

# Curriculum Vitae

Chung-Shou Liao 廖崇碩

Professor

CS Group Convener

Dept. Electrical Engineering, National Taiwan University

Email: [csiao@ntu.edu.tw](mailto:csiao@ntu.edu.tw)

Website: <http://acolab.ie.nthu.edu.tw>

=====

There is nothing more practical than a good theory. (Kurt Lewin,1952)

## Education:

**National Taiwan University**, Taipei, Taiwan 2004 - 2009

Doctor of Philosophy, Computer Science and Information Engineering

## Employment:

**Dept. of Electrical Engineering, National Taiwan University**, Taipei, Taiwan

Professor 2025-present

**Dept. of Industrial Engineering, National Tsing Hua University**, Hsinchu, Taiwan

Distinguished Professor 2024 - 2025

**Dept. of Industrial Engineering, National Tsing Hua University**, Hsinchu, Taiwan

Professor 2018 - 2024

Associate Professor 2014 - 2018

Assistant Professor 2010 - 2014

**Institute of Information Science, Academia Sinica**, Taiwan

Research Assistant & Postdoctoral Fellow 2002 - 2009

## Research Interests:

Combinatorial optimization, dynamic/online algorithms, graph-theoretic algorithms, computational geometry, and smart manufacturing

## Selected Honors and Awards:

1. CIIE Industrial Engineering Medal, 2025
2. CIIE S.-H. Chen Chair Professorship, 2024
3. NSTC Outstanding Research Award, 2023
4. IEET Outstanding Teaching Award, 2021
5. Outstanding Teaching Award, NTHU, 2021
6. Senior Member, ACM and IEEE, 2020

7. Young Scholar Creativity Award, Found. Advancement Outstanding Scholarship, 2018
8. Fulbright Senior Research Scholar Grant, 2018 & 2019
9. Yuan-Ze Hsu Scientific Paper Award, 2017
10. Outstanding Teaching Award, NTHU, 2017
11. Exploration Research Award, Pan Wen Yuan Foundation, 2017
12. NSC Dr. Ta-You Wu Memorial Award, 2016
  - the highest honor for outstanding young scholars in Taiwan
13. Sayling Wen's Award for International Collaborative Research Grants, 2015
14. K.-T. Li Young Researcher Award, IICM (ACM Taiwan), 2014
15. CIIE Outstanding Young Industrial Engineer Award, 2014
16. NSC Outstanding Young Scholar Grants, 2013~2016, 2016~2019
17. Outstanding Teaching Award, College of Engineering, NTHU, 2012 & 2016
18. Sayling Wen's Award for Young Outstanding Researcher in Service Science, 2012
19. Best Doctoral Thesis Award, IICM, 2009.
20. NSC Graduate Students Study Abroad Program, 2007 (NSC-096-2917-I-002-114)
21. Best Master Thesis Award, Workshop on Combinatorial Mathematics, 2001.
22. The 1<sup>st</sup> Rank Student Award, Graduate Institute of Applied Math, NCTU, 2001.

## **Teaching:**

### **[Undergraduate Courses]**

Discrete Math, Algorithms, Data Structures, Operations Research, Programming Design and Applications, Seminar on Innovation and Entrepreneurship

### **[Graduate Courses]**

Combinatorial Optimization, Advanced Algorithms, Seminar on Energy Management

## **Professional Activities:**

### **[Conference Steering Committee]**

International Symposium on Algorithms and Computation (since 2018)

### **[Board Member]**

Asian Association for Algorithms and Computation (since 2017)

Association for Algorithms and Computation Theory, Taiwan (since 2021)

### **[Conference Chair]**

The 36<sup>th</sup> International Symposium on Algorithms and Computation (ISAAC 2025)

### **[Conference Program Chair]**

The 14<sup>th</sup> Annual Meeting, Asian Association for Algorithms and Computation (AAAC 2021)

The 29<sup>th</sup> International Symposium on Algorithms and Computation (ISAAC 2018)

The 9<sup>th</sup> Annual Meeting, Asian Association for Algorithms and Computation (AAAC 2016)

The 16<sup>th</sup> Frontiers in Algorithmics Workshop (FAW 2022)

### **[Secretary General]**

Operations Research Society of Taiwan (2019 to 2021)

Association for Algorithms and Computation Theory, Taiwan (2018 to 2021)

### **[Journal Editorship]**

Associate Editor, International Journal of Foundations of Computer Science (SCI)

Associate Editor, Journal of Combinatorial Optimization (SCI)

Senior Editor, Journal of Industrial and Production Engineering (SCI)

### **[Conference Program Committee]**

Int'l Symposium on Algorithms and Computation (ISAAC 2017, 2018, 2021, 2023, 2026),  
Int'l Workshop on Combinatorial Algorithms (IWCCA 2023), Int'l Computing and  
Combinatorics Conference (COCOON 2021, 2023, 2024, 2025, 2026), Annual Meeting of  
Asian Association for Algorithms & Computation (AAAC 2016-2025), Frontiers in  
Algorithmics Workshop (FAW 2021, 2022, 2024), Int'l Workshop on Computational  
Network Biology (CNB-MAC 2019, 2022), QR2MSE & WCEAM 2016, Int'l Symp. on  
Semiconductor Manufacturing Intelligence (ISMI 2014, 2015), IEEE Int'l Conf. Computer  
Supported Cooperative Work in Design (CSCWD 2014), Int'l Conf. on Information  
Communication Technology (ICT-EurAsia 2013), Int'l Conf. on Computational and Systems  
Biology (ICCSB 2010 to 2012), Int'l Conf. on Contemporary Computing (IC3 2010)

### **[Journal External Reviewer]**

– Algorithmica, Discrete Applied Math., Theoretical Computer Science, Int'l Journal of  
Foundations of Computer Science, Int'l Journal of Computational Geometry & Applications,  
Discrete Math., Inform. Processing Letters, Journal of Combinatorial Optimization, Discrete  
Optimization, Taiwanese Journal of Mathematics, Int'l Journal of Combinatorics;  
– Inform. Journal on Computing, European Journal of Operational Research, Omega,  
Transportation Research Part B: Methodological, Transportation Research Part E, Applied  
Mathematical Modelling, IBM Journal of Research and Development;  
– Bioinformatics, PLOS Computational Biology, BMC Bioinformatics, PLOS ONE, IEEE  
Trans. on Computational Biology and Bioinformatics;  
– IEEE Trans. Knowledge and Data Engineering, IEEE Trans. Industrial Informatics, IEEE  
Trans. Computers, IEEE Trans. Big Data, IEEE Access, IEEE Trans. on Power Systems,  
IEEE Trans. on Power Delivery, IEEE Trans. on Smart Grid;

### **[Visit Experience]**

**Dept. of Computer Science, Bocconi University, Italy**

2023 Summer

Visiting Professor, at Prof. Luca Trevisan's Lab

■ **Online Algorithms with Prediction and Randomness**

**Dept. of CSAIL, Massachusetts Institute of Technology, USA**

2019 Jan-Aug

Fulbright Visiting Professor, at Prof. Bonnie Berger & Erik Demaine's Lab  
 ■ [Online Algorithms and Network Alignment](#)

**Dept. Math Informatics, the University of Tokyo, Tokyo, Japan** 2017 Summer  
 Visiting Associate Professor, at Prof. Kunihiro Sadakane's Lab  
 ■ [Dynamic Algorithms and Data Structure](#)

**ITCSC, Chinese University of Hong Kong,** 2017 Spring  
 Visiting Associate Professor, at Prof. Shengyu Zhang's Lab  
 ■ [Algorithms and Computation](#)

**Dept. IE & OR, University of California, Berkeley, USA** 2016 Summer  
 Visiting Associate Professor, at Prof. Zuo-Jun Max Shen's Lab  
 ■ [Algorithms for Electric Vehicle Routing](#)

**Dept. Applied Math, University of California, San Diego, USA** 2016 Summer  
 Visiting Associate Professor, at Prof. Fan Chung Graham's Lab  
 ■ [Online Routing Algorithms with Randomness](#)

**School of Informatics, Kyoto University, Kyoto, Japan** 2015 Spring  
 Visiting Associate Professor, at Prof. Kazuo Iwama's Lab  
 ■ [Online Routing Algorithms with Randomness](#)

**Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany** 2014 Summer  
 Visiting Associate Professor, at Prof. Dorothea Wagner's Lab  
 ■ [Algorithms for Large-scale Transportation Networks](#)

**University of Lugano (USI), Lugano, Switzerland** 2014 Summer  
 Visiting Associate Professor, at Prof. Evanthia Papadopoulou's Lab  
 ■ [Computational Geometry and Voronoi Diagram with Highways](#)

**National Institute of Informatics (NII), Tokyo, Japan** 2013 Spring  
 Visiting Assistant Professor, at Prof. Kunihiro Sadakane's Lab  
 ■ [Algorithms and Data Structure](#)

**National Info. Comm. Tech. (NICTA), Australia** 2012 Winter  
 Visiting Assistant Professor, at Prof. Fang Chen's Lab  
 ■ [Intelligent Transportation Systems](#)

**Dept. of CSE, La Trobe University, Australia** 2012 Winter  
 Visiting Assistant Professor, at Prof. Phoebe Chen's Lab  
 ■ [Algorithms and Bioinformatics](#)

**School of CS, University of Waterloo, Canada** 2011 Summer  
 Visiting Assistant Professor, at Prof. Ming Li's Lab  
 ■ [Computational Complexity and Bioinformatics](#)

**Dept. of CSAIL, Massachusetts Institute of Technology, USA** 2008 - 2009  
 Visiting Scholar, at Prof. Bonnie Berger's Lab  
 ■ [Systems Biology: Protein Interaction Network Alignment](#)

**Dept. of Math, National University of Singapore, Singapore**

2008 Spring

Visiting Scholar, at Prof. Louxin Zhang's Lab

■ **Bioinformatics: Genomic Sequence Alignment**

**Dept. of ECE, Carnegie Mellon University, USA**

2007 Fall

Visiting Scholar, at Prof. Tsuhan Chen's Lab

■ **Machine Learning: Probabilistic Graphical Model Design and Analysis**

### **[Invited Talks]**

#### **[Overseas]**

**2023-Jul-28.** Dept. Informatics, University of Lugano, Switzerland. *From Online Algorithms to Learning-augmented Online Algorithms*

**2017-May-04.** Institute of Theoretical Computer Science and Communications (ITCSC), Chinese University of Hong Kong. *The Electric Vehicle Touring Problem*

**2016-Jul-25.** Dept. Applied Mathematics, UC San Diego, USA. *Approximating the Canadian Traveller Problem with Randomness*

**2015-May-11.** School of Informatics, Kyoto University, Japan. *Online Route Planning – the Canadian Traveller Problem*

**2014-Jul-22.** Dept. Informatics, University of Lugano, Switzerland. *Online Route Planning – the Canadian Traveller Problem Revisited*

**2014-Jul-15.** Inst. Informatics, Karlsruhe Institute of Technology, Germany. *Online Route Planning – the Canadian Traveller Problem Revisited*

**2013-Feb-13.** School IT, The University of Sydney, Australia. *Global Alignment of Multiple Biological Networks with Applications* (Basser Seminar Series)

**2010-Sep-24.** Dept. Math, National University of Singapore. *Global Alignment of Multiple Protein Networks*

#### **[Domestic]**

**2026-Mar-09.** Dept. IEM, National Yang Ming Chiao Tung University.. *From online algorithms to learning-augmented online algorithms*

**2025-May-09.** 42<sup>nd</sup> Symposium on Combinatorial Mathematics and Computational Theory (CMCT 2025). *General Max-Min Fair Allocation*

**2024-Oct-07.** EDA Seminar, Dept EE, National Taiwan University. *Optimal Routing: Uncertainty, Randomization, Prediction, and Applications*

**2023-May-19.** **Keynote speech**, 40<sup>th</sup> Symp. Combinatorial Mathematics and Computational Theory (CMCT 2023). *From online algorithms to learning-augmented online algorithms*

**2022-Sep-07.** Taiwan Theory Seminar. *Learning-augmented Online Algorithms*

**2022-Sep-02.** Summer School on Operations Research and Algorithms. *From online algorithms to learning-augmented online algorithms*

2021-Dec-15. Dept. Business Administration, National Taiwan University. *General Max-min Fair Allocation*

2021-Sep-04. [Keynote speech](#), 28<sup>th</sup> Symposium for Young Combinatorial Mathematicians. *A Journey Starting from Combinatorial Graph Algorithms*

2020-Dec-21. Dept. IEM, National Chiao Tung University. *Clustering for Unsupervised Learning: from Manufacturing to Diverse Data*

2020-Nov-25. Edge AI Workshop by Gloria. *Clustering for Unsupervised Learning: from Manufacturing to Diverse Data*

2020-Aug-21. National Center for High-performance Computing, *From Network Alignment to Social Network Mining*

2019-Dec-20. Dept. Business Administration, National Taiwan University. *The Electric Vehicle Touring Problem*

2018-Jun-20. National Center for High-performance Computing, *Biological Network Alignment with Applications*

2018-Jun-08. AlgoSeminar, Institute of Statistical Science, Academia Sinica, *Online Route Planning – the Canadian Traveller Problem Revisited*

2018-Apr-09. Dept. EE, National Taiwan University, *The Electric Vehicle Touring Problem*

2018-Feb-05. International Conference on Discrete Math and Its Applications, Institute of Math., Academia Sinica. *The Electric Vehicle Touring Problem*

2017-Oct-02. Dept. Math Sciences, National Chengchi University. *The Electric Vehicle Touring Problem*

2017-Sep-29. Workshop for Forum on Service Science Research, *Online Routing with Applications to EVs*

2017-Jan-13. Annual Forum, Service Science Society of Taiwan. *Discover Valuable Information across Multiple Interaction Networks*

2015-Dec-04. Dept. IEM, Yuan Ze University. *Online Route Planning – the Canadian Traveller Problem*

2015-Dec-02. Dept. IEEM, National Tsing Hua University. *Online Algorithms – An Introduction*

2015-Jun-27. Int’l Conference on Graph Theory and Combinatorics. Dept. Math, National Sun Yat-sen University. *Electric Vehicle Touring*

2015-Jun-10. Dept. CS, National Tsing Hua University. *Online Route Planning - the Canadian Traveller Problem*

2014-Dec-19. NTU INFORMS Seminar, National Taiwan University. *Online Route Planning on Road Networks*

2014-Nov-06. Dept. IM, National Taiwan University of Science and Technology. *Online Route Planning – the Canadian Traveller Problem Revisited*

2014-Oct-22. Inst. IE, National Taiwan University. *Online Route Planning - the Canadian*

### *Traveller Problem Revisited*

2013-Dec-20. Dept. CS, National Chung Hsing University. *Online Route Planning*

2013-Nov-22. Dept. MM, National Taiwan Ocean University. *Online Route Planning*

2013-Apr-29. Inst. LM, National Dong Hwa University. *Online Route Planning*

2012-Jun-15. Dept, CS, National Tsing Hua University. *The Three-dimensional Orthogonal Bin Packing Problem*

2012-Apr-23. Dept. IEM, National Chiao Tung University. *Exploring the Three-dimensional Orthogonal Bin Packing Problem*

2010-Nov-03. Inst. IE, National Taiwan University. *Location Problems in Large-scale Networks with Applications*

2010-Jun-14. Dept. IEM, National Chiao Tung University. *Considering Optimization Problems from a Combinatorial Point of View*

2009-Nov-04. Dept. Math, Fu Jen University. *Power Domination in Graphs*

2009-Sep-29. Dept. Applied Math, National Chiao Tung University. *Power Domination in Circular-arc Graphs*

### **Publication:**

Dr. Liao has published more than 90 international scientific papers in the areas of algorithms, combinatorial optimization, data science, operations research, data mining and systems biology. His research focuses on designing efficient algorithms for solving practical problems with applications to the industry.

### **[International Journal Papers] (\*corresponding author)**

1. Yu-Hsun Lin, Li-Chiao Wang, Yi-Fang Yang and Chung-Shou Liao\*. ASHSniper: Automatic One-shot Hyperparameter Selection for Density Peaks Clustering. IEEE Transactions on Big Data, (2026) Published online, DOI:10.1109/TBDATA.2026.3668657.
2. Hsiao-Yu Hu, Hao-Ting Wei, Meng-Hsi Li, Kai-Min Chung and Chung-Shou Liao\*. Online TSP and Online Dial-a-Ride with Predictions. INFORMS Journal on Computing. Vol. 38(1), (2025), pp.189-206.
3. Zhiwei Shan, Xinping Yi\*, Han Yu, Chung-Shou Liao\* and Shi Jin\*. Revisiting Topological Interference Management: A Learning-to-Code on Graphs Perspective. IEEE Transactions on Communications. Vol. 73(12), (2025), pp. 14275-14288.
4. Zhiwei Shan, Xinping Yi\*, Le Liang, Chung-Shou Liao\* and Shi Jin\*. GRLinQ: A Hybrid Model/Data-Driven Spectrum Sharing Mechanism for Device-to-Device

Communications. IEEE Transactions on Communications. Vol. 73(11), (2025), pp. 11214-11229.

5. Sheng-Yen Ko, Ho-Lin Chen, Siu-Wing Cheng, Wing-Kai Hon, Chung-Shou Liao<sup>\*</sup>. Polynomial-time Combinatorial Algorithm for General Max-Min Fair Allocation, Algorithmica, Vol. 86(2), (2024), pp. 485-504. (This paper wins 2024 Best Journal Paper Award of AACT (Association for Algorithms and Computation Theory, Taiwan).)

6. Chien-Tse Cheng, Yu-Hsun Lin, Chung-Shou Liao<sup>\*</sup>. Seq2CASE:Weakly Supervised Sequence to Commentary Aspect Score Estimation for Recommendation, IEEE Trans. Big Data, Vol. 9(6), (2023), pp.1670-1682.

7. Wing-Kai Hon, Chung-Shou Liao<sup>\*</sup>, Meng-Tsung Tsai. Guest Editors' Foreword, Int. J. Comput. Geom. Appl. Vol. 33(1&2), (2023), pp. 1-2.

8. Jian-Xi Shao, Ya-Chun Liang, Chung-Shou Liao<sup>\*</sup>. Online Predictions for Online TSP on the Line, International Journal of Foundations of Computer Science, Vol. 34(7), (2023), pp.825-851.

9. Kuo-Kai Lee, Wing-Kai Hon, Chung-Shou Liao<sup>\*</sup>, Kunihiro Sadakane, Meng-Tsung Tsai. Fully Dynamic No-Back-Edge-Traversal Forest via 2D-Range Queries, International Journal of Computational Geometry & Applications, Vol. 33, (2023), pp. 43-54.

10. Ming-Hao Tung, Yi-Ping Phoebe Chen, Chen-Yu Liu, Chung-Shou Liao<sup>\*</sup>. A Fast and More Accurate Seed-and-Extension Density-based Clustering Algorithm, IEEE Trans. on Knowledge and Data Engineering, Vol. 35(6), (2023), pp.5458-5471

11. Ya-Chun Liang, Chung-Shou Liao<sup>\*</sup>, Xinping Yi. Topological Interference Management with Adversarial Topology Perturbation: An Algorithmic Perspective, IEEE Transactions on Communications, Vol. 70(12), (2022), pp. 8153-8166.

12. Hao-Ting Wei, Wing-Kai Hon, Paul Horn, Chung-Shou Liao<sup>\*</sup> and Kunihiro Sadakane. Approximating Dynamic Weighted Vertex Cover with Soft Capacities, Algorithmica, Vol. 84, (2022), pp. 124-149. (This paper wins 2022 Best Journal Paper Award of AACT (Association for Algorithms and Computation Theory, Taiwan).)

13. Ya-Chun Liang, Kuan-Yun Lai, Ho-Lin Chen, Kazuo Iwama, Chung-Shou Liao<sup>\*</sup>. Tight Competitive Analyses of Online Car-sharing Problems, Theoretical Computer Science, Vol.

938(26), (2022), pp. 86-96.

14. Xian-Chang Guo, Chung-Shou Liao<sup>\*</sup>, Chia-Chi Chu<sup>\*</sup>. Probabilistic Optimal PMU Placements Under Limited Observability Propagations, IEEE Systems Journal, Vol. 16(1), (2022), pp. 767-776.

15. Erik D. Demaine, Yamming Huang, Chung-Shou Liao<sup>\*</sup> and Kunihiko Sadakane. Approximating the Canadian Traveller Problem with Online Randomization, Algorithmica, Vol. 83(5), (2021), pp. 1524-1543. (This paper wins 2021 Best Journal Paper Award of AACT (Association for Algorithms and Computation Theory, Taiwan).)

16. Cheng-Yu Ma and Chung-Shou Liao<sup>\*</sup>. A Review of Protein–protein Interaction Network Alignment: From Pathway Comparison to Global Alignment, Computational and Structural Biotechnology Journal, Vol. 18, (2020), pp. 2647-2656.

17. Xian-Chang Guo, Chung-Shou Liao, Chia-Chi Chu<sup>\*</sup>, Enhanced Optimal PMU Placements With Limited Observability Propagations, IEEE Access, Vol.8, (2020), pp. 22515-22524.

18. Yi-Hua Yang, Chung-Shou Liao<sup>\*</sup>, Xin Han, Louxin Zhang. Online Buffer Management for Transmitting Packets with Processing Cycles, Theoretical Computer Science, Vol. 723, (2018), pp. 73-83.

19. Cheng-Yu Ma, Yi-Ping Phoebe Chen, Bonnie Berger<sup>\*</sup>, Chung-Shou Liao<sup>\*</sup>. Identification of Protein Complexes by Integrating Multiple Alignment of Protein Interaction Networks, Bioinformatics, Vol. 33(11), (2017), pp. 1681-1688.

20. Chung-Shou Liao, Shang-Hung Lu, and Zuo-Jun Max Shen<sup>\*</sup>. The Electric Vehicle Touring Problem, Transportation Research Part B: Methodological, Vol. 86, (2016), pp. 163-180. (This paper wins 2017 Yuan-Ze Hsu Scientific Paper Award.)

21. Chung-Shou Liao<sup>\*</sup>, Chih-Wei Liang, and Sheung-Hung Poon. Approximation Algorithms on Consistent Dynamic Map Labeling, Theoretical Computer Science, Vol. 640(9), (2016), pp. 84-93.

22. Chung-Shou Liao<sup>\*</sup>. Power domination with bounded time constraints, Journal of Combinatorial Optimization, Vol. 31(2), (2016), pp. 725-742.

23. Chung-Shou Liao<sup>\*</sup>, Tsung-Jung Hsieh, Jian-Hong Liu, Xian-Chang Guo, and Chia-Chi Chu. Hybrid Search for the Optimal PMU Placement Problem on a Power Grid, *European Journal of Operational Research*, Vol. 243(3), (2015), pp. 985-994.
  
24. Chung-Shou Liao<sup>\*</sup>, Hung-Yu Huang and Amy J.C. Trappey. Evaluating the Renewable Energy Industry Using the Hidden Markov Model: A Case Study on Wind Power and Photovoltaic in Taiwan, *International Journal of Electronic Business Management*, Vol. 13, (2015), pp.32-44.
  
25. Po-Jung Huang, Chi-Ching Lee, Bertrand Chin-Ming Tan, Yuan-Ming Yeh, Kuo-Yang Huang, Ruei-Chi Gan, Ting-Wen Chen, Cheng-Yang Lee, Sheng-Ting Yang, Chung-Shou Liao, Hsuan Liu, and Petrus Tang<sup>\*</sup>. Vanno: A Visualization-aided Variant Annotation Tool, *Human Mutation*, 36(2), (2015), pp. 167-174. (This is joint work with Chang Gung hospital.)
  
26. Chung-Shou Liao<sup>\*</sup> and Yamming Huang. Generalized Canadian Traveller Problems, *Journal of Combinatorial Optimization*, Vol. 29(4), (2015), pp.701-712.
  
27. Chung-Shou Liao<sup>\*</sup>, Tsung-Jung Hsieh, Yu-Syuan Huang and Chen-Fu Chien. Similarity Searching for Defective Wafer Bin Maps in Semiconductor Manufacturing, *IEEE Trans. on Automation Science and Engineering*, Vol. 11(3) (2014), pp. 953-960.
  
28. Chung-Shou Liao<sup>\*</sup> and Yamming Huang. The Covering Canadian Traveller Problem, *Theoretical Computer Science*, Vol. 530(17) (2014), pp. 80–88.
  
29. Chung-Shou Liao and D. T. Lee<sup>\*</sup>. Power domination in circular-arc graphs, *Algorithmica*, Vol. 65(2), (2013) pp. 443-466.
  
30. Leonid Chindelevitch, Cheng-Yu Ma, Chung-Shou Liao<sup>\*</sup>, and Bonnie Berger<sup>\*</sup>. Optimizing a Global Alignment of Protein Interaction Networks, *Bioinformatics*, Vol. 29(21), (2013) pp. 2765-2773.
31. Chung-Shou Liao<sup>\*</sup> and Chia-Hong Hsu. New Lower Bounds for the Three-dimensional Orthogonal Bin Packing Problem, *European Journal of Operational Research*, Vol. 225(2), (2013) pp. 244-252.
  
32. Cheng-Yu Ma, Shu-Hsi Lin, Chi-Ching Lee, Chuan Yi Tang, Bonnie Berger and Chung-Shou Liao<sup>\*</sup>. Reconstruction of phyletic trees by global alignment of multiple metabolic networks, *BMC Bioinformatics*, Vol. 14(S2):S12, (2013) pp. 1-9.

33. Chung-Shou Liao\* and Louxin Zhang. Approximating the spanning k-tree forest problem, International Journal of Foundations of Computer Science, Vol. 23(7), (2012) pp. 1543-1554.
  
34. Daniel Park, Rohit Singh, Michael Baym, Chung-Shou Liao, and Bonnie Berger\*. IsoBase: a database of functionally related proteins across PPI networks, Nucleic Acids Research, Vol. 39 (2011) D295-D300. (The first three authors were graduate students; ACOlab initiated this study and built the prototype of this work.)
  
35. Mong-Jen Kao, Chung-Shou Liao\*, and D. T. Lee. Capacitated domination problem, Algorithmica, Vol. 60(2) (2011) pp. 274-300.
  
36. Chung-Shou Liao, Kanghao Lu, Michael Baym, Rohit Singh, and Bonnie Berger\*. IsoRankN: Spectral methods for global alignment of multiple protein networks, Bioinformatics, Vol 25 No. 12 (2009) pp. i253-i258.
  
37. Yu-Shin Chen, D. T. Lee and Chung-Shou Liao\*. Labeling points on a single line, International Journal of Computational Geometry & Applications (IJCGA), Vol. 15, No. 3 (2005) pp. 261-277.
  
38. Chung-Shou Liao and G. J. Chang\*. k-Tuple domination in graphs, Inform. Process. Letters, Vol. 87, (2003) pp. 45-50.
  
39. Chung-Shou Liao and G. J. Chang\*. Algorithmic aspect of k-tuple domination in graphs, Taiwanese Journal of Math. Vol 6(3), (2002) pp.415-420.

**[Papers under Review]** (\*: corresponding author)

- Jen-Wei Yeh, Hao-Ting Wei, Erik Demaine, Chung-Shou Liao\*. Online Traveling Salesmen Should Travel Randomly: A Randomized Zealous Algorithm for the Online TSP on the Line, Theoretical Computer Science, under review, 2026.
  
- Ya-Chun Liang, Meng-Hsi Li, Chung-Shou Liao\* and Clifford Stein. Waiting Is Worth It and Can Be Improved with Predictions, submitted, 2026.
  
- Hung-Yi Lee, Phoebe Chen, Chung-Shou Liao\*. Open-FixMatch: A Semi-supervised Model for Open Set Recognition, submitted, 2025.

- Ya-Chun Liang, Chung-Shou Liao<sup>\*</sup>, Xinping Yi<sup>\*</sup>. A Primal-Dual Algorithmic Aspect of Link Scheduling in Dynamic Wireless Networks, IEEE Trans. Communications, under review, 2025.

- Ting-Yu Kuo, Yi-Ping Phoebe Chen, Chung-Shou Liao<sup>\*</sup>. Network Alignment with Representation Learning for Personalized Cross-media News Recommendation System, IEEE Intelligent Systems, under review, 2024.

### **[International Conference Papers]**

1. Li-Chiao Wang, Chung-Shou Liao, Wei Liu. ResNet-GA: Evolutionary Deep Learning Models for Adversarial Defense (Student Abstract), in Proceedings of AAAI 2026. <https://doi.org/10.1609/aaai.v40i48.42292>

2. Jaehoon Chung, Kazuo Iwama, Chung-Shou Liao, Hee-Kap Ahn. Minimum Partition of Polygons Under Width and Cut Constraints, in Proc. 36th International Symposium on Algorithms and Computation (ISAAC 2025), Tainan, Taiwan.

3. Zhiwei Shan, Xinping Yi, Chung-Shou Liao, Shi Jin, Giuseppe Caire. Unfolding FPLinQ with Graph Reinforcement Learning for D2D Spectrum Sharing, in Proc. 2025 IEEE International Symposium on Information Theory (ISIT 2025), Michigan, USA.

4. Chih-Chung Chen and Chung-Shou Liao Learning-Augmented Algorithms for Online Time-Window TSP, in Proc. 16th Annual Meeting of Asian Association for Algorithms and Computation (AAAC 2025).

5. I-Fan Chan, Ya-Chun Liang and Chung-Shou Liao The Public University Secretary Problem with Predictions, in Proc. 16th Annual Meeting of Asian Association for Algorithms and Computation (AAAC 2025), Hong Kong.

6. Yi-Ting Hsieh, Cheng-Yu Ma and Chung-Shou Liao Topological Features for Graph Representations, in Proc. 16th Annual Meeting of Asian Association for Algorithms and Computation (AAAC 2025), HK.

7. Li-Chiao Wang, Wei Liu, Chung-Shou Liao. Incremental Random Forest for Unsupervised Learning, in Proc. 2024 IEEE Conference on Artificial Intelligence (CAI), pp. 704-705, Singapore.

8. Zhiwei Shan, Xinping Yi, Le Liang, Chung-Shou Liao, Shi Jin. GRLinQ: A Distributed Link Scheduling Mechanism with Graph Reinforcement Learning, in Proc. 2024 IEEE International Symposium on Information Theory (ISIT), Athens, Greece.
9. Ya-Chun Liang, Chung-Shou Liao, Xinping Yi. A Primal-Dual Algorithmic Aspect of Link Scheduling in Dynamic Wireless Networks, in Proc. 2023 IEEE International Symposium on Information Theory (ISIT): 2559-2564, Taipei, Taiwan.
10. Zhiwei Shan, Xinping Yi, Han Yu, Chung-Shou Liao, Shi Jin. Learning to Code on Graphs for Topological Interference Management, in Proc. 2023 IEEE International Symposium on Information Theory (ISIT): 2386-2391, Taipei, Taiwan.
11. Ya-Chun Liang, Kazuo Iwama, Chung-Shou Liao. Improving the Bounds of the Online Dynamic Power Management Problem, in Proc. 33rd International Symposium on Algorithms and Computation (ISAAC 2022), Seoul, Korea.
12. Hao-Ting Wei, Chung-Shou Liao, Sung-Hsien Hsieh, Chun-Shien Lu. Dynamic Network Tomography with Sparse Recovery-based Link Delay Estimation, IEEE WF-IoT 2022: 1-6, Yokohama, Japan.
13. Sheng-Yen Ko, Ho-Lin Chen, Siu-Wing Cheng, Wing-Kai Hon, Chung-Shou Liao. General Max-Min Fair Allocation, in Proc. the 27th International Conference on Computing and Combinatorics (COCOON 2021), LNCS 13025, pp. 63-75, Tainan, Taiwan.
14. Hsiao-Yu Hu, Ya-Chun Liang, Jian-Xi Shao and Chung-Shou Liao. Learning-Augmented Algorithms for Online TSP, in Proc. 14th Annual Meeting of Asian Association for Algorithms and Computation (AAAC 2021), Tainan, Taiwan.
15. Ya-Chun Liang, Chung-Shou Liao, Xinping Yi. Topological Interference Management with Adversarial Perturbation, in Proc. IEEE International Symposium on Information Theory (ISIT 2021), pp. 2608-2613, Melbourne, Australia
16. Chang-Wei Sung, Xinghao Yang, Chung-Shou Liao and Wei Liu. IntRoute: An Integer Programming based Approach for Best Bus Route Discovery, in Proc. the 26th International Conference on Database Systems for Advanced Applications (DASFAA 2021), Taipei, Taiwan.
17. Xian-Chang Guo, Chung-Shou Liao, Chia-Chi Chu. Decentralized PMU Placements in

a Dynamic Programming Approach, in Proc. 54th IEEE Industry Applications Society Annual Meeting (IAS 2019), Baltimore, Maryland, USA.

18. Chen-Yu Liu and Chung-Shou Liao. Dynamic Algorithms for Density-based Clustering via Tree Structure, in Proc. 12th Annual Meeting of Asian Association for Algorithms and Computation (AAAC 2019), Seoul, Korea.

19. Pei-Chuan Chen and Chung-Shou Liao. Do Randomized Approaches Work for Online TSP on the Real Line, in Proc. 12th Annual Meeting of Asian Association for Algorithms and Computation (AAAC 2019), Seoul, Korea.

20. Ya-Chun Liang and Chung-Shou Liao. Fully Dynamic Model of Index-Based Structural Graph Clustering, in Proc. 12th Annual Meeting of Asian Association for Algorithms and Computation (AAAC 2019), Seoul, Korea.

21. Hao-Ting Wei, Wing-Kai Hon, Paul Horn, Chung-Shou Liao and Kunihiro Sadakane. An  $O(1)$ -Approximation Algorithm for Dynamic Weighted Vertex Cover with Soft Capacity, in Proc. 21st International Conference on Approximation Algorithms for Combinatorial Optimization Problems (APPROX 2018), Princeton University, New Jersey.

22. Guan-Chung Chen and Chung-Shou Liao. Dynamic Algorithms for Large-scale Network Alignment, in Proc. 11th Annual Meeting of Asian Association for Algorithms and Computation (AAAC 2018), Beijing, China.

23. Kuo-kai Lee, Wing-Kai Hon, Chung-Shou Liao and Kunihiro Sadakane. A Sublinear time Dynamic Algorithm for Searching, in Proc. 11th Annual Meeting of Asian Association for Algorithms and Computation (AAAC 2018), Beijing, China.

24. Sheng-Yin Chen and Chung-Shou Liao. Route Planning for the Last-mile Delivery, in Proc. 11th Annual Meeting of Asian Association for Algorithms and Computation (AAAC 2018), Beijing, China.

25. Chien-Chih Lin and Chung-Shou Liao. Approximating Model-based Compressive Sensing via Random Walks, in Proc. 10th Annual Meeting of Asian Association for Algorithms and Computation (AAAC 2017), Hong Kong.

26. Hao-Ting Wei and Chung-Shou Liao. Dynamic Algorithms for Capacitated Vertex Cover, in Proc. 10th Annual Meeting of Asian Association for Algorithms and Computation

(AAAC 2017), Hong Kong.

27. Xian-Chang Guo, Chung-Shou Liao, and Chia-Chi Chu. Optimal PMU Placements Under Propagation Depth Constraints by Mixed Integer Linear Programming, in Proc. the IEEE International Conference on Smart Grid Communications (SmartGridComm 2016), Sydney, Australia.

28. Chien-Chih Lin, Hao-Ting Wei, and Chung-Shou Liao. Development of Robust Design Using Compressed Data, in Proc. the 22nd ISSAT International Conference on Reliability and Quality in Design (ISSAT RQD 2016), Los Angeles, USA.

29. I-Hsuan Wu and Chung-Shou Liao. Online Dynamic Power Management, in Proc. 9th Annual Meeting of Asian Association for Algorithms and Computation (AAAC 2016), Taipei, Taiwan.

30. Shao-Chieh Lin and Chung-Shou Liao. Fast Route Planning with Geographical Information, in Proc. 9th Annual Meeting of Asian Association for Algorithms and Computation (AAAC 2016), Taipei, Taiwan.

31. Yi-Hua Yang and Chung-Shou Liao. Online Buffer Management for Packets with Constant Density, in Proc. 9th Annual Meeting of Asian Association for Algorithms and Computation (AAAC 2016), Taipei, Taiwan.

32. Xian-Chang Guo, Chung-Shou Liao, and Chia-Chi Chu. Distributed Algorithm for PMU Placement Under N-1 Line Outage Conditions, in Proc. the IEEE PES Asia-Pacific Power and Energy Engineering Conference (IEEE PES APPEEC 2015), pp. 1-5, Brisbane, Australia.

33. Shao Chieh Lin and Chung-Shou Liao. Dynamic Routing in Time-dependent Traffic Networks, in Proc. International conference on Operations Research (OR 2015), Vienna, Austria.

34. Chun-Hsiang Lin and Chung-Shou Liao. The Online Traveling Salesman Problem Revisited, in Proc. 8th Annual Meeting of Asian Association for Algorithms and Computation (AAAC 2015), Hiroshima, Japan.

35. Chi-Fen Chang, Ping-Ting Lin, Chung-Shou Liao. The Online Bin Packing Problem Revisited, in Proc. International Conference on Operations Research (OR 2014), Aachen,

Germany.

36. Erik Demaine, Yamming Huang, Chung-Shou Liao, and Kunihiko Sadakane. Canadians Should Travel Randomly, in Proc. the 41st International Colloquium on Automata, Languages, and Programming (ICALP 2014), Copenhagen, Denmark. (Acceptance Rate: 23%)

37. Chung-Shou Liao, Chih-Wei Liang, and Sheung-Hung Poon. Approximation Algorithms on Consistent Dynamic Map Labeling, in Proc. 8th International Workshop on Frontiers in Algorithmics (FAW 2014), Zhangjiajie, China, LNCS 8497, pp. 170-181.

38. Xian-Chang Guo, Chung-Shou Liao, and Chia-Chi Chu. Multi-objective Power Management on Smart Grid, in Proc. the 18th IEEE International Conference on Computer Supported Cooperative Work Design (CSCWD 2014), Taiwan.

39. Chung-Shou Liao, Hung-Yu Huang, Sheng-Ting Yang, and Amy J. C. Trappey. Managing Knowledge Assets for the Development of the Renewable Energy Industry, in Proc. 8th World Congress on Engineering Asset Management (WCEAM 2013), Hong Kong.

40. Chung-Shou Liao, Tsung-Jung Hsieh, Xian-Chang Guo, Jian-Hong Liu, and Chia-Chi Chu. Applying Power Domination with Hybrid Search to Optimal PMU Placement Problems, in Proc. IEEE Power & Energy Society General Meeting (2013), Vancouver, Canada.

41. Shang-Hung Lu and Chung-Shou Liao. The Electric Vehicle Touring Problem, in Proc. 6th Annual Meeting of Asian Association for Algorithms and Computation (AAAC 2013), Matsushima, Japan.

42. Chi-Ching Lee, Po-Jung Huang, Sheng-Ting Yang, Chung-Shou Liao and Petrus Tang. iCircos: Integrated web service of Circos, in Proc. 12th International Conference on Bioinformatics (InCoB 2013), Taicang, China.

43. Hung-Yu Huang, Chung-Shou Liao, and Amy J. C. Trappey. Evaluating the Development of the Renewable Energy Industry, in Proc. Institute of industrial Engineers Asian Conference (IIE Asian 2013), Taipei, Taiwan.

44. Shu-Hua Wang, Shang-Hung Lu, Wei-Yu Kao, Shau-Jie Lin, I-Shuan Wu, and Chung-Shou Liao. Approximating the Electric Vehicle Touring Problem: Theory and Applications, in Proc. 9th International Conference on Optimization: Techniques and Applications (ICOTA

9 2013), Taipei, Taiwan.

45. Yamming Huang and Chung-Shou Liao. The Canadian Traveller Problem Revisited, in Proc. 23rd International Symposium on Algorithms and Computation (ISAAC 2012), Taipei, Taiwan, LNCS 7676, pp.352-361. (Acceptance Rate: 39%)

46. Cheng-Yu Ma, Shu-Hsi Lin, Chi-Ching Lee, Chuan Yi Tang, Bonnie Berger, Chung-Shou Liao. Reconstruction of phyletic trees by global alignment of multiple metabolic networks, in Proc. 11th Asia Pacific Bioinformatics Conference (APBC 2012), Vancouver, Canada. (Acceptance Rate: 38%)

47. Tsung-Jung Hsieh, Yu-Syuan Huang, Chung-Shou Liao, and Chen-Fu Chien. A New Morphology-based Approach for Similarity Searching on Wafer Bin Maps in Semiconductor Manufacturing, in Proc. 16th IEEE International Conference on Computer Supported Cooperative Work Design (CSCWD 2012), Wuhan, China.

48. Chia-Hong Hsu and Chung-Shou Liao. New lower bounds for the three-dimensional orthogonal bin packing problem, in Proc. 23rd Canadian Conference on Computational Geometry (CCCG 2011), Toronto, Canada, pp. 381-386.

49. Leonid Chindelevitch, Chung-Shou Liao, and Bonnie Berger. Local optimization for global alignment of protein interaction networks, Pacific Symposium on Biocomputing (PSB 2010), Hawaii, U.S.A., 15, pp.123-132.

50. Chung-Shou Liao, Kanghao Lu, Michael Baym, Rohit Singh, and Bonnie Berger. IsoRankN: Spectral methods for global alignment of multiple protein networks, in Proc. 17th International Conference on Intelligent Systems for Molecular Biology (ISMB 2009), Stockholm, Sweden. (Acceptance Rate: 18%)

51. Chung-Shou Liao and Louxin Zhang. Approximating the spanning forest problem, in Proc. 3rd International Frontiers of Algorithmics Workshop (FAW 2009), Hefei, China, LNCS 5598, pp.293-301. (Acceptance Rate: 36%)

52. Mong-Jen Kao, Chung-Shou Liao. Capacitated domination problem, in Proc. 18th International Symposium on Algorithms and Computation (ISAAC 2007), Sendai, Japan, LNCS 4835, pp. 256-267. (Acceptance Rate: 36%)

53. Kuen-Lin Yu, Chung-Shou Liao and D. T. Lee. Maximizing the number of independent

labels in the plane, in Proc. 1st International Frontiers of Algorithmics WorkShop (FAW 2007), Lanzhou, China, LNCS 4613, pp. 136-147. (Acceptance Rate: 24%)

54. Chung-Shou Liao and D. T. Lee, Power domination problem in graphs, in Proc. 11th International Computing and Combinatorics Conference (COCOON 2005) Kunming, China, LNCS 3595, pp. 818-828. (Acceptance Rate: 27%)

55. D. T. Lee, Chung-Shou Liao, and Wei-Bung Wang. Time-based Voronoi Diagram, in Proc. International Symposium on Voronoi Diagrams in Science and Engineering (ISVD 2004), University of Tokyo, Hongo, Tokyo, Japan.

### **[Books]**

Matthew Realff, Valerie Thomas, Chung-Shou Liao and I-Hsuan Hong. Energy Assessment and Management: Special Issue, International Journal of Electronic Business Management, Volume 13, 2015.

---

Updated in June, 2026