Chee Wei Tan

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EDUCATION	◇ Princeton University, Princeton, NJ M.A. (2006), Ph.D. in Electrical Engineering (2008).
	◇ National University of Singapore B.S. in electrical and computer engineering with First Class Honors (2002).
APPOINTMENT	◇ Associate Professor of Computer Science, City University of Hong Kong
	◇ Visiting Faculty, Tencent AI Lab, 2018
	◇ Visiting Faculty, Qualcomm R&D (QRC), California 2011
	◇ Postdoctoral Scholar, California Institute of Technology, Pasadena, California 2008-2009
RESEARCH EXPERTISE	◇ Wireless Communications and Networking
	◇ Optimization and Machine Learning
	◇ Network Science
	◇ Cloud Computing and AI
	◇ Data Science for Health-Tech and Ed-Tech
AWARDS AND HONOR	◇ Distinguished Lecturer of IEEE Communications Society
	◇ Teaching Excellence Award of City University of Hong Kong
	◇ Outstanding Teaching Award at the College of Engineering
	◇ Senior Fellowship at Institute for Pure and Applied Mathematics (IPAM) for Program on Science at Extreme Scales
	◇ Google Faculty Award
	◇ MIT-Amazon Graph Challenge 2018, Honorable Mention
	◇ Selected Participant, U.S. National Academy of Engineering China-America Frontiers of Engineering (CAFOE) Symposium, 2013 and 2015
	◇ IEEE Communications Society Outstanding Young Researcher Award
	◇ Caltech Postdoctoral Fellowship
	◇ Princeton University Wu Prize for Excellence
RECENT SERVICES	◇ Editor, BMC Archives of Public Health, Health Information Systems
	◇ Editor, IEEE Transactions on Cognitive Communications and Networking
	◇ Editor, IEEE/ACM Transactions on Networking (2016-2020)
	◇ Editor, IEEE Transactions on Communications (2012-2018)
	◇ Chairman, IEEE Information Theory Society Hong Kong Chapter (2014-2016)
	◇ Director, The Julia Robinson Mathematics Festival in Hong Kong (2017-2019)
	◇ Organizer, Programme on Creative Mathematics and Computer Science Learning for Gifted Students under Education Bureau's Gifted Education Fund, 2020
TEACHING	◇ Artificial Intelligence: Past, Present and Future, Convex Optimization and its Applications, Data Structures, Computer Organization, Computer Programming, Mobile Computing,

RECENT
PUBLICATION

◇ P.-D. Yu, C. W. Tan and H.-L. Fu, *Epidemic Source Detection in Contact Tracing Networks: Epidemic Centrality in Graphs and Message-Passing Algorithms*, IEEE Journal of Selected Topics in Signal Processing, Vol. 16, No. 2, pp. 234-249, 2022.

◇ Z. Fei, Y. Ryeznik, A. Sverdlov, C. W. Tan and W. K. Wong, *An Overview of Healthcare Data Analytics with Applications to the COVID-19 Pandemic*, IEEE Transactions on Big Data, 2022.

◇ S. Chen, P.-D. Yu, C. W. Tan and H. V. Poor, *Identifying the Superspreader in Proactive Backward Contact Tracing by Deep Learning*, 56th Annual Conference on Information Sciences and Systems (CISS), 2022.

◇ J. Li, C. W. Tan, C. Hang and X. Qi, *A Chatbot-Server Framework for Scalable Machine Learning Education through Crowdsourced Data*, ACM Learning at Scale, 2022.

◇ J. Li, L. Ling and C. W. Tan, *Blending Peer Instruction with Just-In-Time Teaching: Jointly Optimal Task Scheduling with Feedback for Classroom Flipping*, ACM Learning at Scale, 2021.

◇ C. Li, C. W. Tan, J. Li and S. Chen, *Fault-Tolerant Computation Meets Network Coding: Optimal Scheduling in Parallel Computing*, IEEE Globecom, 2021.

◇ S. W. Ho, L. Ling, C. W. Tan and R. W. Yeung, *Proving and Disproving Information Inequalities: Theory and Scalable Algorithms*, IEEE Transactions on Information Theory, Vol. 66, No. 9, pp. 5522-5536, 2020.

◇ S. Liu, C. Joe-Wong, J. Chen, C. Brinton, C. W. Tan and L. Zheng, *Economic Viability of a Virtual ISP*, IEEE/ACM Transactions on Networking, Vol. 28, No. 2, pp. 902-916, 2020.

◇ L. Ling and C. W. Tan, *Scalable Automated Proving of Information Theoretic Inequalities with Proximal Algorithms*, IEEE International Symposium on Information Theory, 2019.

◇ L. Ling and C. W. Tan, *Human-assisted Computation for Auto-grading*, ICDM Workshop on Machine Learning for Education, 2018.

◇ L. Ling and C. W. Tan, *Pilot Study on Optimal Task Scheduling in Learning*, ACM Learning at Scale, 2018.

◇ P. Yu, C. W. Tan and H. Fu, *Averting Cascading Failures in Networked Infrastructures: Poset-constrained Graph Algorithms*, IEEE Journal of Selected Topics in Signal Processing, Vol. 12, No. 4, 2018.

◇ C. Li, X. Guang, C. W. Tan and Raymond W. Yeung, *Fundamental Limits on A Class of Secure Asymmetric Multilevel Diversity Coding Systems*, IEEE Journal on Selected Areas in Communications, Vol. 36, No. 4, 2018.

◇ C. Kuo, C. N. Hang, P. Yu and C. W. Tan, *Parallel Counting of Triangles in Large Graphs: Pruning and Hierarchical Clustering Algorithms*, IEEE High Performance Extreme Computing Conference MIT-Amazon Graph Challenge (honorable mention), 2018.

◇ P. Yu, C. W. Tan and H. Fu, *Graph Algorithms for Preventing Cascading Failures in Networks*, Proc. of 52nd CISS, 2018.

◇ L. Zheng, D. Cai and C. W. Tan, *Max-min Fairness Rate Control in Wireless Networks: Optimality and Algorithms by Perron-Frobenius Theory*, IEEE Transactions on Mobile Computing, Vol. 17, No. 1, pp.127-140, 2018.

◇ P. Yu, C. W. Tan and H. Fu, *Rumor Source Detection in Finite Graphs with Boundary Effects by Message Passing Algorithms*, Proc. of IEEE/ACM ASONAM, 2017.

◇ P. Yu, C. W. Tan and H. Fu, *Rumor Source Detection in Unicyclic Graphs*, Proc. of IEEE Information Theory Workshop, 2017.

◇ L. Zheng, C. Joe-Wong, C. W. Tan, S. Ha, M. Chiang, *Customized Data Plans for Mobile Users: Feasibility and Benefits of Data Trading*, IEEE Journal on Selected Areas in Communications, Vol. 35, No. 4, 2017.

⋄ C. W. Tan, P. Yu, C. Lai, W. Zhang and H. Fu, *Optimal Detection of Influential Spreaders in Online Social Networks*, Proc. of 50th CISS, 2016.

⋄ L. Zheng, C. Joe-Wong, C. Brinton, C. W. Tan and M. Chiang, *On the Viability of a Cloud Virtual Service Provider*, Proc. of ACM SIGMETRICS 2016.

⋄ F. Wong, C. W. Tan, S. Sen and M. Chiang, *Quantifying Political Leaning from Tweets, Retweets and Retweeters*, IEEE Transactions on Knowledge and Data Engineering, Vol. 28, No. 8, 2016.

⋄ L. Zheng, Y. W. Hong, C. W. Tan, C. L. Hsieh and C. H. Lee, *Wireless Max-min Utility Fairness with General Monotonic Constraints by Perron-Frobenius Theory*, IEEE Transactions on Information Theory, Vol. 62, No. 12, 2016.

⋄ C. W. Tan, *Optimal Power Control in Rayleigh-fading Heterogeneous Wireless Networks*, IEEE/ACM Transactions on Networking, Vol. 24, No. 2, 2016.

⋄ C. W. Tan, *Wireless Network Optimization by Perron-Frobenius Theory*, Now Publishers, Foundations and Trends in Networking, Vol. 9, No. 2-3, 2015.

⋄ L. Zheng, C. Joe-Wong, C. W. Tan, M. Chiang and X. Wang, *How to Bid the Cloud?*, Proc. of ACM SIGCOMM 2015.

⋄ S. W. Ho, C. W. Tan and R. W. Yeung, *Proving and Disproving Information Inequalities*, IEEE International Symposium on Information Theory, 2014.

⋄ L. Zheng and C. W. Tan, *A Probabilistic Characterization of the Rumor Graph Boundary in Rumor Source Detection*, Proc. of IEEE Digital Signal Processing, 2015.

⋄ Z. Wang, W. Dong, W. Zhang and C. W. Tan, *Rooting out Rumor Sources in Online Social Networks: The Value of Diversity from Multiple Observations*, IEEE Journal of Selected Topics in Signal Processing, special issue on signal processing for big data, Vol. 9, No. 4, 2015.

⋄ Z. Wang, W. Dong, W. Zhang and C. W. Tan, *Rumor Source Detection with Multiple Observations: Fundamental Limits and Algorithms*, Proc. of ACM SIGMETRICS 2014.

⋄ N. Chen, C. W. Tan and T. Quek, *Electric Vehicle Charging in Smart Grid: Optimality and Valley-Filling Algorithms*, IEEE Journal of Selected Topics in Signal Processing, Vol. 8, No. 6, 2014.

⋄ W. Dong, W. Zhang and C. W. Tan, *Rooting out the Rumor Culprit from Suspects*, Proc. of IEEE Intl. Symp. on Information Theory, 2013.

⋄ F. M. F. Wong, C. W. Tan, S. Sen and M. Chiang, *Quantifying Political Leaning from Tweets and Retweets*, Seventh International AAAI Conference on Weblogs and Social Media (ICWSM), 2013.

⋄ L. Zheng and C. W. Tan, *Maximizing Sum Rates in Cognitive Radio Networks: Convex Relaxation and Global Optimization Algorithms*, IEEE Journal on Selected Areas in Communications, Vol. 32, No. 3, 2014.

⋄ X. Zhai, L. Zheng and C. W. Tan, *Energy-Infeasibility Tradeoff in Cognitive Radio Networks: Price-Driven Spectrum Access Algorithms*, IEEE Journal on Selected Areas in Communications, Vol. 32, No. 3, pp. 528-538, 2014.

⋄ L. Zheng and C. W. Tan, *Cognitive Radio Network Duality and Algorithms for Utility Maximization*, IEEE Journal on Selected Areas in Communications, Vol. 31, No. 3, 2013.

⋄ C. W. Tan, M. Chiang and R. Srikant, *Fast Algorithms and Performance Bounds for Sum Rate Maximization in Wireless Networks*, IEEE/ACM Transactions on Networking, Vol. 21, No. 3, 2013.

⋄ C. W. Tan, S. Friedland and S. H. Low, *Nonnegative Matrix Inequalities and Their Application to Nonconvex Power Control Optimization*, SIAM Journal on Matrix Analysis and Applications, Vol. 32, No. 3, 2011.

⋄ C. W. Tan, S. Friedland and S. H. Low, *Spectrum Management in Multiuser Cognitive Wireless Networks: Optimality and Algorithm*, IEEE Journal on Selected Areas in Communications, Vol. 29, No. 2, 2011.

⋄ Y. Zhao, C. W. Tan, A. S. Avestimehr, S. N. Diggavi and G. J. Pottie, *On the Maximum Achievable Sum-rate with Successive Decoding in Interference Channels*, IEEE Transactions on Information Theory, Vol. 58, No. 6, 2012.

⋄ L. Yang, H. Kim, J. Zhang, M. Chiang and C. W. Tan, *Pricing-based Decentralized Spectrum Access Control in Cognitive Radio Networks*, IEEE/ACM Transactions on Networking, Vol. 21, No. 2, pp. 522-535, 2013.

⋄ S. Sorooshyari, C. W. Tan and M. Chiang, *Power Control for Cognitive Radio Networks: Axioms, Algorithms, and Analysis*, IEEE/ACM Transactions on Networking, Vol. 20, No. 3, pp. 878-891, 2012.

⋄ M. Wang, C. W. Tan, W. Xu and A. Tang, *Cost of Not Splitting in Routing: Characterization and Estimation*, IEEE/ACM Transactions on Networking, Vol. 19, No. 6, 2011.

⋄ C. W. Tan, D. P. Palomar and M. Chiang, *Energy-Robustness Tradeoff in Cellular Network Power Control*, IEEE/ACM Transactions on Networking, Vol. 17, No. 3, 2009.

⋄ C. W. Tan and A. R. Calderbank, *Multiuser Detection of Alamouti Signals*, IEEE Transactions on Communications, Vol. 57, No. 7, 2009.

MONOGRAPH AND EDITED BOOKS

⋄ C. W. Tan (Ed.), *Online Social Networks: Perspectives, Applications and Developments*, Nova Science Publishers, 2020.

⋄ C. W. Tan, *Wireless Network Optimization by Perron-Frobenius Theory*, Now Publishers, Foundations and Trends in Networking, DOI: 10.1561/1300000048, 2015.

⋄ C. W. Tan (Ed.), *Cognitive Radio Networks: Performance, Applications and Technology*, Nova Science Publishers, 2018.

⋄ M. Chiang, P. Hande, T. Lan and C. W. Tan, *Power Control in Wireless Cellular Networks*, Now Publishers, Foundations and Trends in Networking, DOI: 10.1561/1300000009, 2007.

RECENT TALK AND INVITED TUTORIAL

⋄ Information Inequalities: Facets of Entropy and Automated Reasoning by Optimization, (with R. W. Yeung and S. W. Ho), IEEE International Symposium on Information Theory, Jun 2022

⋄ Artificial Intelligence: Past, Present and Future, IEEE Communications Society ComSoc School Series Kuala Lumpur Virtual Event, Jun 2022

⋄ Healthcare Big Data Analytics for COVID-19 Challenges: Digital Contact Tracing and Infodemic Management, IEEE Conference on Big Data, Dec 2021

⋄ Artificial Intelligence at Scale: Automated Reasoning by Convex Optimization
Princeton University (2019), UCLA (2018).

⋄ Network Centrality as Statistical Inference in Large Networks
INFORMS International Conference 2018, University of Notre Dame Workshop on Big Data Challenges for Predictive Modeling of Complex Systems 2018, 2018 Smart Grid Seminar at California Institute of Technology, 2018 Institute for Pure and Applied Mathematics (IPAM) Seminar Series.

⋄ Statistical Inference for Cyber-Security in Networks
IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM) in 2017 and 2014, the International Conference on Acoustics, Speech, and Signal Processing (ICASSP) in 2016.

PROFESSIONAL ACTIVITIES

Organizer, Conference on Information Sciences and Systems (CISS) Special Session on Optimization and its Applications in Artificial Intelligence, Princeton NJ, 2020, 2022

⋄ Technical Program Committee Member, ACM SIGMETRICS (2021,2020), ACM MobiHoc (2019,2020), IEEE INFOCOM

⋄ Technical Program Committee Co-Chair, Modeling and Optimization in Mobile, Ad-Hoc and Wireless Networks (WiOpt) 2019

⋄ Co-Chair, ICDM Data Mining for eLearning Personalization Workshop, Singapore, 2018

⋄ Chair, Croucher Workshop on Information Theory, Hong Kong, 2015