

Vincent Y. F. Tan

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Research Interests

Network Information Theory, Machine Learning, Statistical Signal Processing

Education

Massachusetts Institute of Technology

Ph.D. in Electrical Engineering and Computer Science, February 2011

Thesis topic: Large-Deviations Analysis and Applications of Learning Tree-Structured Graphical Models (Jin-Au Kong Outstanding Thesis Prize)

Cambridge University

B.A. (Class 1), M.Eng. (Distinction) in Electrical and Information Sciences, July 2005

Thesis topic: Blind Audio Source Separation (Charles Lamb Prize)

Professional Experiences

Assistant Professor, Dept. of Mathematics, National University of Singapore (NUS)
Jul 2014 - Current. Teaching classes and advising graduate students

Assistant Professor, Dept. of Electrical and Computer Engineering (ECE), NUS
Jan 2014 - Current. Teaching classes and advising graduate students

Scientist, Data Analytics Dept., Institute for Infocomm Research (I²R), Agency for Science, Technology and Research (A*STAR), Singapore
Feb 2012 - Dec 2013. Designing algorithms for analyzing high-dimensional data

Adjunct Assistant Professor, Dept. of ECE, NUS
Apr 2012 - Dec 2013. Teaching classes and advising graduate students

Post-Doctoral Researcher, Dept. of ECE, University of Wisconsin-Madison
Dec 2010 - Oct 2011. Worked with Prof. Stark Draper on information theoretic security, machine learning and coding theory

Graduate Research Assistant, Laboratory for Information and Decision Systems, Dept. of Electrical Engineering and Computer Science, Massachusetts Institute of Technology
Jan 2007 - Dec 2010. Advised by Prof. Alan Willsky and performed research in signal processing and machine learning, specifically in the learning of graphical models

Intern, E-Science Research Group, Microsoft Research Los Angeles, CA
Summer 2009. Worked with Dr. David Heckerman and Dr. Jonathan Carlson on machine learning techniques to infer structure and parameters of evolutionary trees

Intern, Machine Learning and Perception Group, Microsoft Research Cambridge U.K.
Summer 2008. Worked with Prof. Christopher Bishop, Dr. John Winn and clinician scientists in the University of Manchester, UK to apply Bayesian graphical modeling techniques to categorize childhood asthma classes automatically

Grants

2016: Faculty Research Committee (FRC) Tier 1 Grant “Spectral Methods for Optimization with Applications to Ranking” (SGD ~ 153,000)

2015: Ministry of Education Tier 2 Grant “Network Communication with Synchronization Errors: Fundamental Limits and Codes” (SGD ~ 500,000)

2014: NUS Young Investigator Award for the project “An Information-Theoretic Understanding of Machine Learning Algorithms” (SGD 497,229.62)

2014: NUS Startup Grant “Fundamental Limits of Energy-Harvesting and Secure Communication Systems Under Finite Delay Constraints” (SGD 180,000)

2013: A*STAR Joint Council Office (JCO) Exploratory Grant titled “Automated Detection and Analysis of Fluorescently Labelled DNA-fibres”
Collaboration with A*STAR p53-IFOM lab (SGD 189,000)

Awards and Honors

2016: Finalist for the Singapore Young Scientist Award

2016: Faculty of Engineering Teaching Commendation Award

2014: NUS Young Investigator Award

2014: Co-author of a paper shortlisted for the Best Student Paper Award of the IEEE Intl. Symposium on Information Theory

2011: Philip Yeo Prize for Outstanding Achievements in Research

2011: EECS Jin-Au Kong Outstanding Doctoral Thesis Prize

2009: Student Travel Award for the IEEE Intl. Symposium on Information Theory

2006: A*STAR National Science Scholarship
Full funding for Ph.D. studies at MIT

2005: Charles Lamb Prize: Top M.Eng. student in the Electrical and Information Sciences Tripos in Cambridge University

2001: Overseas Merit Scholarship, Public Service Commission (PSC)
Full funding for undergraduate studies in Cambridge University

Teaching Experiences

Instructor, MA4270, Data Modeling and Computation (Spring 2016)

Instructor, EE5138R, Optimization for Communication Systems at NUS (Spring 2015)

Instructor, EE5139R, Information Theory for Communication Systems at NUS (Fall 2014–2016)

Co-Instructor, EE5139R Communication Systems at NUS (Fall 2012, Fall 2013)
Ratings at least one standard deviation above average in ECE Dept. Level 5000 courses

Tutorials, EE2012 Analytical Methods at NUS (Fall 2006, Spring 2013)

Instructor, Network Information Theory at the University of Wisconsin-Madison (Fall 2011)

Teaching Assistant, 6.437 Inference and Information at MIT
Taught by Prof. Greg Wornell, Spring 2010, Rating 6.4/7.0.

Teaching Assistant, 6.241 Dynamic Systems and Control at MIT
Taught by Prof. Munther Dahleh, Fall 2008, Rating 6.5/7.0.

Publications

A full list of publications is given in Appendix A, or from the following website:
<http://www.ece.nus.edu.sg/stfpage/vtan/pubs.htm>

Professional Activities

Editor, IEEE Transactions on Communications (2015–present)

Editor, IEEE Transactions on Green Communications and Networking (2016–present)

Member of the IEEE Machine Learning and Signal Processing Technical Committee (2012–2015)

Senior Member, IEEE and Member of the IEEE Information Theory Society

Technical Program Committee Member for the following conferences

- IEEE Intl. Symposium on Information Theory (2014, 2015, 2016)
- IEEE Intl. Workshop on Machine Learning and Signal Processing (2013)
- IEEE Intl. Conference on Acoustics, Speech and Signal Processing (2013, 2014)

Reviewer for the following journals

- IEEE Transactions on Information Theory
- IEEE Transactions on Signal Processing
- Journal of Machine Learning Research

Co-organizing the “Beyond i.i.d. in information theory” conference held in NUS (2014)

Students

Mr. LIU Zhaoqiang (PhD expected in 2018; Math Dept.; Co-supervised with W. Bao)

Mr. ZHOU Lin (PhD expected in 2018; ECE Dept.; Co-supervised with M. Motani)

Mr. TRUONG Vinh Lan (PhD expected in 2019; ECE Dept)

Mr. ZHAO Renbo (M.Sc. expected in 2017; Math Dept.)

Mr. LE Sy Quoc (PhD 2014, co-supervised with Prof. Mehul Motani)

Appendix A: Vincent Y. F. Tan's Publications

Summary Statistics of Journal Papers

1. 1579 Citations (per Google Scholar on 03 Feb 2017)
2. Twenty Three in the IEEE Transactions on Information Theory (IF: 1.737)
3. Five in the IEEE Transactions on Signal Processing (IF: 2.813)
4. Three in the Journal of Machine Learning Research (IF: 3.420)
5. Two in the IEEE Journal of Selected Areas of Communications (IF: 4.138)
6. One in Nature Medicine (IF: 27.363)
7. One in the American Journal of Respiratory and Critical Care Medicine (IF: 11.041)
8. One in the Journal of Virology (IF: 5.076)
9. One in the IEEE Transactions on Pattern Analysis and Machine Intelligence (IF: 4.795)
10. One in the IEEE Transactions on Neural Networks and Learning Systems (IF: 3.766)
11. One in the Annals of Statistics (IF: 2.53)
12. One in the IEEE Transactions on Information Forensics and Security (IF: 2.065)
13. One in the Communications in Mathematical Physics (IF: 1.901)
14. One in the IEEE Signal Processing Letters (IF: 1.674)
15. One in the IEEE Transactions on Communications (IF: 1.75)
16. One in the IEEE Communication Letters (IF: 1.291)

Monographs

- M1. Vincent Y. F. Tan, "Asymptotic Estimates in Information Theory with Non-Vanishing Error Probabilities" *Foundations and Trends on Communications and Information Theory*, vol. 11, no. 1-2, pp. 1 - 184, 2014

Journal Papers

- J1. Eldho K. Thomas, Vincent Y. F. Tan, Alexander Vardy and Mehul Motani, "Polar Coding for the Binary Erasure Channel with Deletions", *IEEE Communication Letters*, Vol. 21, No. 4, Apr 2017
- J2. Lin Zhou, Vincent Y. F. Tan, and Mehul Motani, "Second-Order and Moderate Deviation Asymptotics for Successive Refinement", *IEEE Transactions on Information Theory*, Vol. 63, No. 3, Apr 2017
- J3. Changho Suh, Vincent Y. F. Tan, and Renbo Zhao, "Adversarial Top-K Ranking", *IEEE Transactions on Information Theory*, Vol. 63, No. 4, Mar 2017
- J4. Lan V. Truong, Silas L. Fong and Vincent Y. F. Tan, "On Gaussian Channels with Feedback under Expected Power Constraints and with Non-Vanishing Error Probabilities", *IEEE Transactions on Information Theory*, Vol. 63, No. 3, Mar 2017
- J5. Lin Zhou, Vincent Y. F. Tan, and Mehul Motani "Discrete Lossy Gray-Wyner Revisited: Second-Order Asymptotics, Large and Moderate Deviations", *IEEE Transactions on Information Theory*, Vol. 63, No. 3, Mar 2017
- J6. Masahito Hayashi and Vincent Y. F. Tan, "Equivocations, Exponents and Second-Order Coding Rates under Various Rényi Information Measures", *IEEE Transactions on Information Theory*, Vol. 63, No. 2, Pages 975 - 1005, Feb 2017
- J7. Renbo Zhao and Vincent Y. F. Tan, "Online Nonnegative Matrix Factorization with Outliers", *IEEE Transactions on Signal Processing*, Vol. 65, No. 3, Pages 555 - 570, Feb 2017
- J8. Jonathan Scarlett, Vincent Y. F. Tan, and Giuseppe Durisi, "The Dispersion of Nearest-Neighbor Decoding for Additive Non-Gaussian Channels", *IEEE Transactions on Information Theory* vol. 62, no. 12, Pages 81 - 92, Jan 2017

- J9. Si-Hyeon Lee, Vincent Y. F. Tan and Ashish Khisti, “Streaming Data Transmission in the Moderate Deviations and Central Limit Regimes”, *IEEE Transactions on Information Theory*, vol. 62, no. 12, Pages 6816 - 6830, Dec 2016
- J10. Silas L. Fong and Vincent Y. F. Tan, “On the Scaling Exponent of Polar Codes for Binary-Input Energy-Harvesting Channels,” *IEEE Journal of Selected Areas in Communications*, Vol. 34, No. 12, Pages 3540 - 3551, Dec 2016
- J11. Silas L. Fong, Vincent Y. F. Tan and Jing Yang, “Non-Asymptotic Achievable Rates for Energy-Harvesting Channels using Save-and-Transmit,” *IEEE Journal of Selected Areas in Communications*, Vol. 34, No. 12, Pages 3499 - 3511, Dec 2016
- J12. Silas L. Fong and Vincent Y. F. Tan, “Strong Converse Theorems for Classes of Multimesage Multicast Networks: A Renyi Divergence Approach,” *IEEE Transactions on Information Theory*, vol. 62, no. 9, pp. 4953 - 4967, Sep 2016
- J13. Silas L. Fong and Vincent Y. F. Tan, “A Proof of the Strong Converse Theorem for Gaussian Multiple Access Channels,” *IEEE Transactions on Information Theory*, vol. 62, no. 8, pp. 4376 - 4394, Aug 2016
- J14. Jonathan M. Carlson, Victor Y. Du, Nico Pfeifer, Anju Bansal, Vincent Y. F. Tan, Karen Power, Chanson J. Brumme, Anat Kreimer, Charles E. DeZiel, Nicolo Fusi, Malinda Schaefer, Mark A. Brockman, Jill Gilmour, Matt A. Price, William Kilembe, Richard Haubrich, Mina John, Simon Mallal, Roger Shapiro, John Frater, P. Richard Harrigan, Thumbi Ndung’u, Susan Allen, David Heckerman, John Sidney, Todd M. Allen, Philip J. R. Goulder, Zabrina L. Brumme, Eric Hunter, Paul A. Goepfert, “Impact of Pre-Adapted HIV Transmission”, *Nature Medicine*, vol. 22, no. 6, pp. 606 - 613, Jun 2016
- J15. Fan Cheng and Vincent Y. F. Tan, “A Numerical Study on the Wiretap Network with a Simple Network Topology”, *IEEE Transactions on Information Theory*, vol. 62, no. 5, pp. 2481 - 2492, May 2016
- J16. Jonathan Scarlett and Vincent Y. F. Tan, “Second-Order Asymptotics for the Gaussian MAC with Degraded Message Sets”, *IEEE Transactions on Information Theory*, vol. 61, no. 12, pp. 6700 - 6718, Dec 2015
- J17. Masahito Hayashi and Vincent Y. F. Tan, “Asymmetric Evaluations of Erasure and Undetected Error Probabilities” *IEEE Transactions on Information Theory*, vol. 61, no. 12, pp. 6560 - 6577, Dec 2015
- J18. Yanina Shkel, Vincent Y. F. Tan and Stark C. Draper, “Unequal Message Protection: Asymptotic and Non-Asymptotic Tradeoffs”, *IEEE Transactions on Information Theory*, vol. 61, no. 10, pp. 5396 - 5416, Oct 2015
- J19. Vincent Y. F. Tan and Matthieu R. Bloch, “Information Spectrum Approach to Strong Converse Theorems for Degraded Wiretap Channels”, *IEEE Transactions on Information Forensics and Security*, vol. 10, no. 9, pp. 1891 - 1904, Sep 2015
- J20. Marco Tomamichel and Vincent Y. F. Tan, “Second-Order Asymptotics for the Classical Capacity of Image Additive Quantum Channels,” *Communications in Mathematical Physics*, vol. 338, no. 1, pp. 103 - 137, Aug 2015
- J21. Sy-Quoc Le, Vincent Y. F. Tan and Mehul Motani, “A Case Where Interference Does Not Affect the Channel Dispersion,” *IEEE Transactions on Information Theory*, vol. 61, no. 5, pp. 2439 - 2453, May 2015
- J22. Vincent Y. F. Tan and Marco Tomamichel, “The Third-Order Term in the Normal Approximation for the AWGN Channel,” *IEEE Transactions on Information Theory*, vol. 61, no. 5, pp. 2430 - 2438, May 2015
- J23. Shun Watanabe, Shigeaki Kuzuoka and Vincent Y. F. Tan, “Non-Asymptotic and Second-Order Achievability Bounds for Coding With Side-Information,” *IEEE Transactions on Information Theory*, vol. 61, no. 4, pp. 1574 - 1605, Apr 2015
- J24. Vincent Y. F. Tan, “On the Reliability Function of the Discrete Memoryless Relay Channel,” *IEEE Transactions on Information Theory*, vol. 61, no. 4, pp. 1550 - 1573, Apr 2015
- J25. Tzu-Han Chou, Vincent Y. F. Tan and Stark C. Draper, “The Sender-Excited Secret-Key Agreement Model: Capacity, Reliability and Secrecy Exponents,” *IEEE Transactions on Information Theory*, vol. 61, no. 1, pp. 609 - 627, Jan 2015

- J26. Hong Cao, Vincent Y. F. Tan and John Z. F. Pang, “A Parsimonious Mixture of Gaussian Trees Model for Oversampling in Imbalanced and Multi-Modal Time-Series Classification” *IEEE Transactions on Neural Networks and Learning Systems*, vol. 25, no. 12, pp. 2226 - 2239, Dec 2014
- J27. Marco Tomamichel and Vincent Y. F. Tan, “Second-Order Coding Rates for Channels with State,” *IEEE Transactions on Information Theory*, vol. 60, no. 8, pp. 4427 - 4448, Aug 2014
- J28. Vincent Y. F. Tan, “A Formula for the Capacity of the General Gel’fand-Pinsker Channel” *IEEE Transactions on Communications*, vol. 62, no. 6, pp. 1857 - 1870, Jun 2014
- J29. Vincent Y. F. Tan and George K. Atia, “Strong Impossibility Results for Sparse Signal Processing,” *IEEE Signal Processing Letters*, vol. 21, no. 3, pp. 260 - 264, Mar 2014
- J30. Vincent Y. F. Tan and Oliver Kosut, “On the Dispersions of Three Network Information Theory Problems,” *IEEE Transactions on Information Theory*, vol. 60, no. 2, pp. 883 - 903, Feb 2014
- J31. Marco Tomamichel and Vincent Y. F. Tan, “A Tight Upper Bound for the Third-Order Asymptotics for Most Discrete Memoryless Channels,” *IEEE Transactions on Information Theory*, vol. 59, no. 11, pp. 7041 - 7051, Nov 2013
- J32. Gang Yang, Vincent Y. F. Tan, Chin Keong Ho, See Ho Ting and Yong Liang Guan, “Wireless Compressive Sensing for Energy Harvesting Sensor Nodes over Fading Channels,” *IEEE Transactions on Signal Processing*, vol. 61, no. 18, pp. 4491 - 4505, Sep 2013
- J33. Vincent Y. F. Tan and Cédric Févotte, “Automatic Relevance Determination in Nonnegative Matrix Factorization with the β -Divergence,” *IEEE Transactions on Pattern Analysis and Machine Intelligence*, vol. 35, no. 7, pp. 1592 - 1605, Jul 2013
- J34. Animashree Anandkumar, Vincent Y. F. Tan, Furong Huang and Alan S. Willsky, “High-Dimensional Gaussian Graphical Model Selection: Walk Summability and Local Separation Criterion,” *Journal of Machine Learning Research*, vol. 13, pp. 2293 - 2337, Aug 2012
- J35. Animashree Anandkumar, Vincent Y. F. Tan, Furong Huang and Alan S. Willsky, “High-Dimensional Structure Estimation of Ising Models: Local Separation Criterion,” *Annals of Statistics*, vol. 40, no. 3, pp. 1346 - 1375, 2012
- J36. Jonathan M. Carlson, Jennifer Listgarten, Nico Pfeifer, Vincent Y. F. Tan, Carl Kadie, Bruce D. Walker, Thumbi Ndung’u, Roger Shapiro, John Frater, Zabrina L. Brumme, Philip J. R. Goulder, David Heckerman, “Widespread Impact of HLA Restriction on Immune Control and Escape Pathways in HIV-1” *Journal of Virology*, vol. 86, no. 9, pp. 5230 - 5243, May 2012.
- J37. Vincent Y. F. Tan, Laura Balzano and Stark C. Draper, “Rank Minimization over Finite Fields: Fundamental Limits and Coding-Theoretic Interpretations,” *IEEE Transactions on Information Theory*, vol. 58, no. 4, pp. 2018 - 2039, Apr 2012
- J38. Myung Jin Choi, Vincent Y. F. Tan, Animashree Anandkumar and Alan S. Willsky, “Learning Latent Tree Graphical Models,” *Journal of Machine Learning Research*, vol. 12, pp. 1771 - 1812, May 2011
- J39. Vincent Y. F. Tan, Animashree Anandkumar and Alan S. Willsky, “Learning High-Dimensional Markov Forest Distributions: Analysis of Error Rates,” *Journal of Machine Learning Research*, vol. 12, pp. 1617 - 1653, May 2011
- J40. Vincent Y. F. Tan, Animashree Anandkumar, Lang Tong and Alan S. Willsky, “A Large-Deviation Analysis of the Maximum-Likelihood Learning of Markov Tree Structures,” *IEEE Transactions on Information Theory*, vol. 57, no. 3, pp. 1714 - 1735, Mar 2011
- J41. Vincent Y. F. Tan, Sujay Sanghavi, John W. Fisher III and Alan S. Willsky, “Learning Graphical Models for Hypothesis Testing and Classification,” *IEEE Transactions on Signal Processing*, vol. 58, no. 11, pp. 5481 - 5495, Nov 2010
- J42. Angela Simpson*, Vincent Y. F. Tan*, John Winn, Markus Svensen, Chris Bishop, David Heckerman, Iain Buchan and Adnan Custovic, “Beyond Atopy: Multiple Patterns of Sensitization in Relation to Asthma in a Birth Cohort Study,” *American Journal of Respiratory and Critical Care Medicine*, vol. 181, pp. 1200 - 1206, Jun 2010 (*Co-first Authorship)
- J43. Vincent Y. F. Tan, Animashree Anandkumar and Alan S. Willsky, “Learning Gaussian Tree Models: Analysis of Error Exponents and Extremal Structures,” *IEEE Transactions on Signal Processing*, vol. 58, no. 5, pp. 2701 - 2714, May 2010

- J44. Vincent Y. F. Tan and Vivek K. Goyal, “Estimating Signals with Finite Rate of Innovation from Noisy Samples: A Stochastic Algorithm,” *IEEE Transactions on Signal Processing*, vol. 56, no. 10, pp. 5135 - 5145, Oct 2008

Conference Papers

- C1. Renbo Zhao, Vincent Y. F. Tan, and Huan Xu “Online Nonnegative Matrix Factorization with General Divergences”, *International Conference on Artificial Intelligence and Statistics (AISTATS)*, Fort Lauderdale, FL, 2017
- C2. Zhaoqiang Liu and Vincent Y. F. Tan, “Relative Error Bounds for Nonnegative Matrix Factorization Under a Geometric Assumption”, *IEEE Conference on Acoustics, Speech and Signal Processing*, New Orleans, Louisiana, 2017
- C3. Renbo Zhao and Vincent Y. F. Tan, “A Unified Convergence Analysis of the Multiplicative Update Algorithm for Regularized NMF with General Divergences”, *IEEE Conference on Acoustics, Speech and Signal Processing*, New Orleans, Louisiana, 2017
- C4. Jiachun Liao, Lalitha Sankar, Vincent Y. F. Tan, and Flavio du Pin Calmon, “Hypothesis Testing in the High Privacy Limit”, *54th Annual Allerton Conference on Communication, Control, and Computing*, Monticello, IL, 2016
- C5. Lan V. Truong, Silas L. Fong, Vincent Y. F. Tan, “The ε -Capacity Region of AWGN Multiple Access Channels with Feedback”, *International Conference on Signal Processing and Communications*, Bangalore, India, 2016
- C6. Jiachun Liao, Lalitha Sankar, Vincent Y. F. Tan, and Flavio du Pin Calmon, “Hypothesis Testing in the High Privacy Limit”, *International Conference on Signal Processing and Communications*, Bangalore, India, 2016
- C7. Lin Zhou, Vincent Y. F. Tan and Mehul Motani, “Second-Order and Moderate Deviation Asymptotics for Successive Refinement”, *IEEE International Symposium on Information Theory*, Barcelona Spain, 2016
- C8. Lin Zhou, Vincent Y. F. Tan and Mehul Motani, “Discrete Lossy Gray-Wyner Revisited: Second-Order Asymptotics, Large and Moderate Deviations”, *IEEE International Symposium on Information Theory*, Barcelona Spain, 2016
- C9. Jonathan Scarlett, Vincent Y. F. Tan and Giuseppe Durisi, “The Dispersion of Nearest-Neighbor Decoding for Additive Non-Gaussian Channels”, *IEEE International Symposium on Information Theory*, Barcelona Spain, 2016
- C10. Silas L. Fong and Vincent Y. F. Tan, “A Proof of the Strong Converse Theorem for Gaussian Broadcast Channels via the Gaussian Poincare Inequality”, *IEEE International Symposium on Information Theory*, Barcelona Spain, 2016
- C11. Si-Hyeon Lee, Vincent Y. F. Tan and Ashish Khisti, “Streaming Data Transmission in the Moderate Deviations and Central Limit Regimes”, *IEEE International Symposium on Information Theory*, Barcelona Spain, 2016
- C12. Masahito Hayashi and Vincent Y. F. Tan, “Remaining Uncertainties and Exponents under Various Rényi Information Measures”, *IEEE International Symposium on Information Theory*, Barcelona Spain, 2016
- C13. Lan V. Truong, Silas L. Fong, and Vincent Y. F. Tan, “On Second-Order Asymptotics for the AWGN Channel under an Expected Power Constraint”, *IEEE International Symposium on Information Theory*, Barcelona Spain, 2016
- C14. Silas L. Fong, Vincent Y. F. Tan and Jing Yang, “Non-Asymptotic Achievable Rates for Energy-Harvesting Channels using Save-and-Transmit”, *IEEE International Symposium on Information Theory*, Barcelona Spain, 2016
- C15. Silas L. Fong and Vincent Y. F. Tan, “Two Applications of the Gaussian Poincare Inequality in the Shannon Theory”, *International Zurich Seminar on Communications (IZS)*, Zurich, Switzerland, Mar 2016
- C16. Jonathan Scarlett, Vincent Y. F. Tan and Giuseppe Durisi, “The Dispersion of Nearest-Neighbor Decoding for Additive Non-Gaussian Channels”, *International Zurich Seminar on Communications (IZS)*, Zurich, Switzerland, Mar 2016

- C17. Renbo Zhao and Vincent Y. F. Tan, “Online Non-Negative Matrix Factorization with Outliers,” *IEEE Conference on Acoustics, Speech and Signal Processing*, Shanghai, China, 2016
- C18. Changho Suh, Vincent Y. F. Tan and Renbo Zhao, “Adversarial Top-K Ranking”, *Information Theory and Applications Workshop*, San Diego, C.A., 2016
- C19. Yanina Shkel, Vincent Y. F. Tan and Stark C. Draper, “Second-Order Coding Rates for m -Class Source-Channel Codes,” *53rd Annual Allerton Conference on Communication, Control, and Computing*, Monticello, IL, 2015
- C20. Silas L. Fong and Vincent Y. F. Tan, “A Proof of the Strong Converse Theorem for Gaussian Multiple Access Channels,” *IEEE Information Theory Workshop*, Jeju Island, S. Korea, 2015
- C21. Vincent Y. F. Tan, “Error and Erasure Exponents for the Asymmetric Broadcast Channel,” *IEEE Information Theory Workshop*, Jeju Island, S. Korea, 2015
- C22. Masahito Hayashi and Vincent Y. F. Tan, “Equivocations and Exponents under various Renyi Information Measures,” *IEEE International Symposium on Information Theory*, Hong Kong, 2015
- C23. Masahito Hayashi and Vincent Y. F. Tan, “Error and Undetected Error Probabilities in the Moderate Deviations Regime,” *IEEE International Symposium on Information Theory*, Hong Kong, 2015
- C24. Silas L. Fong and Vincent Y. F. Tan, “Strong Converse Theorems for Classes of Multimesage Multicast Networks: A Renyi Divergence Approach,” *IEEE International Symposium on Information Theory*, Hong Kong, 2015
- C25. Silas L. Fong and Vincent Y. F. Tan, “Asymptotic Expansions for Gaussian Channels with Feedback under a Peak Power Constraint,” *IEEE International Symposium on Information Theory*, Hong Kong, 2015
- C26. Jonathan Scarlett and Vincent Y. F. Tan, “Second-Order Asymptotics for the Discrete Memoryless MAC with Degraded Message Sets,” *IEEE International Symposium on Information Theory*, Hong Kong, 2015
- C27. Vincent Y. F. Tan and Matthieu Bloch, “Information Spectrum Approach to Strong Converse Theorems for Degraded Wiretap Channels,” *52nd Annual Allerton Conference on Communication, Control, and Computing*, Monticello, IL, 2014
- C28. Jonathan Scarlett and Vincent Y. F. Tan, “Second-Order Asymptotics for the Gaussian MAC with Degraded Message Sets,” *IEEE International Symposium on Information Theory*, Honolulu, HI, 2014
- C29. Sy-Quoc Le, Vincent Y. F. Tan and Mehul Motani, “Second-Order Asymptotics for the Gaussian Interference Channel with Strictly Very Strong Interference,” *IEEE International Symposium on Information Theory*, Honolulu, HI, 2014
- C30. Yanina Shkel, Vincent Y. F. Tan and Stark C. Draper, “Achievability Bounds for Unequal Message Protection at Finite Block Lengths,” *IEEE International Symposium on Information Theory*, Honolulu, HI, 2014
- C31. Yanina Shkel, Vincent Y. F. Tan and Stark C. Draper, “On Mismatched Unequal Message Protection for Finite Block Length Joint Source-Channel Coding,” *IEEE International Symposium on Information Theory*, Honolulu, HI, 2014
- C32. Marco Tomamichel and Vincent Y. F. Tan, “Second Order Refinements to the Classical Capacities of Quantum Channels for Separable Input States,” *IEEE International Symposium on Information Theory*, Honolulu, HI, 2014
- C33. Vincent Y. F. Tan and Marco Tomamichel, “The Third-Order Term in the Normal Approximation for the AWGN Channel,” *IEEE International Symposium on Information Theory*, Honolulu, HI, 2014
- C34. Vincent Y. F. Tan, Shun Watanabe and Masahito Hayashi, “Moderate Deviations for Joint Source-Channel Coding for Systems with Markovian Memory,” *IEEE International Symposium on Information Theory*, Honolulu, HI, 2014
- C35. Vincent Y. F. Tan and Pierre Moulin, “Second-Order Capacities for Erasure and List Decoding,” *IEEE International Symposium on Information Theory*, Honolulu, HI, 2014
- C36. Vincent Y. F. Tan and George K. Atia, “Strong Impossibility Results for Noisy Group Testing,” *IEEE Conference on Acoustics, Speech and Signal Processing*, Florence, Italy, 2014

- C37. Jonathan Scarlett, Vincent Y. F. Tan, “Second-Order Asymptotics for the Gaussian MAC with Degraded Message Sets,” *Information Theory and Applications Workshop*, San Diego, C.A., 2014
- C38. Yanina Shkel, Vincent Y. F. Tan and Stark C. Draper, “Assorted Codes in the Finite Blocklength Regime,” *Information Theory and Applications Workshop*, San Diego, C.A., 2014
- C39. John Z. F. Pang, Hong Cao and Vincent Y. F. Tan, “MOGT: Oversampling with a Parsimonious Mixture of Gaussian Trees Model for Imbalanced Time-Series Classification,” *IEEE International Workshop on Machine Learning for Signal Processing*, Southampton, U.K., 2013
- C40. Marco Tomamichel and Vincent Y. F. Tan, “ ε -Capacity and Strong Converse for Channels with General State,” *IEEE Information Theory Workshop*, Seville, Spain, 2013
- C41. Marco Tomamichel and Vincent Y. F. Tan, “A Tight Upper Bound for the Third-Order Asymptotics of Discrete Memoryless Channels,” *IEEE International Symposium on Information Theory*, Istanbul, Turkey, 2013
- C42. Shun Watanabe, Shigeaki Kuzuoka and Vincent Y. F. Tan, “Non-Asymptotic and Second-Order Achievability Bounds for Source Coding With Side-Information,” *IEEE International Symposium on Information Theory*, Istanbul, Turkey, 2013
- C43. Vincent Y. F. Tan, “A Formula for the Capacity of the General Gelfand-Pinsker Channel,” *IEEE International Symposium on Information Theory*, Istanbul, Turkey, 2013
- C44. Vincent Y. F. Tan, “Error Exponents for the Relay Channel,” *IEEE International Symposium on Information Theory*, Istanbul, Turkey, 2013
- C45. Yanina Shkel, Vincent Y. F. Tan and Stark C. Draper, “Converse Bounds for Assorted Codes in the Finite Blocklength Regime,” *IEEE International Symposium on Information Theory*, Istanbul, Turkey, 2013
- C46. Sy-Quoc Le, Vincent Y. F. Tan and Mehul Motani, “On the Dispersions of the Discrete Memoryless Interference Channel,” *IEEE International Symposium on Information Theory*, Istanbul, Turkey, 2013
- C47. Gang Yang, Vincent Y. F. Tan, Chin Keong Ho, See Ho Ting and Yong Liang Guan, “Wireless Compressive Sensing for Energy Harvesting Sensor Nodes over Fading Channels,” *IEEE International Conference on Communications*, Budapest, Hungary, 2013
- C48. Sy-Quoc Le, Vincent Y. F. Tan and Mehul Motani, “On the Dispersions of the Discrete Memoryless Interference Channel,” *Information Theory and Applications Workshop*, San Diego, CA, 2013
- C49. Vincent Y. F. Tan, “Transmission of Correlated Sources over a MAC: A Gaussian Approximation-Based Analysis,” *50th Annual Allerton Conference on Communication, Control, and Computing*, Monticello, IL, 2012
- C50. Vincent Y. F. Tan, “Achievable Second-Order Coding Rates for the Wiretap Channel,” *IEEE International Conference on Communication Systems*, Singapore, 2012
- C51. Vincent Y. F. Tan and Oliver Kosut, “The Dispersion of Slepian-Wolf Coding,” *IEEE International Symposium on Information Theory*, Cambridge, MA, 2012
- C52. Vincent Y. F. Tan, “Moderate-Deviations for Lossy Source Coding of Discrete and Gaussian Sources,” *IEEE International Symposium on Information Theory*, Cambridge, MA, 2012
- C53. Vincent Y. F. Tan and Oliver Kosut, “On the Dispersions of Three Network Information Theory Problems,” *Conference on Information Sciences and Systems*, Princeton, NJ, 2012
- C54. Vincent Y. F. Tan and Oliver Kosut, “The Dispersion of Slepian-Wolf Coding,” *Information Theory and Applications Workshop*, San Diego, CA, 2012
- C55. Vincent Y. F. Tan and Alan S. Willsky, “Sample Complexity for Topology Estimation in Networks of LTI Systems,” *IEEE Conference on Decision and Control*, Orlando, FL, 2011
- C56. Vincent Y. F. Tan and Cédric Févotte, “Automatic Relevance Determination in Nonnegative Matrix Factorization with the β -Divergence,” *Neural Information Processing Systems (NIPS) Workshop on Sparse Representation and Low-rank Approximation*, Granada, Spain, 2011
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