Ling-Yun Wu

Curriculum Vitae

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PROFILE

Ling-Yun Wu is professor at the Academy of Mathematics and Systems Science (AMSS), Chinese Academy of Sciences (CAS). He is the director of Bioinformatics Center of AMSS, and the member of Executive Council of Operations Research Society of China. He received his Ph.D. degree in Operations Research and Cybernetics from AMSS of CAS in 2002. He had taken the postdoctoral position at the Hong Kong University of Science and Technology and Weill Medical College of Cornell University. His current interest is in operations research and information science, especially the application of OR in bioinformatics, logistics and financial technology. His main research works include DNA sequencing algorithms, protein structure alignment algorithms, molecular biological networks alignment algorithms, biomarker identification methods, algorithms for autonomous unmanned warehouse, high-performance blockchain technology. In 2014, he received the Youth OR Award from Operations Research Society of China.

PERSONAL DATA

Name:	Ling-Yun Wu
Citizenship:	People's Republic of China
Birth Date and Place:	November 8, 1975, Fujian, China
Gender:	Male
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EDUCATION

1997 – 2002	Academy of Mathematics and Systems Science, CAS Ph.D. Operational Research Supervisor: Prof. Xiang-Sun Zhang
1993 – 1997	Wuhan University, China B.S. Applied Mathematics

PRESENT POSITIONS

2015 – present	Professor Academy of Mathematics and Systems Science, CAS
2016 – present	Director Bioinformatics Center, Academy of Mathematics and Systems Science, CAS

EXPERIENCE

2002 – 2003	Research Associate (Postdoctoral) Department of Industrial Engineering & Engineering Management, Hong Kong University of Science and Technology
2003 – 2005	Postdoctoral Fellow Academy of Mathematics and Systems Science, CAS
2005 – 2007	Assistant Professor Academy of Mathematics and Systems Science, CAS
2006	Visiting Scholar School of Mathematical Sciences, Fudan University
2007	Visiting Scholar Department of Mathematics, Chinese University of Hong Kong
2008 – 2009	Postdoctoral Fellow The Methodist Hospital Research Institute, Weill Medical College of Cornell University
2007 – 2015	Associate Professor Academy of Mathematics and Systems Science, CAS
2007 – 2012	Deputy Director Department of Operations Research, Institute of Applied Mathematics, Academy of Mathematics and Systems Science, CAS
2012 – 2017	Director Department of Operations Research, Institute of Applied Mathematics, Academy of Mathematics and Systems Science, CAS
2017 – 2022	Assistant Director Institute of Applied Mathematics, Academy of Mathematics and Systems Science, CAS

QUALIFICATIONS

TOEFL	600 (57 63 60) TWE 4.0 (Oct. 2001)
Software Engineer	Rank Certificate of Computer Software, 1996 Approved and issued by State Council Office of Promotion and Application of Electronics and Information Systems.

AWARDS

2007	Top 10 Research Advances, AMSS, CAS
2007	Research Award, K. C. Wong Education Foundation
2008	Top 10 Outstanding Scientific Research Achievement, AMSS, CAS
2014	The Youth OR Award, Operations Research Society of China

SOCIETY MEMBERSHIP

2012 – present	Operations Research Society of China (ORSC), Member of Council
2016 – present	Operations Research Society of China (ORSC), Member of Executive Council
2020 – present	Operations Research Society of China (ORSC), Executive Vice Secretary-General
2019 – present	China Society for Industrial and Applied Mathematics (CSIAM), Vice Secretary-General
2020 – present	Beijing Operations Research Society, Vice President
2019 – present	China Society for Industrial and Applied Mathematics, Active Group on Blockchain, Member
2017 – present	Chinese Society of Biochemistry and Molecular Biology, Systems Biology Division, Member
2018 – present	China Medicinal Biotechnology Association, Society of Gene Technologies, Member
2006 – present	China Simulation Federation, Life System Modeling and Simulation Technical Committee, Member
2011 – 2020	Operations Research Society of China, Computational Systems Biology Society, Vice President

EDITORIAL BOARD

2010 – present	Operations Research and Management Science
2016 – present	Scientific Reports

JOURNAL REFEREE

- Advances in Bioinformatics
- American Journal of Operations Research
- Annals of Biomedical Engineering
- Applied Mathematical Modelling

- Bioinformatics

- BMC Bioinformatics

- BMC Systems Biology

- Chinese Journal of Cancer

- Discrete Optimization

- European Journal of Operational Research

- Frontiers in Genetics

- IEEE Transactions on Circuits and Systems I

- IET Systems Biology

- Information Sciences

- Journal of Global Optimization

- Journal of Molecular Cell Biology

- Journal of Systems Science and Complexity

- Journal of Theoretical Biology

- Neural Processing Letters

- Neurocomputing

- Oncotarget

- Proceedings of the IEEE

- Quantitative Biology

- Soft Computing

RESEARCH INTERESTS

- Bioinformatics

- Systems Biology

- Combinatorial Optimization

- Artificial Neural Networks

- Application of Operations Research

PROJECTS

1999 – 2002	Important Mathematical Problems in Bioinformatics Supported by Academy of Mathematics and Systems Science, CAS.
1999 – 2002	Applications of Neural Networks in Optimization Supported by Academy of Mathematics and Systems Science, CAS.
2001	Evaluation of the Education Level of Middle Schools in Kunming This work is a graduate student research project supported by CAS.
2002 – 2003	Decision Support Tools for Intelligent Multi-modal Transportation Logistics Management Systems This is a research project by Department of Industrial Engineering & Engineering Management, Hong Kong University of Science and Technology, and supported by Hong Kong Innovation Technology Fund.
2004 – 2005	Strategic Planning of the Electrical Government of China Sponsored by State Council Informatization Office.
2007 – 2008	Research on Tax Revenue Prediction Methods Supported by Department of Planning and Statistics, State Administration of Taxation.
2009 – 2010	Research on Data Mining and Modeling for Industrial Safety Supported by Beijing Municipal Institute of Labour Protection.
2009 – 2010	Research on Multiple Department Coordinated Decision Model for Urban Public Facility Emergency Management Supported by Beijing Research Center of Urban System Engineering.
2017 – 2019	Research on High Performance Blockchain Network Technology Supported by Beijing Tai Cloud Corporation.

2017 – 2018	Optimal slotting and order picking strategy for autonomous unmanned warehouse Supported by JD.com.
2019 – 2020	Research on Safety Accident Chain Analysis Models Supported by Beijing Municipal Institute of Labour Protection.
2019 – 2021	Research on Optimization Modeling and Algorithms for Order Batching Problem in AGV Warehouse System Supported by Beijing Intelligent Logistics System Collaborative Innovation Center.
2022 – 2026	Non-Oil Supply Chain Integrated Operation Optimization System Development Supported by CNPC Kunlun Digital Technology Co. Ltd.

GRANTS

2004 – 2005	Research on the Algorithm of DNA Sequencing Principal Investigator, Research Grant, No. 20040350428 National Postdoctoral Foundation of China
2004 – 2006	Modeling and Optimization of Supply Chain Design and Management Joint Investigator, Youth Research Grant, No. 70302003 National Natural Science Foundation of China (NSFC)
2005 – 2007	Research on Several Difficult Bioinformatics Problems by Using OR Methodologies Joint Investigator, Research Grant, No. 10471141 National Natural Science Foundation of China (NSFC)
2005 – 2008	Some Important Problem in Bioinformatics Joint Investigator, Important Direction Research Grant Chinese Academy of Sciences (CAS)
2006 – 2008	Research on Models and Algorithms of Haplotype Inference Problem in Bioinformatics Principal Investigator, Youth Research Grant, No. 60503004 National Natural Science Foundation of China (NSFC)
2007 – 2009	Protein Function Annotation and Prediction Based on Three Dimensional Structural and High Throughput Experimental Data Joint Investigator, International Cooperation Research Grant, No. 10711140116 National Natural Science Foundation of China (NSFC)

2007 – 2010	Bioinformatics and Optimization Joint Investigator, Key Research Grant, No. 10631070 National Natural Science Foundation of China (NSFC)
2007 – 2011	Function of molecular network of type 2 diabetes progression Joint Investigator, Sub Program, No. 2006CB503910 Mechanism of Type 2 Diabetes Progression 973 Program, No. 2006CB503900 Ministry of Science and Technology of China
2008	Single nucleotide polymorphism (SNP) array data analysis method Principal Investigator, Research Award K. C. Wong Education Foundation, Hong Kong
2009 – 2012	Research on the applications of optimization methods in information technology Joint Investigator, Important Direction Research Grant, No. kjcx-yw-s7 Chinese Academy of Sciences (CAS)
2010 – 2012	Bioinformatics methods based on conditional random fields Principal Investigator, Research Grant, No. 60970091 National Natural Science Foundation of China (NSFC)
2012 – 2016	Optimization in Complex Networks and Its Applications in Systems Biology Joint Investigator, Key Research Grant, No. 11131009 National Natural Science Foundation of China (NSFC)
2014 – 2016	Modeling and Algorithms for Identifying Dynamic Network Biomarkers Principal Investigator, Research Grant, No. 91330114 National Natural Science Foundation of China (NSFC)
2017 – 2021	Research on Graph Theory and Algorithms with Their Applications in Bioinformatics Joint Investigator, Key Research Grant, No. 11631014 National Natural Science Foundation of China (NSFC)
2017 – 2019	Optimization Modeling and Algorithms for Deep Analyses of Cancer Genomics Data Joint Investigator, International Cooperation Research Grant, No. 11661141019 National Natural Science Foundation of China (NSFC)
2018 – 2019	Computational Modeling for Stem Cell Regeneration with Application to Cancer Development Dynamics Joint Investigator, Key Research Grant, No. 91730301 National Natural Science Foundation of China (NSFC)

2020 – 2025	Graph Models and Algorithms for Cancer Regulatory Network Construction and Pathway Analysis Principal Investigator, Sub Program, No. 2020YFA0712402 Research on Mathematical Models and Algorithms in Precision Medicine for Breast Cancer National Key Research and Development Program of China, No. 2020YFA0712400 Ministry of Science and Technology of China
2022 – 2026	Game Theory in Blockchain and Digital Currency Joint Investigator, Major Research Grant Project, No. 72192801 Game Theory Foundations of Digital Economics Major Research Grant, No. 72192800 National Natural Science Foundation of China (NSFC)
2023 – 2027	Graph Network Theory and Algorithms with Their Applications in Biological and Medical Problems Joint Investigator, Key Research Grant, No. 12231018 National Natural Science Foundation of China (NSFC)
2023 – 2027	Cross-Scale Causal Regulation Network Modeling Joint Investigator, Sub Program, No. 2022YFA1004803 Multi-Scale Causal Theory and Applications in Precision Medicine National Key Research and Development Program of China, No. 2022YFA1004800 Ministry of Science and Technology of China

BOOKS

1. Chinese Version of the 50th Anniversary Issue of *Operations Research*
   Edited by Xiang-Sun Zhang, De-Gang Liu, Jing Zhang, Ling-Yun Wu, and Yong Wang.
   Special Issue of *Operations Research and Management Science*, Vol. 13, 2004. (in Chinese)

2. Credit Portfolio Management (Chinese Edition)
   Charles Simithson. Translated by Ji-Hong Zhang, De-Sheng Chen, Ling-Yun Wu, and
   Liang-Feng Chang. China Remin University Press, Beijing, 2006. (in Chinese)

PROCEEDINGS

3. Operations Research and Its Applications, *Lecture Notes in Operations Research 5*
   Edited by Xiang-Sun Zhang, De-Gang Liu, and Ling-Yun Wu. Proceedings of the Fifth
   International Symposium of Operations Research and Its Applications, Tibet, China,
   8–13 August, 2005. World Publishing Corporation, Beijing, 2005.

4. Proceedings of the 8th National Conference of Operations Research Society of China
   Edited by Ya-Xiang Yuan, Xiao-Dong Hu, De-Gang Liu, and Ling-Yun Wu. Global-Link
   Publishing Company, Hong Kong, 2006. (in Chinese)

5. Operations Research and Its Applications, *Lecture Notes in Operations Research 6*
   Edited by Xiang-Sun Zhang, De-Gang Liu, and Ling-Yun Wu. Proceedings of the Sixth
   International Symposium of Operations Research and Its Applications, Xinjiang, China,
   8–12 August, 2006. World Publishing Corporation, Beijing, 2006.

6. Optimization and Systems Biology, *Lecture Notes in Operations Research 7*
   Edited by Xiang-Sun Zhang, Luonan Chen, Ling-Yun Wu, and Yong Wang. Proceedings
   of the First International Symposium of Optimization and Systems Biology, Beijing,
   China, 8–10 August, 2007. World Publishing Corporation, Beijing, 2007.

7. Optimization and Systems Biology, *Lecture Notes in Operations Research 9*
   Edited by Xiang-Sun Zhang, Luonan Chen, Ling-Yun Wu, and Yong Wang. Proceedings
   of the Second International Symposium of Optimization and Systems Biology, Lijiang,
   China, 31 October–3 November, 2008. World Publishing Corporation, Beijing, 2008.

8. Optimization and Systems Biology, *Lecture Notes in Operations Research 11*
   Edited by Luonan Chen, Xiang-Sun Zhang, Ling-Yun Wu, and Yong Wang. Proceedings
   of the Third International Symposium of Optimization and Systems Biology, Zhangjiajie,
   China, 20–22 September, 2009. World Publishing Corporation, Beijing, 2009.

9. Operations Research and Its Applications, *Lecture Notes in Operations Research 12*
   Edited by Xiang-Sun Zhang, De-Gang Liu, Ling-Yun Wu, and Yong Wang. Proceedings
   of the Ninth International Symposium of Operations Research and Its Applications,

Chengdu-Jiuzhaigou, China, 19–23 August, 2010. World Publishing Corporation, Beijing, 2010.

10. Optimization and Systems Biology, *Lecture Notes in Operations Research 13*
    Edited by Luonan Chen, Xiang-Sun Zhang, Bairong Shen, Ling-Yun Wu, and Yong Wang. Proceedings of the Fourth International Conference on Computational Systems Biology, Suzhou, China, 9–11 September, 2010. World Publishing Corporation, Beijing, 2010.

11. Proceedings of the 10th National Conference of Operations Research Society of China
    Edited by Ya-Xiang Yuan, Xiao-Dong Hu, Ling-Yun Wu, and De-Gang Liu. Global-Link Publishing Company, Hong Kong, 2010. (in Chinese)

12. Operations Research and Its Applications, *Lecture Notes in Operations Research 14*
    Edited by Xiang-Sun Zhang, De-Gang Liu, Ling-Yun Wu, and Yong Wang. Proceedings of the Tenth International Symposium of Operations Research and Its Applications, Dunhuang, China, 28–31 August, 2011. World Publishing Corporation, Beijing, 2011.

13. Proceedings of 2011 IEEE International Conference on Systems Biology
    Edited by Luonan Chen, Xiang-Sun Zhang, Ling-Yun Wu, and Yong Wang. Zhuhai, China, 2–4 September, 2011. IEEE, 2011.

14. Proceedings of 2012 IEEE International Conference on Systems Biology
    Edited by Luonan Chen, Xiang-Sun Zhang, Ling-Yun Wu, and Yong Wang. Xi'an, China, 18–20 August, 2012. IEEE, 2012.

15. Proceedings of 2013 International Conference on Systems Biology
    Edited by Luonan Chen, Xiang-Sun Zhang, Ling-Yun Wu, and Yong Wang. Huangshan, China, 23–25 August, 2013. IEEE, 2013.

16. Proceedings of 2013 International Symposium of Operations Research and Its Applications
    Edited by Xiang-Sun Zhang, De-Gang Liu, Ling-Yun Wu, and Yong Wang. Huangshan, China, 23–25 August, 2013. IET, 2013.

17. Proceedings of 2014 International Conference on Systems Biology
    Edited by Luonan Chen, Xiang-Sun Zhang, Ling-Yun Wu, and Yong Wang. Qingdao, China, 24–27 October, 2014. IEEE, 2014.

CHAPTERS

18. Computational Imaging and Modeling for System Biology
    Ling-Yun Wu, Xiaobo Zhou, and Stephen T. C. Wong. Chapter 17 in *Elements of Computational Systems Biology*, Huma M. Lodhi and Stephen H. Muggleton (Editors). John Wiley & Sons, March, 2010.

19. Haplotype Inference Models and Algorithms
    <u>Ling-Yun Wu</u>. Chapter 36 in *Algorithms in Computational Molecular Biology: Techniques, Approaches and Applications*, Mourad Elloumi and Albert Y. Zomaya (Editors). John Wiley & Sons, Febuary, 2011.

20. Performing Network Alignments with R
    Qiang Huang and <u>Ling-Yun Wu</u>. Chapter 7 in *Computational Network Analysis with R: Applications in Biology, Medicine and Chemistry*, Matthias Dehmer, Yongtang Shi, and Frank Emmert-Streib (Editors). John Wiley & Sons, October, 2016.

REFEREED JOURNAL ARTICLES

1. Xiang-Sun Zhang, Ji-Hong Zhang, and <u>Ling-Yun Wu</u>. Combinatorial optimization problems in the positional DNA sequencing by hybridization and its algorithms. *Journal of Systems Science and Mathematical Science*, 22(3):258–269, 2002. (in Chinese)

2. Ji-Hong Zhang, <u>Ling-Yun Wu</u>, and Xiang-Sun Zhang. Reconstruction of DNA sequencing by hybridization. *Bioinformatics*, 19(1):14–21, 2003.

3. Rui-Sheng Wang, <u>Ling-Yun Wu</u>, Ji-Hong Zhang, and Xiang-Sun Zhang. Algorithms for the SNP haplotype assembly problem. *Applied Mathematics A Journal of Chinese Universities (Series A)*, 19(S):515–528, 2004.

4. Xiang-Sun Zhang, Yong Wang, Zhong-Wei Zhan, <u>Ling-Yun Wu</u>, and Luonan Chen. Exploring protein's optimal HP configurations by self-organizing mapping. *Journal of Bioinformatics and Computational Biology*, 3(2):385–400, 2005.

5. Rui-Sheng Wang, <u>Ling-Yun Wu</u>, Zhen-Ping Li, and Xiang-Sun Zhang. Haplotype reconstruction from SNP fragments by minimum error correction. *Bioinformatics*, 21(10):2456–2462, 2005.

6. Yu-Ying Zhao, <u>Ling-Yun Wu</u>, Ji-Hong Zhang, Rui-Sheng Wang, and Xiang-Sun Zhang. Haplotype assembly from aligned weighted SNP fragments. *Computational Biology and Chemistry*, 29(4):281–287, 2005.

7. Ji-Hong Zhang, <u>Ling-Yun Wu</u>, and Xiang-Sun Zhang. A reconstruction algorithm to DNA sequencing by hybridization with target DNA length error. *Acta Mathematicae Applicatae Sinica*, 28(3):385–395, 2005. (in Chinese)

8. Yong Wang, Zhong-Wei Zhan, <u>Ling-Yun Wu</u>, and Xiang-Sun Zhang. An improved self-organizing map algorithm for protein folding and its realization. *Journal of Systems Science and Mathematical Science*, 25(5):562–573, 2005. (in Chinese)

9. Luonan Chen, <u>Ling-Yun Wu</u>, Ruiqi Wang, Yong Wang, Shi-Hua Zhang, and Xiang-Sun Zhang. Comparison of protein structures by multi-objective optimization. *Genome Informatics*, 16(2):114–124, 2005.

10. <u>Ling-Yun Wu</u>, Xiang-Sun Zhang and Ju-Liang Zhang. Capacitated facility location problem with general setup cost. *Computers & Operations Research*, 33(5):1226–1241, 2006.

11. Xiang-Sun Zhang, Rui-Sheng Wang, <u>Ling-Yun Wu</u> and Luonan Chen. Models and algorithms for the haplotyping problem. *Current Bioinformatics*, 1(1):105–114, 2006.

12. Yong Wang, <u>Ling-Yun Wu</u>, Xiang-Sun Zhang and Luonan Chen. Exploring the classification of protein structures on geometric patterns by neural networks. *International Journal of Computational Intelligence Research*, 2(1):105–109, 2006.

13. Luonan Chen, <u>Ling-Yun Wu</u>, Yong Wang and Xiang-Sun Zhang. Inferring protein interactions from experimental data by association probabilistic method. *Proteins: Structure, Function, and Bioinformatics*, 62:833–837, 2006.

14. Luonan Chen, <u>Ling-Yun Wu</u>, Yong Wang, Shi-Hua Zhang and Xiang-Sun Zhang. Revealing divergent evolution, identifying circular permutations and detecting active-sites by protein structure comparison. *BMC Structural Biology*, 6:18, 2006.

15. Zhong-Wei Zhan, Yong Wang, <u>Ling-Yun Wu</u> and Xiang-Sun Zhang. A DEA evaluation model of the official province websites. *Operations Research and Management Science*, 15(4):97–102, 2006. (in Chinese)

16. Xiang-Sun Zhang, Rui-Sheng Wang, <u>Ling-Yun Wu</u> and Wei Zhang. Minimum conflict individual haplotyping from SNP fragments and related genotype. *Evolutionary Bioinformatics Online*, 2:271–280, 2006.

17. Zhen-Ping Li, <u>Ling-Yun Wu</u>, Yu-Ying Zhao and Xiang-Sun Zhang. A dynamic programming algorithm for the k-haplotyping problem. *Acta Mathematicae Applicatae Sinica (English Series)*, 22(3):405–412, 2006.

18. Rui-Sheng Wang, <u>Ling-Yun Wu</u>, Xiang-Sun Zhang and Luonan Chen. A Markov chain model for haplotype assembly from SNP fragments. *Genome Informatics*, 17(2):162–171, 2006.

19. Yong Wang, <u>Ling-Yun Wu</u>, Luonan Chen and Xiang-Sun Zhang. Supervised classification of protein structures based on convex hull representation. *International Journal of Bioinformatics Research and Applications*, 3(2):123–144, 2007.

20. Ji-Hong Zhang, <u>Ling-Yun Wu</u>, Yu-Ying Zhao and Xiang-Sun Zhang. An optimization approach to the reconstruction of positional DNA sequencing by hybridization with errors. *European Journal of Operational Research*, 182(1):413–427, 2007.

21. Rui-Sheng Wang, Yong Wang, <u>Ling-Yun Wu</u>, Xiang-Sun Zhang, and Luonan Chen. Analysis on multi-domain cooperation for predicting protein-protein interactions. *BMC Bioinformatics*, 8:391, 2007.

22. Ju-Liang Zhang, <u>Ling-Yun Wu</u> and Xiang-Sun Zhang. A trust region method for optimization problem with singular solutions. *Applied Mathematics and Optimization*, 56(3):379–394, 2007.

23. Zhi-Ping Liu, <u>Ling-Yun Wu</u>, Yong Wang, Luonan Chen, and Xiang-Sun Zhang. Predicting gene ontology functions from protein's regional surface structures. *BMC Bioinformatics*, 8:475, 2007.

24. Ruxin Qin, Jing Chen, Naiyang Deng, and <u>Ling-Yun Wu</u>. New strategy for predicting protein structural class. *Journal of Harbin Institute of Technology (New Series)*, 14(S2):1–4, 2007.

25. Zhi-Ping Liu, Ling-Yun Wu, Yong Wang, Xiang-Sun Zhang, and Luonan Chen. Analysis of protein surface patterns by pocket similarity network. *Protein and Peptide Letters*, 15(5):448–455, 2008.

26. Zhi-Ping Liu, Ling-Yun Wu, Yong Wang, Xiang-Sun Zhang, and Luonan Chen. Bridging protein local structures and protein functions. *Amino Acids*, 35(3):627–650, 2008.

27. Ji-Hong Zhang, Ling-Yun Wu, Jian Chen, and Xiang-Sun Zhang. A fast haplotype inference method for large population genotype data. *Computational Statistics and Data Analysis*, 52(11):4891–4902, 2008.

28. Zhi-Ping Liu, Ling-Yun Wu, Yong Wang, Luonan Chen, and Xiang-Sun Zhang. Protein cavity clustering based on community structure of pocket similarity network. *International Journal of Bioinformatics Research and Applications*, 4(4):445–460, 2008.

29. Shu-Qin Zhang, Wai-Ki Ching, Yue Jiao, Ling-Yun Wu, and Raymond H. Chan. Construction and control of genetic regulatory networks: A multivariate Markov chain approach. *Journal of Biomedical Science and Engineering*, 1:15–21, 2008.

30. Ling-Yun Wu, Xiaobo Zhou, Fuhai Li, Xiaorong Yang, Chung-Che Chang, and Stephen T.C. Wong. Conditional random pattern algorithm for LOH inference and segmentation. *Bioinformatics*, 25(1):61–67, 2009.

31. Xiao-Bo Wang, Ling-Yun Wu, Yong-Cui Wang, and Nai-Yang Deng. Prediction of palmitoylation sites using the composition of K-spaced amino acid pairs. *Protein Engineering, Design, and Selection*, 22(11):707–712, 2009.

32. Yong Wang, Ling-Yun Wu, Ji-Hong Zhang, Zhong-Wei Zhan, Xiang-Sun Zhang, and Luonan Chen. Evaluating protein similarity from coarse structures. *IEEE/ACM Transactions on Computational Biology and Bioinformatics*, 6(4):583–593, 2009.

33. Wan-Ting Huang, Xiaorong Yang, Xiaobo Zhou, Federico A. Monzon, Jianguo Wen, Jill M. Hagenkord, Ling-Yun Wu, Carolyn Keever-Taylor, Louis Novoa-Takara, Stephen T.C. Wong, Kenneth Young, and Chung-Che Chang. Multiple distinct clones may coexist in different lineages in myelodysplastic syndromes. *Leukemia Research*, 33(6):847–853, 2009.

34. Ling-Yun Wu, Zhenping Li, Rui-Sheng Wang, Xiang-Sun Zhang, and Luonan Chen. Self-organizing map approaches for the haplotype assembly problem. *Mathematics and Computers in Simulation*, 79(10):3026–3037, 2009.

35. Xiaojian Shao, Yingjie Tian, Lingyun Wu, Yong Wang, and Naiyang Deng. Predicting DNA- and RNA-binding proteins from sequences with kernel methods. *Journal of Theoretical Biology*, 258(2):289–293, 2009.

36. Xiaorong Yang, Xiaobo Zhou, Wan-Ting Huang, Lingyun Wu, Federico A. Monzon, Chung-Che Chang, and Stephen T.C. Wong. Pattern-selection based power analysis and discrimination of low- and high-grade myelodysplastic syndromes study using SNP arrays. *PLoS ONE*, 4(4):e5054, 2009.

37. Zhi-Ping Liu, Ling-Yun Wu, Yong Wang, Xiang-Sun Zhang, and Luonan Chen. Prediction of protein-RNA binding sites by a random forest method with combined features. *Bioinformatics*, 26(13):1616–1622, 2010.

38. Xianwen Ren, Xiaobo Zhou, Ling-Yun Wu, and Xiang-Sun Zhang. An information-flow-based model with dissipation, saturation and direction for active pathway inference, *BMC Systems Biology*, 4:72, 2010.

39. Zheng Xia, Ling-Yun Wu, Xiaobo Zhou, and Stephen TC Wong. Semi-supervised drug-protein interaction prediction from heterogeneous biological spaces. *BMC Systems Biology*, 4(S2):S6, 2010.

40. Lin Wang, Ling-Yun Wu, Yong Wang, Xiang-Sun Zhang, and Luonan Chen. SANA: an algorithm for sequential and non-sequential protein structure alignment. *Amino Acids*, 39(2):417–425, 2010.

41. Xing Chen, Yong Wang, Ling-Yun Wu, Gui-Ying Yan, and Wei Zhu. Emergency decision model with multiple stages, multiple objectives, and multidivisional cooperation. *Systems Engineering - Theory & Practice*, 30(11):1977–1985, 2010. (in Chinese)

42. Yan Xu, Xiao-Bo Wang, Jun Ding, Ling-Yun Wu, and Naiyang Deng. Lysine acetylation sites prediction using an ensemble of support vector machine classifiers. *Journal of Theoretical Biology*, 264(1):130–135, 2010.

43. Jiguang Wang, Qiang Huang, Zhi-Ping Liu, Yong Wang, Ling-Yun Wu, Luonan Chen, and Xiang-Sun Zhang. NOA: a novel network ontology analysis method. *Nucleic Acids Research*, 39(13):e87, 2011.

44. Qiang Huang, Ling-Yun Wu, and Xiang-Sun Zhang. An efficient network querying method based on conditional random fields. *Bioinformatics*, 27(22):3173–3178, 2011.

45. Hui-Jia Li, Yong Wang, Ling-Yun Wu, Junhua Zhang, and Xiang-Sun Zhang. Potts model based on a Markov process computation solves the community structure problem effectively. *Physical Review E*, 86:016109, 2012.

46. Hui-Jia Li, Yong Wang, Ling-Yun Wu, Zhi-Ping Liu, Luonan Chen, and Xiang-Sun Zhang. Community structure detection based on Potts model and network's spectral characterization. *Europhysics Letters*, 97:48005, 2012.

47. Yong Wang, Qiao-Feng Wu, Chen Chen, and Ling-Yun Wu, Xian-Zhong Yan, Shu-Guang Yu, Xiang-Sun Zhang, and Fan-Rong Liang. Revealing metabolite biomarkers for acupuncture treatment by linear programming based feature selection. *BMC Systems Biology*, 6(S1):S15, 2012.

48. Junfei Zhao, Shihua Zhang, Ling-Yun Wu, and Xiang-Sun Zhang. Efficient methods for identifying mutated driver pathways in cancer. *Bioinformatics*, 28(22):2940–2947, 2012.

49. Yan Xu, Jun Ding, Ling-Yun Wu, and Kuo-Chen Chou. iSNO-PseAAC: Predict cysteine s-nitrosylation sites in proteins by incorporating position specific amino acid propensity into pseudo amino acid composition. *PLoS ONE*, 8(2):e55844, 2013.

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51. Qiang Huang, <u>Ling-Yun Wu</u>, and Xiang-Sun Zhang. Corbi: A new R package for biological network alignment and querying. *BMC Systems Biology*, 7(Suppl 2):S6, 2013.

52. Yan Xu, Xiao-Jian Shao, <u>Ling-Yun Wu</u>, Nai-Yang Deng and Kuo-Chen Chou. iSNO-AAPair: incorporating amino acid pairwise coupling into PseAAC for predicting cysteine S-nitrosylation sites in proteins. *PeerJ*, 1:e171, 2013.

53. Peter Csermely, András London, <u>Ling-Yun Wu</u>, and Brian Uzzi. Structure and dynamics of core/periphery networks. *Journal of Complex Networks*, 1:93–123, 2013.

54. Yan Xu, Xiaobo Wang, Yongcui Wang, Yingjie Tian, Xiaojian Shao, <u>Ling-Yun Wu</u>, and Naiyang Deng. Prediction of posttranslational modification sites from amino acid sequences with kernel methods. *Journal of Theoretical Biology*, 344:78–87, 2014.

55. Yan Xu, Xin Wen, Li-Shu Wen, <u>Ling-Yun Wu</u>, Nai-Yang Deng, and Kuo-Chen Chou. iNitro-Tyr: Prediction of nitrotyrosine sites in proteins with general pseudo amino acid composition, *PLoS ONE*, 9(8):e105018, 2014.

56. Junhua Zhang, <u>Ling-Yun Wu</u>, Xiang-Sun Zhang, and Shihua Zhang. Discovery of co-occurring driver pathways in cancer, *BMC Bioinformatics*, 15:271, 2014.

57. Peter Csermely, János Hódsági, Tamás Korcsmáros, Dezső Módos, Áron R. Perez-Lopez, Kristóf Szalay, Dániel V. Veres, Katalin Lenti, <u>Ling-Yun Wu</u>, and Xiang-Sun Zhang. Cancer stem cells display extremely large evolvability: alternating plastic and rigid networks as a potential mechanism. *Seminars in Cancer Biology*, 30:42–51, 2015.

58. Yan Xu, Ya-Xin Ding, Jun Ding, Ya-Hui Lei, <u>Ling-Yun Wu</u>, and Nai-Yang Deng. iSuc-PseAAC: predicting lysine succinylation in proteins by incorporating peptide position-specific propensity. *Scientific Reports*, 5:10184, 2015.

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