Yik-Chung Wu

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Brief Biography: Yik-Chung Wu received the B.Eng. (EEE) degree in 1998 and the M.Phil. degree in 2001 from the University of Hong Kong (HKU). He received the Croucher Foundation scholarship in 2002 to study Ph.D. degree at Texas A&M University, College Station, and graduated in 2005. From August 2005 to August 2006, he was with the Thomson Corporate Research, Princeton, NJ, as a Member of Technical Staff. Since September 2006, he has been with HKU, currently as an Associate Professor. He was a visiting scholar at Princeton University, in summers of 2015 and 2017. His research interests are in general area of **signal processing, machine learning and communication systems**. He served as an **Editor for IEEE Communications Letters**, and **IEEE Transactions on Communications**. He is currently an **Associate Editor for IEEE Transactions on Signal Processing,** and an **Editor for Journal of Communications and Networks**. **He received four best paper awards in international conferences, with the most recent one from IEEE International Conference on Communications (ICC) 2020.** He is a senior member of the IEEE.

EDUCATION

Doctor of Philosophy Sep. 2002-Aug. 2005
Texas A&M University
Thesis: New advances in symbol timing synchronization of single-carrier, multi-carrier and space-time multiple-antenna systems
Advisor: Prof. Erchin Serpedin

Master of Philosophy Sep. 1998-Oct. 2000
The University of Hong Kong
Thesis: Demodulation and Symbol Timing Recovery in Software Radio
Advisor: Prof. T. S. Ng

Bachelor of Electrical and Electronic Engineering Sep. 1995-Jul. 1998
The University of Hong Kong
Final year project: RF and baseband hardware implementation of a spread spectrum transmitter
Advisor: Prof. J. Wang

WORKING EXPERIENCES

Associate Professor (Oct. 2012 –)
Assistant Professor (Sep. 2006 – Sep 2012)
Department of EEE, The University of Hong Kong

Member of Technical Staff (Aug. 2005- Aug. 2006)
Thomson Corporate Research, Princeton, NJ, USA.

RESEARCH INTERESTS

- Bayesian Methods for Statistical Inference and Machine Learning
- Distributed Algorithms for Signal Processing and Communications
- Optimization Theories

AWARDS AND HONORS

- ***Best Paper Award in IEEE International Conference on Communications (ICC)*** 2020
- ***Exemplary reviewer of IEEE Wireless Communications Letters*** 2017
- ***Biography included in Marquis Who's Who in the World*** 2016
- ***HKU Outstanding Young Researcher Award*** 2012-2013
- ***HKU Research Output Prize*** 2011-2012
- ***International Conference on Wireless Communications and Signal Processing (WCSP) Best Paper award*** *2012*
- ***HKU EEE Department Research Output Prize*** 2008
- ***ISCIT Best Conference Paper Award***, 2007
- ***Croucher Foundation Scholarship***, Hong Kong, 2002-2005 (This is a three-year full scholarship for oversea study, covering tuition fees and living expenses)
- ***CCCT'04 conference Best Paper Award***, 2004
- ***S. Y. King Fellowships***, The University of Hong Kong, 2001
- ***Postgraduate Studentship***, The University of Hong Kong, 1998-2000

PROFESSIONAL ACTIVITIES

Associate Editor for IEEE Transactions on Signal Processing (2021 -)
Editor for Journal of Communications and Networks (2012 – present)
Editor for IEEE Transactions on Communications (2012 – 2018)
Editor for IEEE Communications Letters (2008 – 2013)

Chair for Signal, Image and Multimedia Processing track at IEEE Region 10 conference 2022.

Symposium Co-chair for Track on Fundamentals and PHY at IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC) 2015, Aug 30 – Sep. 2, Hong Kong.

Leading Symposium Co-chair for the Signal Processing for Communications track at the 7th International Conference on Communications and Networking in China (CHINACOM 2012), Kunming, China, August 8–10, 2012

Session Chair / Special Session Organization in Conferences for

- IEEE Global Communication Conference (Globecom) 2017, 4-8 Dec 2017, Singapore.
- IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC) 2015, Aug 30 – Sep. 2, Hong Kong
- 14th International Conference on Communication Systems (ICCS) 2014, Macau, China, 19-21 Nov 2014 – special session on "Signal Processing for Communications".
- International Conference on Digital Signal Processing, Hong Kong, 20-23 Aug, 2014.

- SPIE Second International Symposium on Fluctuations and Noise, Gran Canaria, Spain, 25-28 May 2004
- The 16th International Conference on Digital Signal Processing (DSP 2009), Santorini, Greece, Jul. 2009.
- IEEE Asia Pacific Conference on Circuits and Systems (APCCAS), Macau, China, Dec 2008.

Member of Technical Program Committee for

- IEEE Vehicular Technology Conference (VTC) Fall 2005 (Dallas, TX, USA), Spring 2011 (Budapest, Hungary), Fall 2011 (San Francisco, CA, USA), Spring 2012 (Yokohama, Japan), Spring 2013 (Dresden, Germany), Fall 2014 (Vancouver, Canada), Fall 2015 (Boston, MA, USA), Spring 2016 (Nanjing, China), Fall 2018 (Chicago, USA), Spring 2019 (Kuala Lumpur), Spring 2020 (Virtual), Fall 2020 (Virtual)
- IEEE Global Communication Conference (Globecom), 2006 (San Francisco, CA, USA), 2008 (New Orleans, LA, USA), 2011 (Houston, TX, USA), 2013 (Atlanta, GA, USA), 2014 (Austin, TX, USA), 2015 (San Diego, CA), 2016 (Washington, DC, USA), 2017 (Singapore), 2018 (Abu Dhabi, UAE), 2019 (Hawaii, USA), 2020 (Taipei, Taiwan)
- IEEE International Conference on Communications (ICC), 2007 (Glasgow, Scotland), 2008 (Beijing, China), 2011 (Kyoto, Japan), 2012 (Ottawa, Canada), 2013 (Budapest, Hungary), 2014 (Sydney, Australia), 2015 (London, UK), 2016 (Kuala Lumpur, Malaysia), 2018 (Kansas City, MO, USA), 2019 (Shanghai, China), 2020 (Virtual), 2021 (Montreal, Canada)
- IEEE Wireless Communications and Networking Conference (WCNC) 2013 (Shanghai, China), 2014 (Istanbul, Turkey), 2015 (New Orleans, LA, USA), 2016 (Doha, Qatar), 2019 (Marrakech, Morocco), 2020 (Virtual), 2021 (Nanjing, China)
- IEEE International Conference on Communication Systems (ICCS), 2008 (Guangzhou, China), 2010 (Singapore), 2012 (Singapore), 2016 (Shenzhen, China), 2018 (Chengdu, China)
- IEEE International Symposium on Circuits and Systems (ISCAS) 2014 (Melbourne, Australia), 2016 (Montreal, Canada), 2019 (Sapporo, Japan), 2021 (Daegu, Korea)
- International Conference on Communications in China (ICCC) 2013, (Xian), 2014 (Shanghai), 2015 (Shenzhen), 2018 (Beijing)
- The International Symposium on Wireless Personal Multimedia Communications (WPMC), 2014 (Sydney, Australia), 2016 (Shenzhen, China), 2017 (Bali, Indonesia), 2019 (Lisbon, Portugal)
- International Conference on Wireless Communications and Signal Processing (WCSP) 2012 (Huangshan, China), 2017 (Nanjing, China), 2018 (Hangzhou, China), 2019 (Xian, China)
- International Conference on Telecommunications 2010 (Doha, Qatar), 2015 (Sydney, Australia), 2016 (Thessaloniki, Greece), 2017 (Limassol, Cyprus), 2019 (Hanoi, Vietnam)
- IEEE Radio and Wireless Symposium, 2009 (San Diego, CA, USA), 2010 (New Orleans, LA, USA), 2011 (Phoenix, AZ, USA)
- International Wireless Communications & Mobile Computing Conference (IWCMC) 2012 (Limassol, Cyprus), 2013 (Cagliari, Sardinia - Italy), 2014 (Nicosia, Cyprus), 2019 (Tangier**,** Morocco)
- IEEE International Conference on Wireless for Space and Extreme Environments (WISEE) 2018 (Huntsville, AL), 2019 (Ottawa, Canada), 2020 (Venice, Italy)

- IEEE Symposium on Computers and Communications (ISCC), 2017 (Crete, Greece), 2018 (Natal, Brazil), 2019 (Barcelona, Spain)
- IEEE Radio Wireless Week 2012 (Santa Clara, CA, USA) 2013 (Austin, TX, USA), 2016 (Austin, TX, USA)
- International Symposium on Communications and Information Technologies (ISCIT) 2007 (Sydney, Australia), 2011 (Hangzhou, China), 2012 (Gold Coast, Australia)
- International Symposium on Wireless Communication Systems (ISWCS), 2015 (Brussels, Belgium), 2016 (Poznań, Poland), 2018 (Lisbon, Portugal)
- The Asia-Pacific Conference on Communications (APCC), 2009 (Shanghai, China), 2016 (Yogyakarta, Indonesia), 2019 (Ho Chi Minh city, Vietnam)
- The IEEE Statistical Signal Processing Workshop 2018 (Freiburg, Germany), 2021 (Rio de Janeiro, Brazil)
- IEEE Region 10 Conference **(**TENCON) 2012 (Cebu, Philippines), TENCON-Spring 2013 (Sydney, Australia)
- European Wireless Conference (EW) 2013 (Guildford, United Kingdom), 2014 (Barcelona, Span)
- International Conference on Communications and Networking in China (CHINACOM), 2013 (Guilin, China), 2014 (Maoming, China)
- The 3rd International Conference on Connected Vehicles & Expo (ICCVE), 2014 (Vienna, Austria 2014), 2015 (Shenzhen, China)
- International Congress on Image and Signal Processing (CISP) and International Conference on BioMedical Engineering and Informatics (BMEI), 2013 (Hangzhou, China), 2017 (Shanghai, China)
- IEEE International Workshop on Signal Processing Advances in Wireless Communications (SPAWC) 2017 (Hokkaido, Japan), 2020 (Atlanta, USA)
- IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC) 2018 (Bologna, Italy), 2020 (London, UK)
- International Conference on Ubiquitous and Future Networks (ICUFN) 2019 (Split, Croatia), 2020 (Porto, Portugal)
- The 3rd International Conference on Recent Advances in Signal Processing, Telecommunications & Computing (SigTelCom 2019), HaNoi, Vietnam, 21 -22 Mar 2019.
- IEEE International Conference on Computer Communications and Networks (ICCCN) 2008, Virgin Islands, USA, Aug 2008
- IEEE International Conference on Wireless Communications, Networking and Information Security (WCNIS2010), Beijing, China, June 2010
- The 1st International Conference on Wireless Communications Frontiers (WCF 2010), Chongqing, China, 12-14 July 2010
- The Seventh International Symposium on Wireless Communication Systems, York, The University of York, United Kingdom, Sep. 2010
- 3rd International Conference on Communications and Mobile Computing (CMC 2011), Qingdao, China, April 18-20, 2011
- International Conference on Digital Signal Processing, Hong Kong, 20-23 Aug, 2014
- IEEE International Conference on Communication, Networks and Satellite (Comnetsat) 2018, Indonesia, 15-17 Nov 2018.

- International Conference on Computing, Networking and Communications (ICNC 2020), Hawaii, USA, 17-20 Feb, 2020.
- The 3rd International Conference on Artificial Intelligence in Information and Communication, Jeju, Korea. April 20 – 23, 2021.

Invited Presentations:

- **"Inference in probabilistic models with applications to communications and signal processing",** 1) National Chiao Tung University, Taiwan, Apr 2017; 2) Hong Kong Applied Science and Technology Research Institute (ASTRI), Apr 2017; 3) Princeton University, Jul 2017; 4) South China University of Technology, China, Oct 2017; 5) Sun Yat-Sen University, China, Oct 2017; 6) National Taiwan University, Taipei, Taiwan, Dec 2017; 7) University of Electronic Science and Technology, Chengdu, China, Jan 2018; 8) Southern University of Science and Technology, China, July 2018; 9) Academia Sinica, Taipei, Taiwan, July 2018; 10) National Tsing-Hua University, Taiwan, Aug 2018; 11) University of Macau, Oct 2018.
- "**Clock Synchronization in Wireless Sensor Network: From Traditional Estimation Theory to Distributed Signal Processing**", 1) University of Macau, Apr 2014; 2) National University of Singapore, July 2014; 3) Beijing Institute of Technology, Dec 2014; 4) Princeton University, NJ, USA, Aug 2015; 5) Nanyang Technological University (NTU), Singapore, Sep 2015; 6) Zhejiang University, Hangzhou, China, Mar 2016; 7) Tongji University, Shanghai, China, Mar 2016; 8) Academia Sinica, Taipei, Taiwan, Apr 2016; 9) National Taiwan University, Taipei, Taiwan, Apr 2016; 10) Sun Yat-Sen University, Guangzhou, China, June 2016; 11) Xidian University, Xian, China, Jul 2016; 12) Xian Xiaotong University, Xian, China, Jul 2016; 13) Centre Tecnològic de Telecomunicacions de Catalunya, Barcelona, Spain, Jul 2016; 14) National Tsing-Hua University, Taiwan, Dec 2016; 15) Peking University Shenzhen Campus, Shenzhen, China, Mar 2017; 16) National Chiao Tung University, Taiwan, Dec 2017.
- "**New advances on joint CFO and channel estimation in single-user and multi-user OFDM systems**," 1) Thomson Corporate Research, Princeton, NJ, Dec 2007; 2) NEC Laboratories America, Princeton, NJ, Dec 2007; 3) Qualcomm, Bridgewater, NJ, Dec 2007; 4) IBM Research Lab, Beijing, May 2008; 5) Thomson Corporate Research, Beijing, May 2008; 6) Osaka Prefecture University, Japan, Nov 2008; 6) University of Science and Technology of China, Hefei, Nov 2009; 7) Sun Yat-sen University, Guangzhou, China, Nov 2009; 8) Guangdong University of Technology, Guangzhou, China, May 2010; 9) XIDIAN University, Xi'an, China, Jul 2010; 10) Beijing Institute of Technology, Beijing, Dec 2010.
- "**New Advances in symbol timing synchronization of single-carrier, multi-carrier and space-time multiple-antenna systems**," 1) Thomson Corporate Research, Princeton, NJ, June 2005; 2) Anritsu company, Morgan Hill, CA, June 2005; 3) The University of Hong Kong, Aug. 2005.
- "Digital receiver design: Theories and Implementations," Imperial College, London, UK, July 2005.
- "Symbol timing estimation in MIMO correlated flat-fading channels," The University of Hong Kong, Hong Kong, Jan. 2005.
- "Data-aided maximum likelihood symbol timing estimation in MIMO correlated fading channels," Texas Systems Day 2004, University of Houston, Nov. 2004.
- "Timing synchronization of space-time multi-antenna systems," Texas Instruments Conference, Texas Instruments, Dallas, Feb. 2004.

- "Symbol Timing Recovery for Generalized Minimum Shift Keying Modulations in Software Radio Receiver," Department of Signals, Sensors and Systems, Royal Institute of Technology, Stockholm, Sweden, Apr. 2002.

PUBLICATIONS

Book chapter contributions:

1. Shaodan Ma, Lanlan He, **Yik-Chung Wu**, and Tung-Sang Ng, "Chapter 7: Multiple Frequency Offsets Compensation in OFDMA Femtocells," in *Femtocell Communications and Technologies: Business Opportunities and Deployment Challenges*, edited by Rashid A. Saeed, Bharat S. Chaudhari and Rania A.Mokhtar, IGI Global, 2012.
2. Yi Zhou, **Yik-Chung Wu**, Erchin Serpedin and Kalid Qaraqe, "Chapter 1: The Effects of Spatial Diversity on the Synchronization of MIMO-OFDM Systems," in *Orthogonal Frequency Division Multiplexing with Diversity for Future Wireless Systems*, edited by K. N. Le, Bentham e-books, Bentham Science Publishers Ltd, 2012
3. **Yik-Chung Wu**, "Chapter 10: Fundamentals of Estimation Theory," in *Mathematical Foundations for Signal Processing, Communications, and Networking*, edited by Erchin Serpedin, Thomas Chen and Dinesh Rajan, CRC Press, 2011.
4. Jianwu Chen, **Yik-Chung Wu**, Tung-Sang Ng and Erchin Serpedin, "Chapter 12: Training sequence design in multi-user OFDM systems," in *Orthogonal Frequency Division Multiple Access Fundamentals and Applications*, edited by Tao Jiang, Liangyang Song and Yan Zhang, Auerbach Publications, CRC Press, Taylor&Francis Group, 2010.
5. **Yik-Chung Wu**, Jianwu Chen, Tung-Sang Ng and Erchin Serpedin, "Chapter 15: Multi-user frequency offsets estimation in OFDMA uplink systems," in *Orthogonal Frequency Division Multiple Access Fundamentals and Applications*, edited by Tao Jiang, Liangyang Song and Yan Zhang, Auerbach Publications, CRC Press, Taylor&Francis Group, 2010.
6. Kyoung-Lae Noh, **Yik-Chung Wu**, Khalid Qaraqe and Erchin Serpedin, "Chapter 13: Time Synchronization for Wireless Sensor Networks," in Adaptive Signal Processing for Wireless Communications, edited by Mohamed Ibnkahla, CRC Press, 2008.
7. **Yik-Chung Wu**, Tung-Sang Ng and Kun-Wah Yip, "Chapter 7 -- Software-Radio: A Prospective Technology for the Future Broadband Communication Systems," in Advances in 3G Enhanced Technologies for Wireless Communications, edited by J. Wang and T. S. Ng, Artech House, 2002. (This book has been translated into Chinese language)

Published/accepted journal papers (86):

1. Xinyue Pei, Hua Yu, Xiaojie Wang, Yingyang Chen, Miaowen Wen, and **Yik-Chung Wu**, ``NOMA-based Pervasive Edge Computing: Secure Power Allocation for IoV," *IEEE Trans. on Industrial Informatics*, vol. 17, no. 7, pp.5021-5030, Jul. 2021.
2. Xinyue Pei, Wei Duan, Miaowen Wen, **Yik-Chung Wu**, Hua Yu, and Valdemar Monteiro, ``Socially-Aware Joint Resource Allocation and Computation Offloading in NOMA-Aided Energy Harvesting Massive IoT," *IEEE Internet of Things Journal*, vol 8, no.7, pp.5240-5249, Apr. 2021.
3. Fanqing Tan, Peiran Wu, **Yik-Chung Wu**, and Minghua Xia, ``Energy-efficient Non-orthogonal Multicast and Unicast Transmission of Cell-free Massive MIMO Systems with SWIPT," *IEEE Journal on Selected Areas in Communications (JSAC),* vol. 39, no. 4, pp. 949-968, Apr. 2021.

4. Zongze Li, Minghua Xia, Miaowen Wen, and **Yik-Chung Wu**, ``Massive Access in Secure NOMA under Imperfect CSI: Security Guaranteed Sum-rate Maximization with First-order Algorithm," *IEEE Journal on Selected Areas in Communications (JSAC)*, vol. 39, no. 4, pp. 998-1014, Apr. 2021.
5. Xin He and **Yik-Chung Wu**, ``Set Squeezing Procedure for Quadratically Perturbed Chance-constrained Programming," *IEEE Trans. on Signal Processing*, vol. 69, pp. 682-694, 2021, doi: 10.1109/TSP.2020.3047200.
6. Dan Liu, Shuai Wang, Zhigang Wen, Lei Cheng, Miaowen Wen, and **Yik-Chung Wu**, ``Edge learning with unmanned ground vehicle: joint path, energy and sample size planning," *IEEE Internet of Things Journal*, vol.8, no. 4, pp. 2959-2975, Feb 2021.
7. Shuai Wang, **Yik-Chung Wu**, Minghua Xia, Rui Wang, and H. Vincent Poor, ``Machine Intelligence at the Edge with Learning Centric Power Allocation," *IEEE Trans. on Wireless Communications.* Vol. 19, no. 11, pp. 7293-7308, Nov. 2020. (the conference version of this paper received the best paper award in IEEE ICC 2020)
8. Shuai Wang, Miaowen Wen, Minghua Xia, Rui Wang, Qi Hao, and **Yik-Chung Wu**, ``Angle Aware User Cooperation for Secure Massive MIMO in Rician Fading Channel," in *IEEE Journal on Selected Areas in Communications (JSAC)*, vol. 38, no. 9, pp.2182-2196, Sept. 2020, doi: 10.1109/JSAC.2020.3000837.
9. Lei Cheng, Xueke Tong, Shuai Wang, **Yik-Chung Wu**, and H. Vincent Poor, ``Learning Nonnegative Factors from Tensor Data: Probabilistic Modeling and Inference Algorithm," in *IEEE Trans. on Signal Processing*, vol. 68, pp. 1792-1806, 2020, doi: 10.1109/TSP.2020.2975353.
10. Yang Li, Minghua Xia, and **Yik-Chung Wu**, ``Caching at Base Stations with Multi-Cluster Multicast Wireless Backhaul via Accelerated First-Order Algorithm," *IEEE Trans. on Wireless Communications*, Vol. 19, no. 5, pp. 2920-2933, May 2020.
11. Zongze Li, Shuai Wang, Pengcheng Mu, and **Yik-Chung Wu**, ``Probabilistic Constrained Secure Transmission: Variable-Rate Design and Performance Analysis," *IEEE Trans. on Wireless Communications*, Vol. 19, no. 4, pp. 2543-2557, April 2020.
12. Bin Li, Qinliang Su and **Yik-Chung Wu**, ``Fixed Points of Gaussian Belief Propagation and Relation to Convergence," *IEEE Trans. on Signal Processing*, Vol. 67, no. 23, pp. 6025-6038, Dec 2019.
13. Bin Li, and **Yik-Chung Wu**, "Convergence of Gaussian Belief Propagation Under General Pairwise Factorization: Connecting Gaussian MRF with Pairwise Linear Gaussian Model," *Journal of Machine Learning Research*, 20(144):1−30, 2019.
14. Xuan Chen, Miaowen Wen, Qiang Li, **Yik-Chung Wu**, and Theodoros Tsiftsis, ``Dual-Polarized Spatial Media-Based Modulation," *IEEE Journal of Selected Topics in Signal Processing*, Vol. 13, no. 6, pp. 1258-1269, Oct 2019.
15. Lei Cheng, Chengwen Xing, and **Yik-Chung Wu**, ``Irregular Array Manifold Aided Channel Estimation in Massive MIMO Communications," *IEEE Journal of Selected Topics in Signal Processing*, Vol. 13, no. 5, pp. 974-988, Sep 2019.
16. Miaowen Wen, Xuan Chen, Qiang Li, Ertugrul Basar, **Yik-Chung Wu**, and Wensong Zhang, ``Index Modulation Aided Subcarrier Mapping for Dual-Hop OFDM Relaying," *IEEE Trans. on Communications*, Vol. 167, no. 9, pp. 6012-6024, Sep 2019.

17. Yang Li, Minghua Xia, and **Yik-Chung Wu**, ``Energy-Efficient Precoding for Non-Orthogonal Multicast and Unicast Transmission via First-Order Algorithm," *IEEE Trans. on Wireless Communications,* Vol. 18, no. 9, pp. 4590-4604, Sep 2019.

18. Bin Li, and **Yik-Chung Wu**, ``Convergence Analysis of Gaussian Belief Propagation Under High-Order Factorization and Asynchronous Scheduling," *IEEE Trans. on Signal Processing*, Vol. 67, no. 11, pp. 2884-2897, Jun 2019.

19. Shuai Wang, Minghua Xia, and **Yik-Chung Wu,** ``Backscatter Data Collection With Unmanned Ground Vehicle: Mobility Management and Power Allocation," *IEEE Trans. on Wireless Communications*, Vol. 18, no. 4, pp. 2314-2328, Apr 2019.

20. Yang Li, Minghua Xia, and **Yik-Chung Wu**, ``Activity Detection for Massive Connectivity under Frequency Offsets via First-Order Algorithms," *IEEE Trans. on Wireless Communications*, Vol. 18, no. 3, pp. 1988-2002, Mar. 2019.

21. Lei Cheng, **Yik-Chung Wu**, and H. Vincent Poor, ``Scaling Probabilistic Tensor Canonical Polyadic Decomposition to Massive Data," *IEEE Trans. on Signal Processing*, Vol. 66, no. 21, pp. 5534-5548, Nov 2018.

22. Yang Li, Minghua Xia, and **Yik-Chung Wu**, "First-Order Algorithm for Content-Centric Sparse Multicast Beamforming in Large-Scale C-RAN," *IEEE Trans. on Wireless Communications*, Vol. 17, no. 9, pp. 5959-5974, Sept. 2018.

23. Shuai Wang, Minghua Xia, and **Yik-Chung Wu**, "Multicast Wirelessly Powered Network with Large Number of Antennas via First-Order Method," *IEEE Trans. Wireless Communications*, Vol. 17, no.6, pp. 3781-3793, June 2018.

24. Jian Du, Shaodan Ma, **Yik-Chung Wu**, Soummya Kar, José M. F. Moura, ``Convergence Analysis of Distributed Inference with Vector-Valued Gaussian Belief Propagation," *Journal of Machine Learning Research*, 18(172):1−38, 2018.

25. Shuai Wang, Minghua Xia, and **Yik-Chung Wu**, "Space-Time Signal Optimization for SWIPT: Linear versus Nonlinear Energy Harvesting Model," *IEEE Communications Letters*, Vol. 22, no. 2, pp. 408-411, Feb. 2018.

26. Shuai Wang, Minghua Xia, Kaibin Huang, and **Yik-Chung Wu**, "Wirelessly Powered Two-Way Communication with Nonlinear Energy Harvesting Model: Rate Region under Fixed and Mobile Relay," *IEEE Trans. Wireless Communications*, Vol. 16, no. 12, pp. 8190-8204, Dec 2017.

27. Shiqi Gong, Chengwen Xing, Nan Yang, **Yik-Chung Wu**, and Zesong Fei, "Energy efficient transmission in multi-user MIMO relay channels with perfect and imperfect channel state information," *IEEE Trans. Wireless Communications*, Vol. 16, no. 6, pp. 3885-3898, June 2017.

28. Lei Cheng, **Yik-Chung Wu**, and H. Vincent Poor, ``Probabilistic Tensor Canonical Polyadic Decomposition With Orthogonal Factors," *IEEE Trans. on Signal Processing*, Vol. 65, no. 3, pp. 663-676, Feb 2017.

29. Shuai Wang, Minghua Xia, and **Yik-Chung Wu**, ``Multi-Pair Two-Way Relay Network With Harvest-Then-Transmit Users: Resolving Pairwise Uplink-Downlink Coupling," *IEEE Journal of Selected Topics in Signal Processing*, Vol. 10, no. 8, pp. 1506-1521, Dec 2016.

30. Rubayet Shafin, Lingjia Liu, Charlie Zhang, and **Yik-Chung Wu** ``DoA Estimation and Capacity Analysis for 3D Millimeter Wave Massive-MIMO/FD-MIMO OFDM Systems," *IEEE Trans. Wireless Communications,* Vol. 15, no. 10, pp. 6963-6978, Oct 2016.

31. Bin Luo, Lei Cheng, and **Yik-Chung Wu**, ``Fully-distributed Clock Synchronization in Wireless Sensor Networks Under Exponential Delays," *Signal Processing*, Vol. 125, pp. 261-273, Aug 2016.
32. Qinliang Su and **Yik-Chung Wu**, ``Distributed Estimation of Variance in Gaussian Graphical Model via Belief Propagation: Accuracy Analysis and Improvement," *IEEE Trans. on Signal Processing*, Vol. 63, no. 23, pp. 6258-6271, Dec 2015.
33. Lei Cheng, **Yik-Chung Wu**, Jianzhong (Charlie) Zhang, and Lingjia Liu, ``Subspace Identification for DOA Estimation in Massive / Full-dimension MIMO System: Bad Data Mitigation and Automatic Source Enumeration," *IEEE Trans. on Signal Processing,* Vol. 63, no. 22, pp. 5897-5909, Nov 2015.
34. Jingrong Zhou, Jiayin Qin and **Yik-Chung Wu**, ``Variational Inference-based Joint Interference Mitigation and OFDM Equalization under High Mobility," *IEEE Signal Processing Letters*, Vol. 22, no. 11, pp. 1970 – 1974, Nov 2015.
35. Xin He, and **Yik-Chung Wu**, ``Tight Probabilistic SINR Constrained Beamforming Under Channel Uncertainties," *IEEE Trans. on Signal Processing,* Vol. 63, no. 13, pp. 3490-3505, Jul. 2015.
36. Qinliang Su and **Yik-Chung Wu**, ``On Convergence Conditions of Gaussian Belief Propagation," *IEEE Trans. on Signal Processing*, Vol. 63, no. 5, pp. 1144-1155, Mar. 2015.
37. Qinliang Su and **Yik-Chung Wu**, ``Convergence Analysis of the Variance in Gaussian Belief Propagation," *IEEE Trans. on Signal Processing*, Vol. 62, no. 19, pp. 5119-5131, Oct. 2014.
38. Jian Du, Shaodan Ma, **Yik-Chung Wu**, and H. Vincent Poor, ``Distributed Hybrid Power State Estimation under PMU Sampling Phase Errors," *IEEE Trans. on Signal Processing*, Vol. 62, no. 16, pp 4052-4063, Aug 2014.
39. Bin Luo and **Yik-Chung Wu**, ``Distributed Clock Parameters Tracking in Wireless Sensor Network," *IEEE Trans. on Wireless Communications*, Vol. 12, no. 12, pp.6464-6475, Dec 2013.
40. Xin He and **Yik-Chung Wu**, ``Probabilistic QoS Constrained Robust Downlink Multiuser MIMO Transceiver Design with Arbitrarily Distributed Channel Uncertainty," *IEEE Trans. on Wireless Communications*, Vol. 12, no. 12, pp.6292-6302, Dec 2013.
41. Jian Du and **Yik-Chung Wu**, ``Network-Wide Distributed Carrier Frequency Offsets Estimation and Compensation via Belief Propagation," *IEEE Trans. on Signal Processing,* Vol. 61, no. 23, pp. 5868-5877, Dec. 2013.
42. Jian Du and **Yik-Chung Wu**, ``Distributed Clock Skew and Offset Estimation in Wireless Sensor Networks: Asynchronous Algorithm and Convergence Analysis," *IEEE Trans. on Wireless Communications,* Vol. 12, no. 11, pp. 5908-5917, Nov. 2013.
43. Ke Zhong, **Yik-Chung Wu**, and Shaoqian Li, ``Signal Detection for OFDM-Based Virtual MIMO Systems under Unknown Doubly Selective Channels, Multiple Interferences and Phase Noises," *IEEE Trans. on Wireless Communications*, Vol. 12, no. 10, pp.5309-5321, Oct 2013.
44. Chengwen Xing, Shaodan Ma, Zesong Fei, **Yik-Chung Wu** and H. Vincent Poor, ``A General Robust Linear Transceiver Design for Multi-Hop Amplify-and-Forward MIMO Relaying Systems," *IEEE Trans. on Signal Processing,* Vol. 61, no. 5 pp.1196-1209, Mar. 2013.
45. Chengwen Xing, Shaodan Ma, Minghua Xia and **Yik-Chung Wu**, "Cooperative Beamforming for Dual-Hop Amplify-and-Forward Multi-Antenna Relaying Cellular Networks," *Signal Processing*, (2012), Vol. 92, no. 11, pp. 2689-2699, Nov 2012. http://dx.doi.org/10.1016/j.sigpro.2012.04.017

46. Minghua Xia, **Yik-Chung Wu** and Sonia Aissa, "Exact Outage Probability of Dual-Hop CSI-Assisted AF Relaying over Nakagami-*m* Fading Channels," *IEEE Trans. on Signal Processing*, Vol. 60, no. 10, pp.5578-5583, Oct 2012.

47. S.C. Chan, K.M. Tsui, H.C. Wu, Y. Hou, **Yik-Chung Wu**, and F.F. Wu, "Load/Price Forecasting and Managing Demand Response for Smart Grids: Methodologies and Challenges, " *IEEE Signal Processing Magazine*, Vol. 29, no. 5, pp.68-85, Sep 2012.

48. Chengwen Xing, Minghua Xia, Feifei Gao, and **Yik-Chung Wu**, "Robust Transceiver with Tomlinson-Harashima Precoding for Amplify-and-Forward MIMO Relaying Systems," *IEEE Journal on Selected Areas in Communications (JSAC)*, Vol. 30, no. 8, pp. 1370-1382, Sep 2012.

49. **Yik-Chung Wu**, Long-Fung Cheung, King-Shan Lui, and P.W.T. Pong, "Efficient Communication of Sensors Monitoring Overhead Transmission Lines," *IEEE Trans. on Smart Grid*, Vol. 3, no. 3, pp.1130-1136, Sep 2012.

50. Minghua Xia, **Yik-Chung Wu** and Sonia Aissa, "Non-orthogonal Opportunistic Beamforming: Performance Analysis and Implementation," *IEEE Trans. on Wireless Communications*, Vol. 11, no. 4, pp. 1424-1433, Apr 2012.

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