

Song Feng

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What I cannot create, I do not understand. — Richard P. Feynman

Positions

- 2019 - now *Scientist*, Biological Sciences Division, Pacific Northwest National Laboratory
- 2016 - 2019 *Postdoc*, Center for Nonlinear Studies, Los Alamos National Laboratory
- 2008 - 2009 *Research intern*, CAS-MPG Partner Institute for Computational Biology

Education

- Ph.D. **University of Warwick**, *Systems Biology*, Mentor: *Orkun Soyer*, 2013-2016.
- M.Sc. **King Abdullah University of Science and Technology**, *Biosciences*, 2009-2011.
- B.Sc. **Zhejiang University**, *Biotechnology*, 2005-2009.

Research Interests

- General **Complex (bio)systems, evolution, control, synthetic biology.**
- Current *Biological systems*: biological networks, dynamics, control, microbiome, metabolism
Computational methods: modeling, inference, optimization, machine learning
Social systems: opinion dynamics, social contagion

Talks

Invited

- 05/2018 Department of Mechanical engineering, University of New Mexico, United States.
- 05/2015 Evolution and optimality in cellular systems workshop, FachInstitut für Theoretische Biologie, Humboldt-Universität zu Berlin, Germany.

Contributed

- 09/2016 International Conference on Systems Biology (ICSB), Barcelona, Spain.

Selected Publication

* Equal contribution; † Corresponding.

Peer-reviewed

- 9 Suderman R, Mitra ED, Lin YT, Erickson KE, Feng S, Hlavacek HS[†], (2019) Generalizing Gillespie's direct method to enable network-free simulations, *Bulletin of Mathematical Biology* 81 (8), 2822-2848. doi:10.1007/s11538-018-0418-2
- 8 Lin YT*, Feng S*, Hlavacek WS[†], (2019) Acceleration of stochastic simulations of biochemical systems via heterogeneous and adaptive scaling of reaction rates, *The Journal of Chemical Physics* 150 (24), 244101. doi:10.1063/1.5096774

- 7 Feng S, Soyer OS[†], (2019) *In silico* evolution of signaling networks using rule-based models: bistable response dynamics, *Methods Mol Biol.* 1945:315-339. doi:10.1007/978-1-4939-9102-0_15
- 6 Shirin A*, Klickstein IS*, Feng S*, Lin YT*, Hlavacek WS[†], Sorrentino F[†], (2019) Prediction of Optimal Drug Schedules for Controlling Autophagy, *Sci. Rep.* 9(1):1428. doi:10.1038/s41598-019-38763-9
- 5 Jiang X, Zerfa C, Feng S, Eichmann R, Asally M, Shafer P[†], Soyer OS[†] (2018) Impact of spatial organization on a novel auxotrophic interaction among soil microbes, *ISME J.* 12(1):1443-1456. doi:10.1038/s41396-018-0095-z
- 4 Cavaliere M, Feng S, Soyer OS, Jimenez JI[†] (2017) Cooperation in microbial communities and their biotechnological applications, *Environ. Microbiol.* 19(8):2949-2963. doi:10.1111/1462-2920.13767
- 3 Feng S*, Sáez M*, Wiuf C, Feliu E[†], Soyer OS[†] (2016) Core signalling motif displaying multistability through multi-state enzymes. *J. R. Soc. Interface* 13 (123), 20160524. doi:10.1098/rsif.2016.0524
- 2 Feng S, Ollivier JF, Soyer OS[†] (2016) Enzyme sequestration as a tuning point in controlling response dynamics of signalling networks. *PLoS Comput. Biol.* 12(5): e1004918. doi:10.1371/journal.pcbi.1004918
- 1 Feng S*, Ollivier JF*, Swain PS[†], Soyer OS[†] (2015) BioJazz: *in silico* evolution of cellular networks with unbounded complexity using rule-based modeling. *Nucleic Acids Res.*, pp. 1-15. ISSN 0305-1048 doi:10.1093/nar/gkv595.