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Hongwei Mei

Department of Mathematics and Statistics
Texas Tech University
1108 Memorial Circle
Lubbock, TX 79409

Tel. 806-834-8676
Email: hongwei.mei@ttu.edu

RESEARCH INTEREST

Applied Probability, Stochastic Analysis, Stochastic Control and Optimization, Optimal Stopping.

EDUCATION

Ph.D. in Applied Mathematics — August, 2011–August, 2016
Wayne State University, Detroit, Michigan.
Advisor: Prof. George Yin.

M.S. in Statistics — August, 2008–June, 2011
University of Science and Technology of China, Hefei, China.
Advisor: Prof. Zhishui Hu.

B.S. in Mathematics — September, 2004–June, 2008
University of Science and Technology of China, Hefei, China.

PROFESSIONAL EXPERIENCE

Tenure-track Assistant Professor — September , 2022–
Department of Mathematics and Statistics
Texas Tech University, Lubbock

Post-doc Fellow — May, 2020–August, 2022
Department of Statistics
Rice University, Houston
Mentor: Prof. Philip Ernst.

Visiting Assistant Professor — August, 2017–May, 2020
Department of Mathematics
University of Kansas, Lawrence
Mentor: Prof. Jin Feng.

Visiting Assistant Professor — August, 2016–August, 2017
Department of Mathematics
University of Central Florida, Orlando
Mentor: Prof. Jiongmin Yong.

PUBLICATIONS

1. Mei, H., Wei, Q., & Yong, J. (2025). Linear-Quadratic Optimal Control for Mean-Field Stochastic Differential Equations in Infinite-Horizon with Regime Switching. Accepted for publication in *Chinese Annals of Mathematics: Series B.*
2. Mei, H., Nguyen, S. L., & Yin, G. (2025). Closed-loop Equilibria for Mean-Field Games in Randomly Switching Environments with General Discounting Costs. *SIAM Journal on Control and Optimization*, 63(2), 966-992.
3. Ernst, P. A., & Mei, H. (2025). The Minimax Wiener Sequential Testing Problem. *SIAM Journal on Control and Optimization*, 63(1), 206-226.
4. Mei, H., Wei, Q., & Yong, J. (2024) Linear-quadratic optimal control problem for mean-field stochastic differential equations with a type of random coefficients, *Numer. Algebra Control Optim*. 14(4), 813–852.
5. Ernst, P. A., Mei, H., & Peskir, G. (2024). Quickest Real-Time Detection of Multiple Brownian Drifts. *SIAM Journal on Control and Optimization*, 62(3), 1832–1856.
6. Cai, Z., Mei, H., & Wang, R. (2024). A model specification test for nonlinear stochastic diffusions with delay. *Statistical Inference for Stochastic Processes*, 1-18.
7. Ernst, P. and Mei, H (2023). Exact Optimal Stopping for Multidimensional Linear Switching Diffusions. *Mathematics of Operations Research* 48(3): 1589–1606.
8. H. Mei , Q. Wei and J. Yong (2021). Optimal Ergodic Control of Linear Stochastic Differential Equations with Quadratic Cost Functionals Having Indefinite Weights. *SIAM J. Control Optim.* 59(1), 584–613.
9. H. Mei and G. Yin (2021). Controlled Markov chains with non-exponential discounting and distribution-dependent costs. *ESAIM Control Optim. Calc. Var.* 27, Paper No. 5, 18 pp.
10. Mei, Hongwei (2021). Time-Inconsistent Risk-Sensitive Equilibrium for Countable-Stated Markov Decision Processes. *Appl. Math. Optim.* 84, no. 2, 1641–1666.
11. Cai, H., Chen, G. and Mei, H. (2021). Uniqueness of dissipative solution for Camassa–Holm equation with peakon–antipeakon initial data. *Applied Mathematics Letters*, 120, p.107268.
12. H. Mei and C. Zhu (2020). Closed-Loop Equilibrium for Time-Inconsistent McKean–Vlasov Controlled Problem. *SIAM Journal on Control and Optimization*, 58(6), 3842–3867.
13. H. Mei and J. Yong (2019). Equilibrium strategies for time-inconsistent stochastic switching systems. *ESAIM Control Optim. Calc. Var.* 25. Art. 64, 60 pp.
14. F. Wu, G. Yin, and H. Mei (2017). Stochastic functional differential equations with infinite delay: Existence and uniqueness of solutions, solution maps, Markov properties, and ergodicity. *J. Differential Equations*, 262, 1226-1252.
15. H. Mei, G. Yin, and F. Wu (2016). Properties of stochastic integro-differential equations with infinite delay: Regularity, ergodicity, weak sense Fokker-Planck equations. *Stochastic Process. Appl.*, 126, 3102-3123.
16. H. Mei and G. Yin (2015). Convergence and convergence rates for approximating ergodic means of functions of solutions to stochastic differential equations with Markov switching. *Stochastic Process. Appl.* 125, 3104-3125.
17. H. Mei and G. Yin (2015). Strong invariance for switching diffusions. *Asymptot. Anal.* 92, 45-64.
18. H. Mei, L. Wang, and G. Yin (2014). Almost sure convergence rates for system identification using binary, quantized, and regular sensors. *Automatica* 50, 2120-2127.
19. M. Csörgö, Z. Hu, and H. Mei (2013). Strassen-type law of the iterated logarithm for self-normalized sums. *J. Theoret. Probab.* 26, 311-328.
20. M. Csörgö, Z. Hu, and H. Mei (2012). Strassen-type law of the iterated logarithm for self-normalized increments of sums. *J. Math. Anal. Appl.* 393, 45-55.

PAPERS SUBMITTED/UNDER REVISION

1. Mei, H., Rachev S., & Wang R. (2025). Turnpike Property of Mean-Field Linear-Quadratic Optimal Control Problems in Infinite-Horizon with Regime Switching.
2. Mei, H., Wang, R., & Yong, J. (2025). Turnpike Property of a Linear-Quadratic Optimal Control Problem in Large Horizons with Regime Switching II: Non-Homogeneous Cases. arXiv preprint arXiv:2508.04993.
3. Mei, H., Wang, R., & Yong, J. (2025). Turnpike Property of Stochastic Linear-Quadratic Optimal Control Problems in Large Horizons with Regime Switching I: Homogeneous Cases. arXiv preprint arXiv:2506.09337
4. Mei, H., Wang, R., Wei, Q., & Yong, J. (2025). Infinite Horizon Mean-Field Linear-Quadratic Optimal Control Problems with Switching and Indefinite-Weighted Costs. arXiv preprint arXiv:2503.17622.
5. Baraka, M., Mei, H. & Matinpour, H. (2025). Statistical modeling of atmospheric aerosol particle size distributions.
6. Zongwu Cai, Hongwei Mei & Rui Wang (2024). Model Specification Tests of Heterogenous Agent Models with Aggregate Shocks under Partial Information.
7. Mei, H. (2023). Minimax Sequential Testing for Poisson Processes.

CURRENT/PENDING/DECLINED GRANTS

1. Sole PI for SIMONS Travel Grant (2023-2028); Amount: $42,000; Status: Awarded.

TEACHING

- Mathematical Statistics I: Spring 2025, Fall 2025 Texas Tech University
- Quant Theory of Interest: Fall 2024, Texas Tech University
- Stochastic Processes I: Fall 2024, Texas Tech University
- Statistics for Engineers and Scientists I: Fall 2023, Texas Tech University
- Applied Statistics I: Fall 2023, Texas Tech University
- Advanced Probability: Fall 2023, Fall 2025, Texas Tech University
- Statistical Methods: Fall 2022, Texas Tech University
- Statistical Inference: Spring 2020, University of Kansas.
- Applied Statistics: Spring-summer 2016, Fall 2017, Spring 2018, Fall 2019, Spring 2020. University of Kansas.
- Ordinary differential equations, Fall 2018. University of Kansas.
- Linear Algebra, Summer 2018, Summer 2019. University of Kansas.
- Advanced Mathematics for Engineering Students, Summer 2017. University of Central Florida
- Calculus 3: Fall 2016. University of Central Florida
- Pre-Calculus: Spring-Summer 2012, Fall 2012, Winter 2013, Winter 2015. Wayne State University.
- Intermediate Algebra with Trigonometry: Fall 2013, Winter 2014, Fall 2015. Wayne State University

PROFESSIONAL SERVICES

- Associate Editor for *Nonlinear Analysis: Hybrid Systems*: Jan, 2025–
- Guest Editor for Special Issue Dedicated to George Yin on the Occasion of His 70th Birthday in *Numerical Algebra, Control and Optimization*.
- Reviewer for
  - *SIAM Journal on Control and Optimization*
  - *Systems and Control Letters*
  - *Mathematics of Operation Research*
  - *Stochastic Processes and Their Applications*
  - *Applied Mathematics and Optimization*
  - *Mathematical Finance*
  - *Nonlinear Analysis: Hybrid Systems*
  - *Advances in Difference Equations*
  - *Asian Journal of Management Science and Applications*
  - *Stochastics: An International Journal of Probability and Stochastic Processes*
- Reviewer for *17th IFAC Symposium on System Identification*.
- Associate Editor for SIAM Papers for the 57th IEEE Conference on Decision and Control(2018).

CONFERENCE OR PRESENTATIONS

- Invited Talk, KU Probability and Statistics Conference 2024
  Department of Mathematics, The University of Kansas
  Title: "The Minimax Wiener Sequential Testing Problem" Nov 2024
- The 14th AIMS Conference on dynamical systems and differential equations
  Special Session Organizer (joint with Jiongmin Yong and Jingrui Sun)
  Title: Recent Development of Stochastic Optimal Control and Differential Games
- SIAM Conference on Applications of Dynamical Systems.
  Minisymposium Organizer. Portland, May 2023.
- Virtual Seminar on Stochastic Control, Southern University of Science and Technology.
  Quickest real-time detection of a Markovian drift. March, 2022
- SIAM CT21 Minisymposium talk. Talk: Ergodic control of linear stochastic differential equations with quadratic-type costs. July, 2021
- AMS Spring Southeastern Virtual Sectional Meeting. Mar. 2021
  Talk: Controlled McKean-Vlasov Diffusions with Non-exponential Discounting Cost
- Department of Mathematics, University of Connecticut. Jan., 2021
  Seminar talk: Quickest real-time detection of a Markovian Drift.
- Virtual workshop on Stochastic Analysis Jun., 2020
  Talk: Ergodic control of linear stochastic differential equations with quadratic-type costs.
- Department of Mathematics, University of Wisconsin-Milwaukee. Dec., 2019
  Colloquium talk: A Hamilton-Jacobi equation on the space of probability measures.
- Institute for Mathematics and Its Applications, University of Minnesota. May, 2018
  2018 Annual Program: "Modeling, Stochastic Control, Optimization, and Related Applications"
  Invited talk: Equilibrium Strategies for Time-Inconsistent Stochastic Switching Systems.

- SIAM CT12, Pittsburgh. Minisymposium Organizer. July, 2017
  Invited talk: Ergodic control of linear-quadratic systems.
- University of Central Florida, Department of Mathematics Sep., 2016
  Colloquium talk.
- Department of Mathematics, Rutgers University. Mar., 2016
  Seminar talk: Numerical algorithms for approximating ergodic means of stochastic switching diffusions.
- Department of Mathematics, Central South University, China. Sep., 2015
  Seminar talk.
- Department of Mathematics, Huazhong University of Science and Technology, China. Sep., 2015
  Seminar talk: Ergodicity of stochastic functional differential equations with infinite delay.
- Graduate Exhibition, Wayne State University. Mar., 2015
  Poster presentation.
- AMS Central Spring Sectional Meeting, Michigan State University, Mar., 2015
  Contributed talk.
- Applied Mathematics Conference, Oakland University Sep., 2014
  Contributed talk.
- Finite Element Circus, Wayne State University Mar., 2014,.