

# CURRICULUM VITAE

**Yunjiao Wang**  
Assistant Professor

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## Education

Ph.D., Mathematics, August 2006                      University of Houston, Houston, TX, USA  
M.S., Mathematics, June 2000                              Zhejiang Normal University, China  
B.S., Mathematics, June 1997                              Zhejiang Normal University, China

## Research Interests

Theory and applications of coupled differential equations with focuses on general dynamical properties that are due to the network architecture of coupled systems, dynamics of (generalized) rivalry networks, grid formation in mammalian spatial navigation systems, and dynamics of NF- $\kappa$ B signaling pathways.

## Professional History

- Jan. 2013 - : Assistant Professor, Texas Southern University
- Dec. 2013 - : Adjunct Assistant Professor, University of Houston
- Sept. 2012 - Dec. 2012: Adjunct Faculty, University of Houston — Clear Lake
- Sept. 2011- Aug. 2012: Long term visitor, Rice University
- Sept. 2009 - Aug. 2012: Postdoctoral research fellow, MBI, Ohio State University
- Aug. 2006- Sept. 2009: Postdoctoral research associate, University of Manchester, UK
- June 2003 - Aug. 2006: Research Assistant, University of Houston
- Aug. 2002 - Dec. 2003: Teaching Assistant, University of Houston

## Courses taught

- Calculus and Analytic Geometry III, Texas Southern University, Fall 2016, Fall 2017.
- Applied Mathematics and Statistics, Texas Southern University, Fall 2016, Fall 2017.
- Statistics, Texas Southern University, Summer 2016.
- Calculus and Analytic Geometry II, Texas Southern University, Fall 2015 and Spring 2016.
- Differential Equations, Spring 2014, Spring 2015, Spring 2017.
- PreCalculus, Texas Southern University, Fall 2014 - present
- Calculus and Analytic Geometry I, Texas Southern University, Fall 2013, Spring 2014, Fall 2014, Spring 2015
- Plane Trigonometry, Texas Southern University, Spring 2013, Fall 2013.

- Probability for Actuarial Exam 1/P, University of Houston - Clear Lake, Fall, 2012
- Calculus and Analytic Geometry II, Ohio State University, Fall, 2010/ Texas Southern University, Spring 2013, Fall 2015 and Spring 2016
- Calculus and Vectors (supervision), University of Manchester, Fall 2008.
- Discrete Dynamical Systems, University of Manchester, Spring 2008.
- Concepts in Algebra, University of Houston, Fall 2005.

## Publications

- **Y. Wang**, K. Chilakamarri, D. Kazakos and M. C. Leite. Relations between dynamics of network systems and their subnetwork systems. *AIMS Mathematics*, 2(3): 437-450.
- **Y. Wang**, B. Omidiran, F. Kigwe and K. Chilakamarri. Relations between the conditions of admitting cycles in Boolean and ODE network systems, *Involve*, Vol.10, No.5, (2017),813–831. DOI 10.2140/involve.2017.10.813 (B. Omidiran and F. Kigwe were two undergraduates).
- **Y. Wang**, F. Davison and E. Bankole. Dynamics of a mathematical model for four-state binocular rivalry, *Global Journal for Multidisciplinary Research*, Vol.1, No.2, 2017. (F. Davison and E. Bankole were undergraduates).
- A. Jacot-Guillarmod\*, Y. Wang\*, C. Pedroza, H. Ogmen, Z. Kilpatrick, K. Josić. Extending Levelt’s Propositions to perceptual multistability involving interocular grouping. *Cosyne Abstracts 2017*, Salt Lake City USA.
- A. Jacot-Guillarmod\*, Y. Wang\*, C. Pedroza, H. Ogmen, Z. Kilpatrick, K. Josić. Extending Levelt’s Propositions to perceptual multistability involving interocular grouping. *Vision Research*. Volume 133, April 2017, Pages 37-46. (\* are co-first authors)
- K. Smallbone and Y. Wang, *Mathematical Biology*, *Mathematics Today*, Vo. 51 No.2, 2015.
- C. Diekman, M. Golubitsky, and Y. Wang. Derived patterns in binocular rivalry networks. *Journal of Computational Neuroscience*, 3 (6) 2013.
- C. Diekman, M. Golubitsky, T. McMillen and Y. Wang. Reduction and dynamics of a generalized network. *SIAM Journal of Applied Dynamical Systems*, **11(4)** (2012) 1270-1309.
- M. Golubitsky, D. Romano and Y. Wang. Network Periodic Oscillations: Rigid Phase-Shifts. *Nonlinearity* 25: 1-30, 2012.
- Y. Wang, P.Paszek, C. A. Horton, H. Yue, M. R. White, D.B. Kell, M. R. Muldoon and D.S. Broomhead. A systematic study of the response of a NF- $\kappa$ B signalling pathway to TNF $\alpha$  stimulation. *Journal of Theoretical Biology* 297:137-147, 2012.
- Y. Wang, P. Paszek, C. A. Horton, D. B. Kell and M. R. White, D. S. Broomhead and M. R. Muldoon. Interactions among oscillatory pathways in NF-  $\kappa$ B signalling. *BMC Systems Biology* 5(23), 2011.
- M. Golubitsky, D. Romano and Y. Wang. Network Periodic Oscillations: Full Oscillation and Rigid Synchrony. *Nonlinearity*. 23:3227-3243, 2010.
- D. Turner, P. Paszek, D.J. Woodcock, D. E. Nelson, C.A.Horton, Y. Wang, D.G. Spiller, D. A. Rand, M. R. H. White, C. V. Harper. Physiological levels of TNFalpha stimulation induce stochastic dynamics of NF-kappaB responses in single living cells. *Journal of Cell Biology*, 123(16): 2834-2843, 2010.

- M. Leite and Y. Wang. Multistability, Oscillations and Bifurcations in Feedback Loops. *Math. Biosci. Eng.* 7(1), 83-97, 2010.
- H. Yue, M. Brown, Y. Wang and D.B. Kell, Sensitivity analysis of an oscillatory signal transduction pathway, 2nd Foundations of Systems Biology in Engineering (FOSBE2007), Stuttgart, Germany, 99-104, 2007.
- F. Antoneli, A.P.S. Dias, M. Golubitsky and Y. Wang. Synchrony in lattice differential equations. In: Some Topics In Industrial and Applied Mathematics. (R. Jeltsch, T. Li, and I. Sloan, eds.) *Contemporary Applied Mathematics Series* 8 World Scientific Publ. Co., 2007
- Y. Wang. Patterns of Synchrony in Lattice Dynamical Systems. Thesis. University of Houston. 2006.
- F. Antoneli, A.P.S. Dias, M. Golubitsky, and Y. Wang. Flow invariant subspaces for lattice dynamical systems. In: *Workshop on Bifurcation Theory and Spatio-Temporal Pattern Formation in PDE* (W. Nagata and N.S. Namachchivaya, eds.) Fields Institute Communications, 1-8, 2006.
- F. Antoneli, A.P.S. Dias, M. Golubitsky, and Y. Wang. Patterns of Synchrony in Lattice Dynamical Systems. *Nonlinearity* 18:2193–2209, 2005.
- Y. Wang and M. Golubitsky. Two-color patterns of synchrony in lattice dynamical systems. *Nonlinearity* 18 631–657, 2005.

## Grant

- DHS - preparing Technically Savvy Homeland Security Professionals for maritime transportation security (\$800,000). 2014 - 2019 (PI: Yi Qi, Co-PIs: Miao Pan, Yunjiao Wang )
- Seeds Grant at Texas Southern University (\$8,000), 2015.

## Journal referee

- Journal of Biological Systems.
- Mathematical Reviews/MathSciNet Reviewer
- Physica D
- SIAM Journal on Applied Mathematics
- Journal of Applied Mathematics and Computing
- Proceedings of the Royal Society A
- AIMS Proceedings
- Discrete and Continuous Dynamical System-B
- Mathematical Biosciences

## Symposiums and conferences Organized

- Workshop organizer: Workshop on topics in Applied Mathematics, MBI, Ohio State University. 2015
- Mini-symposium co-organizer: SIAM Annual meeting, Chicago, 2014

- Mini-symposium co-organizer: SIAM Conference on Life Sciences, San Diego, 2012
- The 3rd international conference on Bioinformatics and Systems biology, Chongqing, China, 2010.
- Co-organizer: 2010 Workshop for Young Researchers in Mathematical Biology (WYRMB)
- SIAM Conference on Dynamical Systems, Snowbird, Utah, 2009
- SIAM Conference on Life Science, Montreal, Canada, 2008

### **Projects mentored**

- Dynamics of coupled feedback loops, Texas Southern University, 2017.
- Dynamics of network motif, Texas Southern University, 2016.
- Dynamics of a multistable perceptual rivalry, Texas Southern University, 2015.
- Relations between Boolean and continuous network systems, Texas Southern University 2014.
- Dynamics of motifs, Texas Southern University 2013.
- Logistic population growth model, (for Calculus Course) Ohio State University, 2009.
- Mathematical modeling of bipedal gaits, Montreal, Canada, 2010.

### **Long term visits invited**

- C.I.R.M, Luminy, France. 2007.
- Universidade do Porto, Portugal. 2007.

### **Presentations and Posters**

- ‘Two-coloring patterns of synchrony of lattice dynamical systems’. 6th Joint Meeting of the AMS and SMM, Houston, TX, USA 2004
- ‘Patterns of synchrony of lattice dynamical systems’. 2nd Texas Dynamical Systems Workshop, Houston, TX, USA 2004
- ‘Flow invariant subspaces of lattice dynamical systems’. Coupled 60 workshop, Houston, TX, USA 2005 (poster presentation)
- ‘Flow invariant subspaces of lattice dynamical systems’. 3rd Texas Dynamical Systems Workshop, Houston, TX, USA 2005
- ‘Patterns of synchrony of lattice dynamical systems’. SIAM conference on Applied dynamical systems, Snowbird, Utah, USA 2005
- ‘Patterns of synchrony in lattice dynamical systems’. SIAM annual meeting, Boston, 2006 (poster)
- ‘Patterns of synchrony of lattice dynamical systems’. University of Manchester, UK 2006.
- ‘Oscillations in the NF- $\kappa$ B signaling pathway’. C.I.R.M, Luminy, France. 2007.
- ‘Oscillations in the NF- $\kappa$ B signaling pathway’. University of Manchester, The department of biophysics. 2008.

- ‘Patterns of synchrony in lattice dynamical systems’. University of Manchester, 12 the MCND workshop. 2008.
- ‘Oscillations in the NF- $\kappa$ B signaling pathway’. SIAM conference on Life science, Montreal, Canada. 2008.
- ‘Oscillations in the NF- $\kappa$ B signaling pathway’. Ohio State University, 2009.
- ‘Oscillations in the NF- $\kappa$ B signaling pathway’. SIAM, 2010.
- ‘Some general properties of network systems’. Ohio State University, 2010.
- ‘Rigid Phase-Shifts and Network Symmetry’. Oklahoma University, 2010.
- ‘Rigid Phase-Shifts and Network Symmetry’. Rice University, 2011.
- ‘Theory of Coupled Cell Systems’. Rice University, 2011.
- ‘Rigid phase-shifts in periodic solutions of network systems’. University of South Alabama, 2012
- ‘Theory of network systems and its application’. Texas Southern University, 2012.
- ‘Dynamics of Wilson’s Generalized Rivalry Networks’. University of Houston - Downtown, 2012.
- ‘Dynamics of Wilson’s Generalized Rivalry Networks’. Sam Houston State University, 2013.
- ‘Dynamics of Wilson’s Generalized Rivalry Networks’. University of Houston - Main Campus, 2013.
- ‘Rigid phase-shifts in periodic solutions of network systems’. SIAM conference on application of dynamical systems, Snowbird, 2013.
- ‘Mathematical models of perceptual rivalry’. workshop in Universidade do Porto, Portugal. 2014.
- ‘Extending Levelt’s Propositions to multistable Perceptual rivalry involving interocular grouping’. MBI, Ohio State University, Columbus 2016.
- ‘Extending Levelt’s Propositions to multistable Perceptual rivalry involving interocular grouping’. AIMS, Orlando, Florida, USA, July 1 - July 5, 2016.
- Dynamics of network systems, Research week, Texas Southern University, April 2016
- ‘Extending Levelt’s Propositions to multistable Perceptual rivalry involving interocular grouping’, Cosyne 2017, Salt Lake City USA.
- ‘Extending Levelt’s Propositions to multistable Perceptual rivalry involving interocular grouping’, SIAM annual meeting, Pittsburgh, 2017, USA.

### **Computer Skills**

- Matlab, Mathematica, Python, R

### **Professional Affiliations**

- Society for Industrial and Applied Mathematics
- Association for Women in Mathematics