Biographical Sketch

Dr. Felix X.-F. Ye

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Education

University of Washington, Seattle, WA; Applied Mathematics; Ph.D., 2018. Thesis Advisor: Hong Qian

Thesis: Stochastic Dynamics: Markov Chains, Random Transformations and Applications

University of Washington, Seattle, WA; Applied Mathematics; M.S., 2013
Hong Kong University of Science and Technology, Hong Kong; Mathematics; B.S., 2011

Professional Employment

2021–Present: **Assistant Professor**, Department of Mathematics & Statistics, SUNY Albany, Albany, NY.

2018–2021: **Postdoctoral Fellow**, Department of Applied Mathematics & Statistics, Johns Hopkins University, Baltimore, MD. Advisor: Mauro Maggioni.

2015,2016: **PhD Internship**, Pacific Northwest National Laboratory, Richland, WA. Advisor: Panos Stinis.

2011: **Junior Research Assistant**, Department of Mathematics, Hong Kong University of Science and Technology, Hong Kong. Advisor: Jeffrey R. Chasnov

Research Interests

- Data-driven model reduction methods in the context of stochastic dynamical systems.
- Applying machine learning techniques to temporal data to replicate underlying dynamical quantities.
- Random dynamical system and its applications in data science and biology.

Publications

(*) corresponding author.

1. **F. X.-F. Ye**, S. Yang, M. Maggioni, Nonparametric nonlinear model reduction for slow-fast SDEs near manifolds, *arXiv preprint*, arXiv:2104.02120, 2021.
2. X. Li, F. Lu, **F. X.-F. Ye**, ISALT: Inference-based schemes adaptive to large time-stepping for locally Lipschitz ergodic systems, *arXiv preprint*, arXiv:2102.12669, 2021, accepted to *Discrete & Continuous Dynamical Systems-Series S*.
3. Y. Tang, A. Adelaja, **F. X.-F. Ye**, E. Deeds, R. Wollman*, and A. Hoffman*, Quantifying information accumulation encoded in the dynamics of biochemical signaling, *Nature Communications*, 12(1):1–10, 2021.
4. W. Huang, H. Qian, S. Wang*, **F. X.-F. Ye***, and Y. Yi. Synchronization in discrete-time, discrete-state random dynamical systems, *SIAM Journal on Applied Dynamical Systems*, 19(1):233–251, 2020.

5. **F. X.-F. Ye***, and H. Qian. Stochastic dynamics II: Finite random dynamical systems, linear representation, and entropy production. *Discrete & Continuous Dynamical Systems-Series B*, 24(8):4341–4366, 2019.
6. J.H. Li, **F. X.-F. Ye***, H. Qian, and S. Huang. Time-dependent saddle–node bifurcation: Breaking time and the point of no return in a non-autonomous model of critical transitions, *Physica D: Nonlinear Phenomena*, 395:7–14, 2019.
7. **F. X.-F. Ye***, P. Stinis, and H. Qian, Dynamic Looping of a Free-Draining Polymer, *SIAM Journal on Applied Mathematics*, 78(1):104–123, 2018.
8. **F. X.-F. Ye**, Y. Ma, and H. Qian. Estimate exponential memory decay in hidden Markov model and its applications, *arXiv preprint*, arXiv:1710.06078, 2017.
9. Y. Ma, H. Qian*, and **F. X.-F. Ye**. Stochastic dynamics: Models for intrinsic and extrinsic noises and their applications, *SCIENTIA SINICA Mathematica*, 47(12):1693–1702, 2017.
10. **F. X.-F. Ye**, Y. Wang, and H. Qian*. Stochastic dynamics: Markov chains and random transformations, *Discrete & Continuous Dynamical Systems-Series B*, 21(7):2337–2361, 2016.
11. J.R. Chasnov*, and **F. X.-F. Ye**. Evolution of recombination rates in a multi-locus, haploid-selection, symmetric-viability model. *Theoretical population biology*, 83:155-165, 2013.

Synergistic Activities

1. Editorial board reviewers, Journal of Machine Learning Research, Jun 2020-Current
2. Co-organizer, Data Science Seminar, Johns Hopkins University.
3. Co-organizer, Minisymposium, SIAM Conference on Applications of Dynamical Systems, 2021.
4. Graduate Student Representative, Department of Applied Mathematics, University of Washington, 2015-2016.
5. Referee for: Journal of Chemical Physics, European Journal of Physics, Journal of Machine Learning Research, Journal of Physics A: Mathematical and Theoretical, Genomics, American Mathematical Monthly.

Honors and Awards

1. AMS-Simons Travel Grants ($5000 USD), 2020-2022.
2. ICIAM 2019 Travel Award ($2500 USD), SIAM.
3. ICM 2018 Early-Career Travel Grant ($3300 USD), AMS.
4. Olga Jung Wan Fellowship in Applied Mathematics, University of Washington, 2018.
5. Boeing Research Award, University of Washington, 2017.
6. Department of Applied Mathematics Fellowship, University of Washington, 2014.

Teaching Experience

SUNY Albany
1. AMAT 592, Machine Learning, Fall 2021.

Johns Hopkins University
1. EN.553.391, Dynamical Systems, Fall 2018, Fall 2019.
2. EN.560.601, Applied Math for Engineers, Spring 2019, Spring 2021(online).

University of Washington

1. AMATH 383, Intro to Continuous Mathematical Modeling, Autumn 2016, Winter 2017
2. AMATH 351, Intro to Differential Equations & Applications, Winter 2015, Spring 2015
3. AMATH 352, Applied Linear Algebra & Numerical Analysis, Summer 2014.
4. AMATH 301, Beginning Scientific Computing, Spring 2013, Summer 2013.

Presentations

1. Colloquium (online), UNC Charlotte, Sep 2021.
2. Mini-symposium talk (online), DynamicsDays2021 - XL, Aug 2021.
3. Mini-symposium talk (online), SIAM Conference on Applications of Dynamical Systems, May 2021.
4. Colloquium (online), SUNY Albany, Jan 2021.
5. Applied mathematics colloquium (online), UMBC, Nov 2020.
6. Invited talk (online), Second Symposium on Machine Learning and Dynamical Systems, Fields Institute, Toronto, Sept 2020.
7. Mini-symposium talk (online), SIAM Conference on Mathematics of Data Science, May-June 2020.
8. Mini-symposium talk, SIAM Conference on Applications of Dynamical Systems, Snowbird, UT, May 2019.
9. Contributed talk, AMS Fall Eastern Sectional Meeting, Newark, Delaware, Sep 2018.
10. Short communication, 2018 International Congress of Mathematicians, Rio de Janeiro, Aug 2018.
11. Invited talk, 2018 PNW MAA Section Meeting, Seattle University, Apr 2018.
12. Contributed talk, Frontier Probability Days, Oregon State University, Mar 2018.
13. Invited talk, Data Science Seminar, Johns Hopkins University, Jan 2018.
14. Contributed talk, Trends in Optimization Seminar, University of Washington, Nov 2017.
15. Contributed talk, AMS Fall Western Sectional Meeting, UC Riverside, Nov 2017.
16. Contributed talk, 2017 SIAM PNW Conference, Oregon State University, Oct 2017.
17. Invited talk, PIMS workshop on Stochastic Nonlinear Dynamics, University of Alberta, Aug 2017.
18. Invited talk, Graduate student seminar, Wuhan Center for Mathematical Science, Jun 2017.
19. Invited talk, The 5th International Conference on Random Dynamical Systems, Wuhan, Jun 2017.
20. Mini-symposium talk, SIAM Conference on Applications of Dynamical Systems, Snowbird, UT, May 2017.
21. Invited Talk, CM4 Webinar Series, PNNL, Oct 2015