Vincent Y. F. Tan

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Research Interests	Information Theory, Statistical Signal Processing, Machine Learning
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	Dean's Chair Associate Professor, Dept. of Electrical and Computer Engineering (ECE) and Dept. of Mathematics, National University of Singapore (NUS) Jan 2019 - present. Teaching classes, advising graduate students, internal service Associate Professor, Dept. of Electrical and Computer Engineering (ECE) and Dept. of Mathematics, National University of Singapore (NUS) Jan 2018 - Dec 2018. Teaching classes, advising graduate students, internal service Assistant Professor, Dept. of Mathematics, National University of Singapore (NUS) Jul 2014 - Dec 2017. Teaching classes and advising graduate students Assistant Professor, Dept. of Electrical and Computer Engineering (ECE), NUS Jan 2014 - Dec 2017. Teaching classes and advising graduate students Scientist, Data Analytics Dept., Institute for Infocomm Research (I^2R), 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
Significant Grants	2021: Ministry of Education Tier 1 Grant "Risk-Sensitive Sequential Learning: Algo-

rithms and Impossibility Results" (SGD $200,000$)

2018: National Research Foundation (NRF) Fellowship "Fundamental Limits for Statistical Learning Algorithms" (SGD $2,060,000$)

2017: NRF Cybersecurity R&D Programme Grant "Machine Learning, Robust Optimisation, and Verification: Creating Synergistic Capabilities in Cybersecurity" (SGD $379,000$)

2017: Ministry of Education Tier 2 Grant "Nonnegative Matrix Factorization: Geometry, Privacy and Statistical Lower Bounds" (SGD $450,000$)

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 $500,000$)

Awards and Honors	2019-2021: Dean's Chair Associate Professorship

2019/2020: Faculty of Engineering Educator Award

2020: IEEE Transactions on Signal Processing Outstanding Editor Award

2019: NUS Young Researcher Award

2018: IEEE Information Theory Society Distinguished Lecturer (2018/9)

2018: NUS Faculty of Engineering Young Researcher Award

2018: Singapore National Research Foundation (NRF) Fellowship (Class of 2018)

2017/8: NUS Faculty of Engineering Teaching Honors List

2014/5 to 2016/7: NUS Faculty of Engineering Teaching Commendation Award

2016: Finalist for the Singapore Young Scientist 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 (ISIT)

2011: Philip Yeo Prize for Outstanding Achievements in Research

2011: MIT 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 at Cambridge University)

Recent Invited/ Keynote Talks	2021: Tutorial Speaker at the International Symposium on Information Theory (ISIT)

2021: Invited Speaker at the Georgia Tech Machine Learning Seminar Series

2019: Invited speaker at the Low Rank Matrices and Applications (LRMA) Workshop in Mons, Belgium

2019: Invited speaker at the Iran Workshop on Comm. and Inform. Theory in Tehran

2019: Keynote speaker at the Taiwan Telecommunications Annual Meeting in Taichung

2019: Keynote speaker at the Australian Comms. Th. Workshop (AusCTW) in Sydney

Teaching Experiences

Instructor, MA3110, *Mathematical Analysis II* at Math (Fall 2019)

Instructor, MA6241, *Bandit Algorithms* at Math (Spring 2019)

Instructor, MA4270, *Data Modeling & Computation* at Math (Spring 2016–8)

Instructor, EE5137, *Stochastic Processes* at ECE (Fall 2017–8, Spring 2020/21)

Instructor, EE5138R, *Optimization for Comm. Systems* at ECE (Spring 2015)

Instructor, EE5139R, *Information Theory for Comm. Systems* at ECE (Fall 2014–6, Fall 2019)

Co-Instructor, EE5139R *Comm. Systems* at NUS (Fall 2012, Fall 2013)

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

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

Teaching Assistant, 6.437 *Inference and Information* at MIT

Teaching Assistant, 6.241 *Dynamic Systems and Control at MIT*

Publications

A full list of publications is given in Appendix A, or the following website:

<http://www.ece.nus.edu.sg/stfpage/vtan/pubs.htm>

Professional Activities

TPC Co-chair of the IEEE Information Theory Workshop, 2021

Lead Guest Editor, Special Issue on "Reinforcement and Online Learning" of the *IEEE Journal on Selected Areas in Information Theory* (2020–2021)

Assoc. Editor in Machine Learning, *IEEE Transactions on Information Theory* (Feb 2020–present)

Assoc. Editor, *IEEE Transactions on Signal Processing* (2018–present)

Guest Editor, Special Issue on "Information-Theoretic Methods in Data Acquisition, Analysis, and Processing" of the *IEEE Journal on Selected Topics in Signal Processing* (2017–2018)

Assoc. Editor, *IEEE Transactions on Green Comms. and Networking* (2016–2019)

Assoc. Editor, *IEEE Transactions on Communications* (2015–2018)

Member of the IEEE Machine Learning & Signal Processing Tech. Comm. (2012–2015)

Technical Program Committee Member for the following conferences
- IEEE Intl. Symposium on Information Theory (2013–present)
- IEEE Intl. Workshop on Machine Learning and Signal Processing (2013)

- IEEE Intl. Conference on Acoustics, Speech and Signal Processing (2013, 2014)

Conference Organization	Co-organized the "Beyond i.i.d. in information theory" workshop in NUS (2014, 2017)
	Co-organized the "Mathematical Tools of Information-Theoretic Security" Merlion workshop in Paris (2015)
Internal/NUS Service	Chair of the University Midterm Advisory Report (MTAR) Committee for Science and Technology Disciplines (2020–present)
	Member of the University Midterm Advisory Report (MTAR) Committee for Science and Technology Disciplines (2019–2020)
	Member of the Faculty (of Engg.) Promotion & Tenure Committee (2018–present)
	Coodinator of the ECE Department Search Committee (2018–present)
Graduate Students	Mr. ZHANG Fengzhuo (PhD expected in 2024)
	Mr. YANG Junwen (PhD expected in 2024)
	Ms. PAN Jiachun (PhD expected in 2023)
	Mr. YAN Hanshu (PhD expected in 2022)
	Ms. HE Haiyun (PhD expected in 2022)
	Mr. ZHU Qiuyu (PhD expected in 2021)
	Ms. ZHONG Zixin (PhD expected in 2021)
	Mr. CAO Daming (Exchange student from Southeast University China)
	Mr. Boyd ANDERSON (PhD graduated in 2019)
	Mr. ZHOU Lin (PhD graduated in 2018)
	Mr. TRUONG Vinh Lan (PhD graduated in 2018)
	Mr. LIU Zhaoqiang (PhD graduated in 2017)
	Mr. LE Sy Quoc (PhD graduated in 2014)
	Ms. Sandra TAN Shi Yun (M.Eng. graduated in 2020)
	Mr. ZHAO Renbo (M.Sc. graduated in 2018.)

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

Monographs

M1. <u>Vincent Y. F. Tan</u>, "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

The symbols [*] and [†] denote students and postdocs supervised by V. Y. F. Tan respectively.

J1. Sandra S. Y. Tan[*], Antonios Varvitsiotis[†], and <u>Vincent Y. F. Tan</u>, "Analysis of Optimization Algorithms via Sum-of-Squares", Journal of Optimization Theory and Applications, 2021+

J2. Nicolas Gillis, Le Thi Khanh Hien[†], Valentin Leplat and <u>Vincent Y. F. Tan</u>, "Distributionally Robust and Multi-Objective Nonnegative Matrix Factorization", *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 2021+

J3. Dana Lahat, Yanbin Lang[*], <u>Vincent Y. F. Tan</u>, and Cédric Févotte, "Positive Semidefinite Matrix Factorization: A Connection with Phase Retrieval and Affine Rank Minimization", *IEEE Transactions on Signal Processing*, Vol. 69, 2021+

J4. Mahdi Haghifam, <u>Vincent Y. F. Tan</u>, and Ashish Khisti "Sequential Classification with Empirically Observed Statistics", *IEEE Transactions on Information Theory*, Vol. 67, No. 5, Pages 3095–3113, May 2021

J5. Yonglong Li[†] and <u>Vincent Y. F. Tan</u>, "On the Capacity of Channels with Deletions and States", *IEEE Transactions on Information Theory*, Vol. 67, No. 5, Pages 2663–2679, May 2021

J6. Lei Yu[†] and <u>Vincent Y. F. Tan</u>, "On Non-Interactive Simulation of Binary Random Variables", *IEEE Transactions on Information Theory*, Vol. 67, No. 5, Pages 2528–2538, Apr 2021

J7. Qiaosheng Zhang[†] , <u>Vincent Y. F. Tan</u>, and Changho Suh, "Community Detection and Matrix Completion with Social and Item Similarity Graphs", *IEEE Transactions on Signal Processing*, Vol. 69, No. 12, Pages 917–931, Jan 2021

J8. Kang-Hee Cho, Si-Hyeon Lee and <u>Vincent Y. F. Tan</u>, "Throughput Scaling of Covert Communication over Wireless Adhoc Networks", *IEEE Transactions on Information Theory*, Vol. 66, No. 12, Pages 7684–7701, Dec 2020

J9. Anshoo Tandon[†], <u>Vincent Y. F. Tan</u>, Lav R. Varshney "The Bee-Identification Error Exponent with Absentee Bee", *IEEE Transactions on Information Theory*, Vol. 66, No. 12, Pages 7602–7614, Dec 2020

J10. Yuta Sakai[†] and <u>Vincent Y. F. Tan</u>, "Variable-Length Source Dispersions Differ Under Maximum and Average Criteria", *IEEE Transactions on Information Theory*, Vol. 66, No. 12, Pages 7565–7587, Dec 2020

J11. Anshoo Tandon[†], <u>Vincent Y. F. Tan</u>, Shiyao Zhu[*] "Exact Asymptotics for Learning Tree-Structured Graphical Models: Noiseless and Noisy Samples", *IEEE Journal on Selected Areas in Information Theory*, Vol. 1, No. 3, Pages 760–776, Nov 2020

J12. Yonglong Li[†] and <u>Vincent Y. F. Tan</u>, "Second-Order Asymptotics of Sequential Hypothesis Testing", *IEEE Transactions on Information Theory*, Vol. 66, No. 11, Pages 7222–7230, Nov 2020

J13. Yuta Sakai[†], <u>Vincent Y. F. Tan</u>, and Mladen Kovačević[†], "Second- and Third-Order Asymptotics of the Continuous-Time Poisson Channel", *IEEE Transactions on Information Theory*, Vol. 66, No. 8, Pages 4742–4760, Aug 2020

J14. Haiyun He[*], Lin Zhou[†], and <u>Vincent Y. F. Tan</u>, "Distributed Detection with Empirically Observed Statistics", *IEEE Transactions on Information Theory*, Vol. 66, No. 7, Pages 4349–4367, Jul 2020

J15. Lei Yu[†] and <u>Vincent Y. F. Tan</u>, "Corrections to "Wyner's Common Information under Rényi Divergence Measures" ", *IEEE Transactions on Information Theory*, Vol. 66, No. 4, Pages 2599–2608, Apr 2020

J16. Lei Yu[†] and <u>Vincent Y. F. Tan</u>, "On Exact and ∞-Rényi Common Informations", *IEEE Transactions on Information Theory*, Vol. 66, No. 6, Pages 3366–3406, Jun 2020

J17. Lei Yu[†] and <u>Vincent Y. F. Tan</u>, "Exact Channel Synthesis", *IEEE Transactions on Information Theory*, Vol. 66, No. 5, Pages 2299–2818, May 2020

J18. Lin Zhou[*], <u>Vincent Y. F. Tan</u>, and Mehul Motani, "Second-Order Asymptotically Optimal Statistical Classification", *Information and Inference: A Journal of the IMA*, Vol. 9, Issue 1, Pages 81–111, Mar 2020

J19. Daming Cao[*] and <u>Vincent Y. F. Tan</u>, "Exact Error and Erasure Exponents for the Asymmetric Broadcast Channel", *IEEE Transactions on Information Theory*, Vol. 66, No. 2, Pages 865 – 885, Feb 2020

J20. Daming Cao[*], Lin Zhou[*], and <u>Vincent Y. F. Tan</u>, "Strong Converse for Hypothesis Testing Against Independence over a Two-Hop Network", *Entropy*, Vol. 21, No. 12, Article 1171, Nov 2019 (Special Issue on Multiuser Information Theory II)

J21. Anshoo Tandon[†], <u>Vincent Y. F. Tan</u>, and Lav R. Varshney, "The Bee-Identification Problem: Bounds on the Error Exponent"", *IEEE Transactions on Communications*, Vol. 67, No. 11, Pages 7405 – 7416, Nov 2019

J22. Zhaoqiang Liu[*] and <u>Vincent Y. F. Tan</u>, "The Informativeness of k-means for Learning Mixture Models", *IEEE Transactions on Information Theory*, Vol. 65, No. 11, Pages 7460 – 7479, Nov 2019

J23. Ting-Yi Wu, Lav R. Varshney, and <u>Vincent Y. F. Tan</u>, "On the Throughput of Channels that Wear Out", *IEEE Transactions on Communications*, Vol. 67, No. 8, Pages 5311 – 5320, Aug 2019

J24. Lan V. Truong[*] and <u>Vincent Y. F. Tan</u>, "The Reliability Function of Lossy Source-Channel Coding of Variable-Length Codes with Feedback", *IEEE Transactions on Information Theory*, Vol. 65, No. 8, Pages 5028 – 5042, Aug 2019

J25. Lan V. Truong[*] and <u>Vincent Y. F. Tan</u>, "Moderate Deviation Asymptotics for Variable-Length Codes with Feedback", *IEEE Transactions on Information Theory*, Vol. 65, No. 7, Pages 4364 – 4386, Jul 2019

J26. Ling-Hua Chang, Po-Ning Chen, <u>Vincent Y. F. Tan</u>, Carol Wang[†], and Yunghsiang S. Han, "On the Maximum Size of Block Codes Subject to a Distance Criterion", *IEEE Transactions on Information Theory*, Vol. 65, Mar 2019

J27. Lei Yu[†] and <u>Vincent Y. F. Tan</u>, "Simulation of Random Variables under Rényi Divergence Measures of All Orders", *IEEE Transactions on Information Theory*, Vol. 65, No. 6, Pages 3349 – 3383, Jun 2019

J28. Mladen Kovačević[†], Carol Wang[†], and <u>Vincent Y. F. Tan</u>, "Error-Free Communication over State-Dependent Channels with Variable-Length Feedback", *IEEE Transactions on Communication*, Vol. 67, No. 5, Pages 3182 – 3191, May 2019

J29. Atefeh Gilani, Selma Belhadj Amor[†], Sadaf Salehkalaibar and <u>Vincent Y. F. Tan</u>, "Distributed Hypothesis Testing with Privacy Constraints", *Entropy*, Vol. 21, No. 5, Article 478, May 2019

J30. <u>Vincent Y. F. Tan</u> and Si-Hyeon Lee, "Time-Division is Optimal for Covert Communication over Some Broadcast Channels", *IEEE Transactions on Information Forensics and Security*, Vol. 14, No. 5, Pages 1377 – 1389, May 2019

J31. Lin Zhou[*], <u>Vincent Y. F. Tan</u>, and Mehul Motani, "Refined Asymptotics for Rate-Distortion using Gaussian Codebooks for Arbitrary Sources", *IEEE Transactions on Information Theory*, Vol. 65, No. 5, Pages 3145 – 3159, May 2019

J32. Lin Zhou[*], <u>Vincent Y. F. Tan</u>, and Mehul Motani, "The Dispersion of Universal Joint-Source Channel Coding for Arbitrary Sources and Additive Channels", *IEEE Transactions on Information Theory*, Vol. 65, No. 4, Pages 2234 – 2251, Apr 2019

J33. Lei Yu[†] and <u>Vincent Y. F. Tan</u>, "Rényi Resolvability and Its Applications to the Wiretap Channel", *IEEE Transactions on Information Theory*, Vol. 65, No. 3, Pages 1862 – 1897, Mar 2019

J34. Lei Yu[†] and <u>Vincent Y. F. Tan</u>, "Asymptotic Coupling and Its Applications in Information Theory", *IEEE Transactions on Information Theory*, Vol. 65, Vol. 65, No. 3, Pages 1321 – 1344, Mar 2019

J35. Silas L. Fong[*] and <u>Vincent Y. F. Tan</u>, "Strong Converse for Multimessage Networks with Tight Cut-Set Bounds", *Problems of Information Transmission (Problemy Peredachi Informatsii)*, Vol. 55, No. 1, Pages 67 – 100, Jan 2019

J36. Mladen Kovačević[†] and <u>Vincent Y. F. Tan</u>, "Asymptotically Optimal Codes Correcting Fixed-Length Duplication Errors in DNA Storage Systems", *IEEE Communication Letters*, Vol. 22, No. 11, Pages 2194 – 2197, Nov 2018

J37. Mine Alsan[†], Ranjitha Prasad[†] and <u>Vincent Y. F. Tan</u>, "Lower Bounds on the Bayes Risk of the Bayesian BTL Model with Applications to Comparison Graphs", *IEEE Journal on Selected Topics in Signal Processing*, Vol. 12, No. 5, Pages 975 – 988, Oct 2018

J38. Lin Zhou[*], <u>Vincent Y. F. Tan</u>, Lei Yu[*] and Mehul Motani, "Exponential Strong Converse for Content Identification with Lossy Recovery", *IEEE Transactions on Information Theory*, Vol. 64, No. 8, Pages 5879 – 5897, Aug 2018

J39. Mladen Kovačević[†] and <u>Vincent Y. F. Tan</u>, "Codes in the Space of Multisets–Coding for Permutation Channels with Impairments", *IEEE Transactions on Information Theory*, Vol. 64, No. 7, Pages 5156 – 5169, Jul 2018

J40. Lin Zhou[*], <u>Vincent Y. F. Tan</u> and Mehul Motani, "Achievable Moderate Deviations Asymptotics for Streaming Slepian-Wolf Coding", *IEEE Transactions on Information Theory*, Vol. 64, No. 5, Pages 3756 – 3780, May 2018

J41. <u>Vincent Y. F. Tan</u> and Masahito Hayashi, "Analysis of Remaining Uncertainties and Exponents under Various Conditional Rényi Entropies", *IEEE Transactions on Information Theory*, Vol. 64, No. 5, Pages 3734 – 3755, May 2018

J42. Lei Yu[*] and <u>Vincent Y. F. Tan</u>, "Wyner's Common Information under Rényi Divergence Measures", *IEEE Transactions on Information Theory*, Vol. 64, No. 5, Pages 3616 – 3623, May 2018

J43. Lan V. Truong[*] and <u>Vincent Y. F. Tan</u>, "On Gaussian MACs with Variable-Length Feedback and Non-Vanishing Error Probabilities", *IEEE Transactions on Information Theory*, Vol. 64, No. 4, Pages 2333 – 2346, Apr 2018

J44. Jiachun Liao, Lalitha Sankar, <u>Vincent Y. F. Tan</u>, and Flavio du Pin Calmon, "Hypothesis Testing under Mutual Information Privacy Constraints in the High Privacy Regime", *IEEE Transactions on Information Forensics and Security*, Vol. 13, No. 4, pp. 1058 – 1071, Apr 2018

J45. Silas L. Fong[†], <u>Vincent Y. F. Tan</u> and Ayfer Özgür, "On Achievable Rates of AWGN Energy-Harvesting Channels with Block Energy Arrival and Non-Vanishing Error Probabilities", *IEEE Transactions on Information Theory*, Vol. 64, No. 3, Pages 2038 – 2064, Mar 2018

J46. Renbo Zhao[*], <u>Vincent Y. F. Tan</u> and William B. Haskell, "Stochastic L-BFGS Revisited: Improved Convergence Rates and Practical Acceleration Strategies", *IEEE Transactions on Signal Processing*, Vol. 66, No. 5, Pages 1155 – 1169, Mar 2018

J47. Masahito Hayashi and <u>Vincent Y. F. Tan</u>, "Minimum Rates of Approximate Sufficient Statistics", *IEEE Transactions on Information Theory*, Vol. 64, No. 2, pp. 875 – 888, Feb 2018

J48. Renbo Zhao[*] and <u>Vincent Y. F. Tan</u>, "A Unified Convergence Analysis of the Multiplicative Update Algorithm for Regularized NMF", *IEEE Transactions on Signal Processing*, Vol. 66, No. 1, pp. 129 – 138, Jan 2018

J49. Silas L. Fong[†] and <u>Vincent Y. F. Tan</u>, "A Proof of the Strong Converse Theorem for Gaussian Broadcast Channels via the Gaussian Poincaré Inequality", *IEEE Transactions on Information Theory*, Vol. 63, No. 12, pp. 7737 – 7746, Dec 2017

J50. Mladen Kovačević[†], Miloš Stojaković, and <u>Vincent Y. F. Tan</u>, "Zero-Error Capacity of P-ary Shift Channels and FIFO Queues", *IEEE Transactions on Information Theory*, Vol. 63, No. 12, pp. 7698 – 7707, Dec 2017

J51. Christopher T. Chubb, <u>Vincent Y. F. Tan</u> and Marco Tomamichel, "Moderate Deviations Analysis for Classical Communication over Quantum Channels," *Communications in Mathematical Physics*, Vol. 355, No. 3, pp. 1283 – 1315, Nov 2017

J52. Silas L. Fong[†] and <u>Vincent Y. F. Tan</u>, "A Tight Upper Bound on the Second-Order Coding Rate for Parallel Gaussian Channels with Feedback", *IEEE Transactions on Information Theory*, Vol. 63, No. 10, pp. 6474 – 6486, Oct 2017

J53. Mladen Kovačević[†] and <u>Vincent Y. F. Tan</u>, "Improved Bounds on Sidon Sets via Lattice Packing of Simplices", *SIAM Journal on Discrete Mathematics*, Vol. 31, No. 3, pp. 2269 – 2278, Sep 2017

J54. Zhaoqiang Liu[*] and <u>Vincent Y. F. Tan</u>, "Rank-One NMF-Based Initialization for NMF and Relative Error Bounds under a Geometric Assumption", *IEEE Transactions on Signal Processing*, Vol. 65, No. 18, pp. 4717 – 4731, Sep 2017

J55. Silas L. Fong[†] and <u>Vincent Y. F. Tan</u>, "Scaling Exponent and Moderate Deviations Asymptotics of Polar Codes for the AWGN Channel", *Entropy*, Vol. 19, No. 7, Article 364, Jul 2017

J56. Silas L. Fong[†] and <u>Vincent Y. F. Tan</u>, "Achievable Rates for Gaussian Degraded Relay Channels with Non-Vanishing Error Probabilities", *IEEE Transactions on Information Theory*, Vol. 63, No. 7, pp. 4183 – 4201, Jul 2017

J57. Lin Zhou[*], <u>Vincent Y. F. Tan</u>, and Mehul Motani, "Second-Order and Moderate Deviation Asymptotics for Successive Refinement", *IEEE Transactions on Information Theory*, Vol. 63, No. 5, pp. 2896 – 2921, May 2017

J58. Si-Hyeon Lee, <u>Vincent Y. F. Tan</u>, and Ashish Khisti, "Exact Moderate Deviation Asymptotics for Streaming Data Transmission", *IEEE Transactions on Information Theory*, Vol. 63, No. 5, pp. 2726 – 2736, May 2017

J59. Eldho K. Thomas[†], <u>Vincent Y. F. Tan</u>, Alexander Vardy and Mehul Motani, "Polar Coding for the Binary Erasure Channel with Deletions", *IEEE Communication Letters*, Vol. 21, No. 4, pp. 710 – 713, Apr 2017

J60. Changho Suh, <u>Vincent Y. F. Tan</u>, and Renbo Zhao[*], "Adversarial Top-K Ranking", *IEEE Transactions on Information Theory*, Vol. 63, No. 4, pp. 2201 – 2225, Apr 2017

J61. Lin Zhou[*], <u>Vincent Y. F. Tan</u>, and Mehul Motani "Discrete Lossy Gray-Wyner Revisited: Second-Order Asymptotics, Large and Moderate Deviations", *IEEE Transactions on Information Theory*, Vol. 63, No. 3, pp. 1766 - 1791, Mar 2017

J62. Lan V. Truong[*], Silas L. Fong[†] and <u>Vincent Y. F. Tan</u>, "On Gaussian Channels with Feedback under Expected Power Constraints and with Non-Vanishing Error Probabilities", *IEEE Transactions on Information Theory*, Vol. 63, No. 3, pp. 1746 - 1765, Mar 2017

J63. Masahito Hayashi and <u>Vincent Y. F. Tan</u>, "Equivocations, Exponents and Second-Order Coding Rates under Various Rényi Information Measures", *IEEE Transactions on Information Theory*, Vol. 63, No. 2, pp. 975 - 1005, Feb 2017

J64. Renbo Zhao[*] and <u>Vincent Y. F. Tan</u>, "Online Nonnegative Matrix Factorization with Outliers", *IEEE Transactions on Signal Processing*, Vol. 65, No. 3, pp. 555 - 570, Feb 2017

J65. Jonathan Scarlett, <u>Vincent Y. F. Tan</u>, and Giuseppe Durisi, "The Dispersion of Nearest-Neighbor Decoding for Additive Non-Gaussian Channels", *IEEE Transactions on Information Theory* Vol. 62, No. 12, pp. 81 - 92, Jan 2017

J66. Si-Hyeon Lee, <u>Vincent Y. F. Tan</u> and Ashish Khisti, "Streaming Data Transmission in the Moderate Deviations and Central Limit Regimes", *IEEE Transactions on Information Theory*, Vol. 62, No. 12, pp. 6816 - 6830, Dec 2016

J67. Silas L. Fong[†] and <u>Vincent Y. F. Tan</u>, "On the Scaling Exponent of Polar Codes for Binary-Input Energy-Harvesting Channels," *IEEE Journal of Selected Areas in Communications*, Vol. 34, No. 12, pp. 3540 - 3551, Dec 2016

J68. Silas L. Fong[†] , <u>Vincent Y. F. Tan</u> 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, pp. 3499 - 3511, Dec 2016

J69. Silas L. Fong[†] and <u>Vincent Y. F. Tan</u>, "Strong Converse Theorems for Classes of Multimessage Multicast Networks: A Renyi Divergence Approach," *IEEE Transactions on Information Theory*, Vol. 62, No. 9, pp. 4953 - 4967, Sep 2016

J70. Silas L. Fong[†] and <u>Vincent Y. F. Tan</u>, "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

J71. Jonathan M. Carlson, Victor Y. Du, Nico Pfeifer, Anju Bansal, <u>Vincent Y. F. Tan</u>, 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

J72. Fan Cheng[†] and <u>Vincent Y. F. Tan</u>, "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

J73. Jonathan Scarlett and <u>Vincent Y. F. Tan</u>, "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

J74. Masahito Hayashi and <u>Vincent Y. F. Tan</u>, "Asymmetric Evaluations of Erasure and Undetected Error Probabilities" *IEEE Transactions on Information Theory*, Vol. 61, No. 12, pp. 6560 - 6577, Dec 2015

J75. Yanina Shkel, <u>Vincent Y. F. Tan</u> 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

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