

CURRICULUM VITAE



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IEEE Student Member; SIAM Student Member.

Education Background

01/2008—present: PhD Candidate, Department of Electronic Engineering, City University of Hong Kong, Hong Kong

Supervisor: Professor Guanrong Chen

09/2004—06/2007: Master of Science, Major: Applied Mathematics, Department of Mathematics, Southeast University, Nanjing, China

Supervisor: Professor Jinde Cao

09/2000 —07/2004: Bachelor of Science, Major: Information and Computational Science, Department of Mathematics, Southeast University, Nanjing, China

Professional Experience

12/2008—06/2009: DAAD Visiting Scholar, Institute for Climate Impact Research, Potsdam, Germany

05/2009: Visiting Scholar, Faculty of Mathematics and Natural Sciences, University of Groningen, the Netherlands

04/2009-05/2009: Visiting Scholar, Department of Systems and Computer Science, University of Naples Federico II, Naples 80125, Italy

10/2008: Visiting Scholar, State Key Lab for Turbulence and Complex Systems, Department of Mechanics and Aerospace Engineering, College of Engineering, Peking University, China

10/2007—01/2008: Visiting Scholar, Institute of System Science, Academy of Mathematics and System Science, Chinese Academy of Sciences, Beijing, China

07/2007—10/2007: Research Assistant and PhD Candidate, Department of Electrical Engineering, Columbia University, New York City, USA

11/2006—01/2007: Research Assistant, Department of Electronic Engineering, City University of Hong Kong, Hong Kong, China

Research Interests

Stability analysis; Bifurcation theory; Chaos synchronization

Feedback and Adaptive control; Stochastic systems; Hybrid systems

System identification; Cryptography; Communications

Neural networks; Complex networks; Genetic regulatory networks

Recent focus:

Collective behaviors in multi-agent systems

Academic and Research Achievements (Publications)

2009

- [28] **W. Yu**, G. Chen, M. Cao, J. Kurths, Second-order consensus for multi-agent systems with directed topologies and nonlinear dynamics, *IEEE Trans. Systems, Man, and Cybernetics-Part B*, in press.
- [27] J. Zhou, **W. Yu**, X. Li, M. Small, J. Lu, Identifying the topology of a coupled FitzHugh-Nagumo neurobiological network via a pinning mechanism, *IEEE Trans. Neural Networks*, in press.
- [26] **W. Yu**, G. Chen, Z. Wang, W. Yang, Distributed consensus filters in sensor networks, *IEEE Trans. Systems, Man, and Cybernetics-Part B*, in press.
- [25] **W. Yu**, J. Lü, G. Chen, Z. Duan, Q. Zhou, Estimating uncertain delayed genetic regulatory networks: an adaptive filtering approach, *IEEE Trans. Automatic Control*, vol. 54, no. 4, pp. 892-897, 2009.
- [24] **W. Yu**, G. Chen, J. Lü, On pinning synchronization of complex dynamical networks, *Automatica*, vol. 45, no. 2, pp. 429-435, 2009.
- [23] **W. Yu**, J. Cao, G. Chen, J. Lü, J. Han, W. Wei, Local synchronization of a complex network model, *IEEE Trans. Systems, Man, and Cybernetics-Part B*, vol. 39, no. 1, pp. 230-241, 2009.
- [22] T. Huang, C. Li, **W. Yu**, G. Chen, Synchronization of delayed chaotic systems with parameter mismatches by using intermittent linear state feedback, *Nonlinearity*, vol. 22, pp. 569-584, 2009.
- [21] J. Yang, X. Liao, **W. Yu**, K.W. Wong, J. Wei, Cryptanalysis of a cryptographic scheme based on delayed neural networks, *Chaos Solitons & Fractals*, vol. 40, no. 2, pp. 821-825, 2009..

2008

- [20] J. Zhou, X. Wu, **W. Yu**, M. Small, J. Lu, Synchronizing delayed neural networks by pinning control, *Chaos*, vol. 18, 043111, 2008.
- [19] **W. Yu**, J. Cao, G. Chen, Stability and Hopf bifurcation of a general delayed recurrent neural network, *IEEE Trans. Neural Networks*, vol. 19, no. 5, pp. 845-854, 2008.
- [18] **W. Yu**, J. Cao, J. Lü, Global synchronization of linearly hybrid coupled networks with time-varying delay, *SIAM Journal on Applied Dynamical Systems*, vol. 7, no. 1, pp. 108-133, 2008.
- [17] **W. Yu**, J. Cao, K. Yuan, Synchronization of switched system and application in communication, *Physics Letters A*, vol. 372, pp. 4438-4445, 2008.
- [16] **W. Yu**, Robust control of delayed Cohen-Grossberg neural networks with time delays, *International Journal of Adaptive Control and Signal Processing*, vol. 22, no. 3, pp. 221-242, 2008.

2007

- [15] **W. Yu**, G. Chen, J. Cao, J. Lü, U. Parlitz, Parameter identification of dynamical systems from time series, *Physical Review E*, vol. 75, no. 6, 067201, 2007.
- [14] **W. Yu**, J. Cao, G. Chen, Robust adaptive control of unknown modified Cohen

-Grossberg neural networks with delay, IEEE Trans. Circuits and Systems II, vol. 54, no. 6, pp. 502-506, 2007.

- [13] **W. Yu**, J. Cao, K.W. Wong, J. Lü, New communication schemes based on adaptive synchronization, Chaos, vol. 17, 033114, 2007.
- [12] **W. Yu**, J. Cao, J. Wang, An LMI approach to global asymptotic stability of the delayed Cohen-Grossberg neural network via nonsmooth analysis, Neural Networks, vol. 20, no. 7, pp. 810-818, 2007.
- [11] **W. Yu**, J. Cao, Robust control of uncertain stochastic recurrent neural networks with time-varying delay, Neural Processing Letters, vol. 26, no. 2, pp. 101-119, 2007.
- [10] **W. Yu**, J. Cao, Stability and Hopf Bifurcation on a two-neuron system with time delay in the frequency domain, International Journal of Bifurcation and Chaos, vol. 17, no. 4, pp. 1355-1366, 2007.
- [9] **W. Yu**, L. Yao, Global robust stability of neural networks with time varying delays, Journal of Computational and Applied Mathematics, vol. 206, no. 2, pp. 679-687, 2007.
- [8] **W. Yu**, J. Cao, Adaptive synchronization and lag synchronization of uncertain dynamical system with time delay based on parameter identification, Physica A, vol. 375, no. 2, pp. 467-482, 2007.
- [7] **W. Yu**, J. Cao, Synchronization control of stochastic delayed neural networks, Physica A, vol. 373, pp. 252-260, 2007.
- [6] **W. Yu**, A LMI-based approach to global asymptotic stability of neural networks with time varying delays, Nonlinear Dynamics, vol. 48, no. 1-2, pp. 165-174, 2007.

2006

- [5] **W. Yu**, J. Cao, Adaptive Q-S (lag, anticipated, and complete) time-varying synchronization and parameters identification of uncertain delayed neural networks, Chaos, vol. 16, 023119, 2006.
- [4] J. Cao, **W. Yu**, Y. Qu, A new complex network model and convergence dynamics for reputation computation in virtual organizations, Physics Letters A, vol. 356, no. 6, pp. 414-425, 2006.
- [3] **W. Yu**, J. Cao, Cryptography based on delayed chaotic neural networks, Physics Letters A, vol. 356, no. 4-5, pp. 333-338, 2006.
- [2] **W. Yu**, J. Cao, Stability and Hopf bifurcation analysis on a four-neuron BAM neural network with time delays, Physics Letters A, vol. 351, no. 1-2, pp. 64-78, 2006.

2005

- [1] **W. Yu**, J. Cao, Hopf bifurcation and stability of periodic solutions for van der Pol equation with time delay, Nonlinear Analysis, vol. 62, no. 1, pp. 141-165, 2005.

Submitted or in Preparation

- [29] **W. Yu**, G. Chen, M. Cao, Consensus in directed networks of agents with nonlinear dynamics, IEEE Trans. Automatic Control, Revised.
- [30] **W. Yu**, J. Lü, Z. Wang, J. Cao, Q. Zhou, Robust H infinite control and uniformly bounded control for genetic regulatory network with stochastic disturbance, IEEE Trans. Neural Networks, Revised.
- [31] **W. Yu**, G. Chen, M. Cao, Some necessary and sufficient conditions for second-order consensus in multi-agent dynamical systems, Automatica, Revised.
- [32] **W. Yu**, G. Chen, J. Lü, On pinning synchronization of general complex dynamical

- networks, IEEE Trans. Circuits and Systems I, Revised.
- [33] **W. Yu**, J. Cao, W. Lu, Synchronization control of switched linearly coupled neural networks with delay, Neurocomputing, Revised.
 - [34] **W. Yu**, G. Chen, J. Cao, Adaptive synchronization of certain and uncertain coupled complex networks, Submitted.
 - [35] **W. Yu**, G. Chen, M. Cao, Flocking algorithms for multi-agent dynamical systems, Submitted.
 - [36] **W. Yu**, G. Chen, M. Cao, J. Lü, Stability analysis of swarming behaviors, Submitted.
 - [37] J. Zhou, **W. Yu**, X. Wu, M. Small, J. Lu, Flocking of multi-agent dynamical systems on pseudo-leader mechanism, Submitted.
 - [38] **W. Yu**, G. Chen, W. Ren, J. Kurths, Distributed consensus and observers protocols in multi-agent dynamical systems: a general form, Submitted.
 - [39] **W. Yu**, P. De Lellis, G. Chen, M. di Bernardo, J. Kurths, Distributed adaptive control of synchronization in complex networks, under preparation.
 - [40] **W. Yu**, G. Chen, M. Cao, W. Ren, Delay-induced consensus in multi-agent dynamical systems, under preparation.

Conference Presentations

- [5] **W. Yu**, G. Chen, M. Cao, Some necessary and sufficient conditions for second-order consensus in multi-agent dynamical systems, The International Conference on Complexity and Interdisciplinary Science, Chengdu China, July, 2009.
- [4] **W. Yu**, G. Chen, M. Cao, Flocking for multi-agent dynamical systems, 2008 the 4th Chinese Conference on Complex Networks, Beijing China, Oct. 2008.
- [3] **W. Yu**, J. Lü, G. Chen, Adaptive filter for unknown genetic regulatory network with disturbance attenuation, The 27th Chinese Control Conference, Kunming China, Jul. 2008.
- [2] **W. Yu**, Communication based on chaos synchronization, The Second PhD Student Workshop, Suzhou China, Mar. 2008.
- [1] **W. Yu**, J. Cao, Adaptive synchronization of complex networks, The fourth Regional Inter-University Postgraduate Electrical and Electronics Engineering Conference, Macau China, 2006.

Graduate Thesis (Master Degree)

Dynamics in Complex Networks and their Applications, Dec. 2006.

Professional Activities

Referee for Journals

IEEE Transactions on Automatic Control (Editors: Maria Prandini, Jifeng Zhang)
IEEE Transactions on Circuits and Systems I (Editors: Guanrong Chen, Jose Pineda de Gyvez, Chai Wah Wu)
IEEE Transactions on Circuits and Systems II (Editor: Jinhu Lü)
IEEE Transactions on Neural Networks (Editors: Jinde Cao, Jun Wang, Zidong Wang, Hujun Yin)
IEEE Transactions on Systems, Man, and Cybernetics, Part B (Editors: Sanqing Hu, Chih-Min Lin, Jun Wang, Xizhao Wang, Xiaoqin Zeng, Qiangfu Zhao)

Applied Mathematics and Computation (Editor: Melvin Scott)
Asian Journal of Control (Editor: Daniel W.C. Ho)
Automatica (Editor: Derong Liu, Andrey V. Savkin)
Chaos (Editor: Janis Bennett)
International Journal of Bifurcation and Chaos (Editor: Guanrong Chen)
Journal of the Franklin Institute (Editors: Jinde Cao, Jason S.H. Tsai)
Journal of Systems Science and Complexity (Editor: Jinhua Lü)
Mathematical Problems in Engineering (Editor: Tamas Kalmar-Nagy)
Mathematics and Computers in Simulation (Editors: Jinde Cao, João Miguel de Costa Sousa)
Neural Networks (Editor: Zidong Wang)
Neural Processing Letters (Editor: Barbara Hammer)
Neurocomputing (Editor: Jinde Cao, Haijun Jiang, Jinling Liang, Wenlian Lu, Dipti Srinivasan, Zidong Wang, Huaguang Zhang)
Physica A (Editor: H. Eugene Stanley)
Physica D (Editor: Stephen Coombes)
Physics Letters A (Editor: A. R. Bishop)
Systems & Control Letters (Editor: Wei Ren)
Circuits, System, and Signal Processing
Nonlinear Analysis: Modelling and Control

Referee for Conferences

1st IFAC Workshop on Estimation and Control of Networked Systems (NecSys2009)
The 49th IEEE Conference on Decision and Control (CDC2009)
IEEE Multi-conference on Systems and Control (MSC2009)
The 6th International Symposium on Neural Networks (ISNN2009)
American Control Conference (ACC2009)
IEEE International Symposium on Circuits and Systems (ISCAS 2008)
IEEE World Congress on Computational Intelligence (WCCI2008)
International Joint Conference on Neural Networks (IJCNN2008)
The 5th International Symposium on Neural Networks (ISNN2008): Program Committee Member
The 27th Chinese Control Conference (CCC2008)
The 48th IEEE Conference on Decision and Control (CDC2008)
International Conference on Communications, Circuits and Systems (ICCCAS2007)
International Conference on Intelligent Computing (ICIC2007)
The 4th International Symposium on Neural Networks (ISNN2007)
International Conference on Communications, Circuits and Systems (ICCCAS2006)
International Conference on Intelligent Computing (ICIC2006)
The 13th International Conference on Neural Information Processing (ICONIP2006)

Collaborators

Jinde Cao, Department of Mathematics, Southeast University, Nanjing 210096, China
Ming Cao, Department of Mechanical & Aerospace Engineering, Princeton University, Princeton, NJ 08544, USA
Guanrong Chen, Department of Electronic Engineering, City University of Hong Kong,

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Wei Ren, Department of Electrical & Computer Engineering, Utah State University,
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Chongqing 400044, China
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Kun Yuan, Research Institute of Automation, Southeast University, Nanjing 210096,
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Jin Zhou, College of Mathematics and Statistics, Wuhan University, Wuhan 430072,
China
Qianhe Zhou, Department of Biological Sciences, Columbia University, New York, NY

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Honors and Award

- 2009—2010 Research Tuition Scholarship
Postgraduate Studentship
- 2008—2009 German Academic Exchange Scholarship (DAAD)
Research Tuition Scholarship
Postgraduate Studentship
Best Master Degree Thesis in Jiangsu Province
- 2007—2008 Excellent graduate Thesis.
- 2006—2007 University Innovation Award.
First Prize of Excellency Scholarship for Graduates.
- 2004—2005 First Prize in National Postgraduates Mathematical Contest in
Modeling.
First Prize of Excellency Scholarship for Graduates.
- 2003—2004 Excellent Undergraduate Thesis.
Excellent Undergraduate Student.
Eligible for the Graduate Program in Southeast University, free of
admission test.
- 2002—2003 “Ni-Li” Scholarship.
- 2001—2002 Commercial Bank Scholarship.
- 2000—2004 More than 10 Curriculum Scholarships.