, A. (2019). Controlled Sequential Monte Carlo. *Annals of Statistics*, 48(5), pp. 2904-2929.

### Conference proceedings

CHOPIN, N., FULOP, A., HENG, J. and THIERY, A.H. (2023). Computational Doob h-transforms for Online Filtering of Discretely Observed Diffusions. In: *Proceedings of the 40th International Conference on Machine Learning, PMLR 202:5904-5923*. Honolulu: Proceedings of Machine Learning Research.

DE BORTOLI, V., THORNTON, J., HENG, J. and DOUCET, A. (2021). Diffusion Schrödinger Bridge with Applications to Score-Based Generative Modeling. In: *NeurIPS 2021*. Proceedings of Machine Learning Research.

LIN, A., ZHANG, Y., HENG, J., ALLSOP, S.A., TYE, K.M. and JACOB, P. (2019). Clustering Time Series with Nonlinear Dynamics: A Bayesian Non-Parametric and Particle-Based Approach. In: *Proceedings of Machine Learning Research*.

JACOB, P., LIN, A., ZHANG, Y., HENG, J., ALLSOP, S.A., TYE, K.M. and BA, D. (2019). Clustering Time Series with Nonlinear Dynamics: A Bayesian Non-Parametric and Particle-Based Approach. In: *The 22nd International Conference on Artificial Intelligence and Statistics*. Proceedings of Machine Learning Research, pp. 2476-2484.

### Conferences

JU, N., HENG, J. and JACOB, P. (2024). Statistical Inference for Individual-based Models of Disease Transmission. In: 2024 Eastern Asia Chapter International Society for Bayesian Analysis Conference. Hong Kong.

CHOPIN, N., FULOP, A., HENG, J. and THIERY, A.H. (2024). Computational Doob's h-transforms for Online Filtering. In: 6th Workshop on Sequential Monte Carlo Methods 2024. Edinburgh.

HENG, J. (2022). Diffusion Schrodinger Bridge with Applications to Score-based Generative Modeling. In: 5th International Conference on Econometrics and Statistics (EcoSta) 2022. Kyoto.

NIANQUIOA, J., HENG, J. and JACOB, P. (2022). Artificial Intelligence, Data challenges. In: 2022 Institute of Mathematical Statistics (IMS) Annual Meeting in Probability and Statistics. London.

FULOP, A., HENG, J. and LI, Y. (2021). Efficient Likelihood-based Estimation via Annealing for Dynamic Structural Macroeconomics Models. In: 2021 European Winter Meetings of the Econometric Society. Barcelona.

HENG, J., POKERN, Y. and DOUCET, A. (2019). Gibbs Flow for Approximate Transport with Applications to Bayesian Computation. In: International Conference on Scientific Computation and Differential Equations (SciCADE 2019).

## **OTHER RESEARCH ACTIVITIES**

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### **Editorial Board Membership**

2022 - 2023    Statistics and Computing