

# Hung Q. Ngo

## Curriculum Vitae

338L Davis Hall  
Computer Science and Engineering  
SUNY Buffalo, Amherst, NY 14260  
✉ hungngo@buffalo.edu

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### Education

- 1996–2001 **Ph.D. in Computer Science & Engineering**, *University of Minnesota*, Twin Cities.  
Dissertation: “Issues in Interconnection Networks”, Advisor: Ding-Zhu Du
- 1999–2001 **M.S. in Mathematics**, *University of Minnesota*, Twin Cities.  
Thesis: “P-Species and the  $q$ -Mehloer Formula”, Advisor: Dennis Stanton
- 1990–1995 **B.S. in Computer Engineering**, *Ho Chi Minh city University of Technology*, Ho Chi Minh city, Vietnam.

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### Employment History

- 2017–present **Principal Computer Scientist**, *RelationalAI Inc.*.
- 2015–2017 **Computer Scientist**, *LogicBlox Inc.*.
- 2001–2017 **Assistant→Associate→Full Professor**, *Computer Science and Engineering, SUNY Buffalo*.

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### Awards and Honors

- 2018 **Gems of PODS**, *Invited to give the “Gems of PODS” talk on Worst-Case Optimal Join Algorithms*.
- 2016 **ACM SIGMOD Research Highlights Award**, *(For the Functional Aggregate Queries paper)*.
- 2016 **Best paper award**, *PODS 2016*.
- 2016 **CSE Sustained Teaching Excellence Award**.
- 2012 **Best paper award**, *PODS 2012*.
- 2008 **Best paper award**, *COCOON 2008*.
- 2005 **Exceptional Scholar (Young Investigator) Award**, *SUNY Buffalo*.
- 2004–2009 **NSF CAREER Award**.
- 2002–2003 **Outstanding Teacher Awards**, *Fall 2002, Spring 2003, Fall 2003*.  
By the Graduate Student Association of the Department of Computer Science & Engineering, SUNY Buffalo
- 2000–2001 **Guidant Fellowship for outstanding achievement**.  
One fellowship was awarded by the Department of Computer Science and Engineering, University of Minnesota
- 1992 **Japanese Government Scholarship**.  
Awarded for outstanding achievement to 16 undergraduates in Vietnam to study in Japan
- 1990 **Vietnamese Government Scholarship**.  
Awarded for top scoring in the University Entrance Examination
- 1990 **First prize**, *Ho Chi Minh city Mathematical Olympiad*.
- 1989–1990 **Various prizes**, *Vietnamese Mathematical Olympiads*.
- 1988 **Second prize**, *Ho Chi Minh city Physics Olympiad*, (No first prize awarded).

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### Selected Professional Activities

- PODS 2019 **TPC member**.  
The 37th ACM Symposium on Principles of Database Systems

- PODS 2018 **TPC member.**  
The 36th ACM Symposium on Principles of Database Systems Theory
- ICDT 2017 **TPC member.**  
International Conference on Database Theory
- 2010–2015 **Associate Editor.**  
Discrete Mathematics, Algorithms, and Applications
- INFOCOM **TPC member.**  
2008–2015 IEEE Conference on Computer Communications (INFOCOM)
- COCOON **Conference and program chair.**  
2009 The 15th International Conference on Combinatorics and Computing (COCOON)
- WoWMoM **Local arrangement chair.**  
2006 IEEE International Symposium on a World of Wireless, Mobile and Multimedia Networks
- 2011–2014 **Co-organizer.**  
Coding, Complexity, and Sparsity Workshop
- GLOBECOM **TPC member.**  
2011 IEEE Global Communications Conference
- ICC **TPC member.**  
2008–2010 IEEE International Conference on Communications
- ISAAC 2009 **TPC member.**  
International Symposium on Algorithm and Computation
- AINA **TPC member.**  
2007–2009 IEEE International Conference on Advanced Information Networking and Applications
- HPSR 2006 **TPC member.**  
IEEE Workshop on High Performance Switching and Routing
- COCOON **TPC member.**  
2003 International Conference on Combinatorics and Computing
- NSF Panels **Panelist.**  
Several NSF panels
- 2001–present **Referee.**  
Many professional journals and conferences, including IEEE Transactions on Computers, SIAM Journal on Discrete Mathematics, IEEE Transactions on Parallel and Distributed Systems, IEEE/ACM Transactions on Networking, Journal of Complexity, Theoretical Computer Science, IEEE Journal on Selected Areas in Communications, Information Processing Letters, The Computer Journal, IEEE Transactions on Parallel and Distributed Systems, Journal of Combinatorial Optimization, ACM Transactions on Database Systems, ESA, ICC, GlobeCom, COCOON, INFOCOM, SODA, PODS, SIGMOD, ICDT, etc.
- Sporadically **Reviewer.**  
Mathematical Reviews (MathSciNet)

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## Selected Departmental Services

- 2012–2015 **Director of Graduate Studies.**
- 2012–2015 **CSE Executive Committee.**
- 2012–2015 **Alternate Member of SEAS Tenture Committee.**
- 2001–2006 **Graduate Affairs Committee.**
- 2007–2012
- 2011–2012 **Faculty Search Committee.**
- 2002–2006
- 2006–2007 **Undergraduate Affairs Committee.**
- 2002–2003 **Library Committee.**
- 2008–2010

- 2003–2004 **Internship Committee.**  
2004–2005 **Chair of the Colloquium Committee.**  
2001–2002 **Facilities Committee.**

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## Research Supervision

- 2013–2016 **Mahmoud Abo Khamis**, *Ph.D. student*, First employer: LogicBlox.  
Thesis title: “FAQ: Querstions Asked Frequently”
- 2006–2011 **Thanh-Nhan Nguyen**, *Ph.D. student*, First employer: IBM.  
Thesis title: “Algorithms for some Network Design Problems”
- 2006–2011 **Anh N. Le**, *Ph.D. student*, First employer: a startup.  
Thesis title: “On Data Flow Masquerading”
- 2005–2010 **Yang Wang**, *Ph.D. student*, First employer: Google.  
Thesis title: “New Results in the Design and Analysis of Non-blocking Switching Networks”
- 2004–2009 **Duc T. Ha**, *Ph.D. student*, First employer: Sumo Logic.  
Thesis title: “Propagating Malicious Codes: Theory and Experiments”
- 2001–2006 **Dazhen Pan**, *Ph.D. student*, First employer: Microsoft.  
Thesis title: “Complexity and Constructions of WDM Switching Networks”
- 2003–2005 **Tuong Nguyen**, *M.S. student*, Currently with M\_Service JSC, Vietnam.
- 2003–2005 **Harleen Dhillon**, *M.S. student*, Currently Vice President at Ennovance Capital LLC.  
Thesis title: “On reducing control overhead in on-demand multicast routing protocol”
- 2001–2003 **Vikas P. Verma**, *M.S. student*, With FCS Business Solulutions.  
Thesis title: “Distributed Algorithms for Computing Connected Dominating Sets.”
- 2001–2003 **Purnima M. Mavinkurve**, *M.S. student*, First employer: Amazon.  
Thesis title: “Centralized and Distributed Algorithms for Power-Conserving Multicasting in Static Wireless Ad Hoc Networks”

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## Ph.D. Dissertation Committee Member

- 2004 **Xiaojun Cao**, Advisor: *Chunming Qiao*, Defended.
- 2005 **Huaming Zhang**, Advisor: *Xin He*, Defended.
- 2005 **Ramkumar Chinchani**, Advisor: *Shambhu Upadhyaya*, Defended.  
**Sumesh Philip**, Advisor: *Chunming Qiao*, defended May 2005.  
**Xiang Yu**, Advisor: *Chunming Qiao*, Defended.
- 2006 **Guang Xu**, Advisor: *Jinhui Xu*, Defended.
- 2007 **Zhenming Chen**, Advisor: *Jinhui Xu*, Defended.  
**Peng Lin**, Advisor: *Chunming Qiao*, Defended.
- 2008 **S. Vidyaraman**, Advisor: *Shambhu Upadhyaya*, Defended.  
**Yulai Xie**, Advisor: *Jinhui Xu*, Defended.  
**Mingen Lin**, Advisor: *Jinhui Xu*, Defended.
- 2009 **Xuming Lu**, Advisor: *Murat Demirbas*, Defended.  
**Madhusudhanan Chandrasekaran**, Advisor: *Shambhu Upadhyaya*, Defended.  
**Xin Liu**, Advisor: *Chunming Qiao*, Defended.  
**Seokhooon Yoon**, Advisor: *Chunming Qiao*, Defended.  
**Xi Zhang**, Advisor: *Jan Chomicki*, Defended.  
**Sunu Mathew**, Advisor: *Shambhu Upadhyaya*, Defended.
- 2010 **Asheq Khan**, Advisor: *Satish Tripathy*, Defended.  
**Onur Soyalt**, Advisor: *Murat Demirbas*, Defended.
- 2011 **Steve Uurtamo**, Advisor: *Atri Rudra*, Defended.  
**Yongding Zhu**, Advisor: *Jinhui Xu*, Defended.

- 2012 **Jia Zhao**, Advisor: Chunming Qiao, Defended.  
**Lei Xu**, Advisor: Jinhui Xu, Defended.
- 2013 **Albert Chen**, Advisor: Jason Corso, Defended.  
**Liang Ge**, Advisor: Aidong Zhang, Defended.  
**Swapnooneel Roy**, Advisor: Atri Rudra, Defended.
- 2014 **Manavender Reddy**, Advisor: Venu Govindaraju, Defended.  
**Caiming Xiong**, Advisor: Jason Corso, Defended.  
**Aditya Wagh**, Advisor: Chunming Qiao, Defended.  
**Utkarsh Porwal**, Advisor: Venu Govindaraju, Defended.  
**Dung Nguyen**, Advisor: Alan Selman, Defended.  
**Hu Ding**, Advisor: Jinhui Xu, Defended.
- 2015 **Zilong Ye**, Advisor: Chunming Qiao, Defended.  
**Arti Shivram**, Advisor: Venu Govindaraju, Defended.  
**Yingbo Zhou**, Advisor: Venu Govindaraju, Defended.
- 2016 **Jiun-Jie Wang**, Advisor: Roger He, Defended.  
**Vishrawas Gopalakrishnan**, Advisor: Aidong Zhang, Defended.  
**Devansh Arpit**, Advisor: Venu Govindaraju, Defended.  
**Qi Li**, Advisor: Jing Gao, Defended.

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## M.S. Thesis Committee Member

- 2003 **Ranjani Sridharan**, Advisor: Ramalingam Sridhar, Defended.
- 2004 **Aarthie Muthukrishnan**, Advisor: Shambhu Upadhyaya, Defended.
- 2005 **Aruna Balasubramanian**, Advisor: Ramalingam Sridhar, Defended.
- 2005 **Madhusudhanan Chandrasekaran**, Advisor: Shambhu Upadhyaya, Defended.

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## Grant Support

- 2014–2018 **National Science Foundation (NSF)**, Proposal # *CNF-1409551*, **PI**, \$1,215,973.  
 “TWC: **Medium**: Collaborative: Data is Social: Exploiting Data Relationships to Detect Insider Attacks.” (UB co-PIs: Varun Chandola, Oliver Kennedy, Shambhu Upadhyaya. Michigan co-PI: XuanLong Nguyen.) UB’s share \$975,999.00. 2014–2018
- 2013–2016 **National Science Foundation (NSF)**, Proposal # *CCF-1319402*, **PI**, \$499,999.  
 “AF:III:Small:Collaborative Research: New Frontiers in Join Algorithms: Optimality, Noise, and Richer Languages.” (UB Co-PI: Atri Rudra, Stanford Co-PI: Chris Ré.) UB’s share \$326,101.00.
- 2012–2015 **National Science Foundation (NSF)**, Proposal # *CCF-1161196*, **co-PI**, \$1,199,230.  
 “AF: **Medium**: Collaborative Research: Sparse Approximation: Theory and Extensions.” (Lead PI: Anna Gilbert, Michigan; UB’s co-PI: Atri Rudra, Rutgers’s co-PI: Muthu Muthukrishnan). UB’s share \$305,467.
- 2004–2009 **National Science Foundation (NSF)**, Proposal # *CCF-0347565*, **PI**, \$409,999.  
 “CAREER: Designs and Analyses of WDM Switching Architectures.”
- 2004–2006 **The Defense Advanced Research Projects Agency (DARPA)**, **co-PI**, \$1,292,295.  
 “Mitigating the Insider Threat using High-dimensional Search and Modeling.” (Lead PI: Eric Van Den Berg, Telcordia Technologies; UB’s PI: Shambhu Upadhyaya. We were a subcontractor from Telcordia. The other subcontractor is R. Maxion, CMU.) UB’s share \$ 255,862.
- 2012–2013 **Gift from LogicBlox Inc.**, \$35,000.

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## Selected Invited Talks

- PODS 2018 **Gems of PODS**, *Worst-case Optimal Join Algorithms: Techniques, Results, and Open Problems*.  
 The 37th Symposium on Principles of Database Systems. Houston, TX, U.S.A.

- AMW 2018 **Keynote**, *Worst-case Optimal Join Algorithms: Techniques, Results, and Open Problems*.  
The 12th Alberto Mendelzon International Workshop on Foundations of Data Management, Cali,  
Colombia, May 22–25, 2018.
- Oxford 2017 **Information Systems Seminar**, *Disjunctive Datalog, Shannon-type Inequalities, and Sub-  
modular Width*.  
Department of Computer Science, Oxford University, UK. Fall 2017.
- HIGHLIGHTS **Keynote**, *Disjunctive Datalog, Shannon-type Inequalities, and Submodular Width*.  
2017 Highlights of Logic, Games, and Automata, Sep 2017, London, U.K.
- Stanford 2017 **Logic Group Seminar**, *Functional Aggregate Queries are FAQs*.  
Computer Science Department, Stanford University, Spring 2017.
- Berkeley 2017 **RISE Lab Seminar**, *Way Beyond Worst-Case Optimal Algorithms*.  
Computer Science and Engineering, UC Berkeley, Spring 2017.
- UCSD 2016 **Database Seminar**, *Functional Aggregate Queries Asked Frequently*.  
Department of Computer Science, UCSD, Spring 2016.
- Wisconsin **Database Seminar**, *Functional Aggregate Queries Asked Frequently*.  
2016 Department of Computer Science, University of Wisconsin at Madison, Spring 2016.
- Oxford 2015 **Database and Knowledge Representation Seminar**, *Functional Aggregate Queries Asked  
Frequently*.  
Department of Computer Science, Oxford University, UK. Fall 2015.

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## Books

- [1] Ding-Zhu Du and Hung Q. Ngo, editors. *Switching Networks: Recent Advances*. Network Theory and Applications, 5. Kluwer Academic Publishers, Dordrecht, The Netherlands, 2001.
- [2] Hung Q. Ngo, editor. *Computing and Combinatorics, 15th Annual International Conference, COCOON 2009, Niagara Falls, NY, USA, July 13-15, 2009, Proceedings*, volume 5609 of *Lecture Notes in Computer Science*. Springer, 2009.

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## Book Chapters

- [1] Jaideep Srivastava and Hung Q. Ngo. Statistical databases. In *Wiley Encyclopedia of Electrical and Electronics Engineering*. John Wiley & Sons, Inc., Dec 1999.
- [2] Ding-Zhu Du, Bing Lu, Hung Q. Ngo, and Panos Pardalos. The steiner tree problem. In C.A. Floudas and P.M. Pardalos, editors, *Encyclopedia of Optimization*, volume 5, pages 277–290. Kluwer Academic Publishers, 2001.
- [3] Hung Q. Ngo and Ding-Zhu Du. Notes on the complexity of switching networks. In D.-Z. Du and Hung Q. Ngo, editors, *Advances in Switching Networks*, volume 5 of *Network Theory and Applications*, pages 307–367. Kluwer Academic Publishers, 2001.
- [4] Hung Q. Ngo, Dazhen Pan, and Vikas Verma. Power-conserving algorithms and protocols in ad hoc networks. In X. Cheng, X. Huang, and D.-Z. Du, editors, *Ad Hoc Networking: Recent Advances*, volume 14 of *Network Theory and Applications*, pages 383–446. Springer, New York, 2004.
- [5] Xiuzhen Cheng, Yingshu Li, Ding-Zhu Du, and Hung Q. Ngo. Steiner trees in industry. In Ding-Zhu Du and Parnos M. Pardalos, editors, *Handbook of combinatorial optimization. Supplement Vol. B*, pages 193–216. Springer, New York, 2005.
- [6] Hung Q. Ngo, Dazhen Pan, Shiva-Shankar Ramanna, and Suchita Kaundin. IP3S: a framework for power-conserving multicast and broadcast algorithms in static wireless ad hoc networks. In M. Cardei, I. Cardei, and D.-Z. Du, editors, *Resource Management in Wireless Networking*, volume 16 of *Network Theory and Applications*, pages 610–639. Springer, New York, 2005.
- [7] Hung Q. Ngo. WDM switching networks: complexity and constructions. In D.-Z. Du, M. Cheng, and Y. Li, editors, *Combinatorial Optimization in Communication Networks*, volume 18 of *Combinatorial Optimization*, pages 395–426. Springer, New York, 2006.
- [8] Ramkumar Chinchani, Duc Ha, Anusha Iyer, Hung Q. Ngo, and Shambhu Upadhyaya. Insider threat assessment: Model, analysis, and tool. In Scott C.-H. Huang, David MacCallum, and Ding-Zhu Du, editors, *Network Security*, pages 143–174. Springer US, New York, 2010.

- [9] Hung Q. Ngo and Thanh-Nhan Nguyen. Linear programming analysis of switching networks. In Panos M. Pardalos, Ding-Zhu Du, and Ronald L. Graham, editors, *Handbook of Combinatorial Optimization*, pages 1755–1814. Springer New York, 2013.
- [10] Hung Q. Ngo and Atri Rudra. Efficient decodable group testing. In Ming-Yang Kao, editor, *Encyclopedia of Algorithms*. Springer, 2015.

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## Refereed Journal Articles

- [1] Ding-Zhu Du, Frank K. Hwang, Yunjae Jung, and Hung Q. Ngo. Optimal consecutive- $k$ -out-of- $(2k + 1)$ :  $G$  cycle. *J. Global Optim.*, 19(1):51–60, 2001.
- [2] Ding-Zhu Du, D.F. Hsu, Hung Q. Ngo, and G.W. Peck. On the connectivity of consecutive- $d$  digraphs. *Disc. Math.*, 257(2–3):371–384, 2002.
- [3] Ding-Zhu Du, Frank K. Hwang, Xiaohua Jia, and Hung Q. Ngo. Optimal consecutive- $k$ -out-of- $n$ :  $G$  cycle for  $n \leq 2k + 1$ . *SIAM J. Discrete Math.*, 15(3):305–316 (electronic), 2002.
- [4] Ding-Zhu Du and Hung Q. Ngo. An extension of DHH-Erdős conjecture on cycle-plus-triangle graphs. *Taiwanese J. Math.*, 6(2):261–267, 2002.
- [5] Hung Q. Ngo.  $\mathbf{P}$ -species and the  $q$ -Mehler formula. *Sém. Lothar. Combin.*, 48:Art. B48b, 21 pp. (electronic), 2002.
- [6] Hung Q. Ngo and Ding-Zhu Du. New constructions of non-adaptive and error-tolerance pooling designs. *Discrete Math.*, 243(1-3):161–170, 2002.
- [7] Hung Q. Ngo, Ding-Zhu Du, and Ronald L. Graham. New bounds on a hypercube coloring problem. *Inform. Process. Lett.*, 84(5):265–269, 2002.
- [8] Srivatsan Varadarajan, Hung Q. Ngo, and Jaideep Srivastava. Error spreading: A perception-driven approach orthogonal to error handling in continuous media streaming. *IEEE/ACM Transactions on Networking*, 10(1):139–152, 2002.
- [9] Xiaoyan Cheng, Xiufeng Du, Manki Min, Hung Q. Ngo, Lu Ruan, Jianhua Sun, and Weili Wu. Super link-connectivity of iterated line digraphs. *Theoret. Comput. Sci.*, 304(1-3):461–469, 2003.
- [10] Hung Q. Ngo. A new routing algorithm for multirate rearrangeable Clos networks. *Theoret. Comput. Sci.*, 290(3):2157–2167, 2003.
- [11] Hung Q. Ngo and Van H. Vu. Multirate rearrangeable Clos networks and a generalized bipartite graph edge coloring problem. *SIAM Journal on Computing*, 32(4):1040–1049, 2003.
- [12] L. Ruan, S. Han, D. Li, Hung Q. Ngo, , and S. Huang. Transmission fault-tolerance of iterated line digraphs. *Journal of Interconnection Networks*, 5(4):475–487, 2004.
- [13] Ramkumar Chinchani, Duc Ha, Anusha Iyer, Hung Q. Ngo, and Shambhu Upadhyaya. On the hardness of approximating the Min-Hack problem. *Journal of Combinatorial Optimization*, 9:295–311, 2005.
- [14] Hung Q. Ngo. WDM switching networks, rearrangeable and nonblocking  $[w, f]$ -connectors. *SIAM Journal on Computing*, 35(3):766–785, 2005-2006.
- [15] Hung Q. Ngo, Dazhen Pan, and Chunming Qiao. Constructions and analyses of nonblocking wdm switches based on arrayed waveguide grating and limited wavelength conversion. *IEEE/ACM Transactions on Networking*, 14(1):205–217, 2006.
- [16] Hung Q. Ngo, Dazhen Pan, and Yuanyuan Yang. Optical switching networks with minimum number of limited range wavelength converters. *IEEE/ACM Transactions on Networking*, 15(4):969–979, 2007.
- [17] Hung Q. Ngo. On a hyperplane arrangement problem and tighter analysis of an error-tolerant pooling design. *J. Comb. Optim.*, 15(1):61–76, 2008.
- [18] Duc T. Ha and Hung Q. Ngo. On the trade-off between speed and resiliency of flash worms and similar malcodes. *Journal in Computer Virology*, 5(4):309–320, 2009.
- [19] Hung Q. Ngo, Thanh-Nhan Nguyen, and Duc T. Ha. Analyzing nonblocking multilog networks with the König-Egeváry theorem. *Discrete Math. Algorithms Appl.*, 1(1):127–139, 2009.



- [20] Hung Q. Ngo, Yang Wang, and Dazhen Pan. Rearrangeable and nonblocking  $[w, f]$ -distributors. *IEEE/ACM Trans. Netw.*, 17:990–1001, June 2009.
- [21] Seokhoon Yoon, Duc T. Ha, Hung Q. Ngo, and Chunming Qiao. Mopads: A mobility profile aided file downloading service in vehicular networks. *IEEE T. Vehicular Technology*, 58(9):5235–5246, 2009.
- [22] Hung Q. Ngo, Anh Le, and Yang Wang. A linear programming duality approach to analyzing strictly nonblocking  $d$ -ary multilog networks under general crosstalk constraints. *J. Comb. Optim.*, 21(1):108–123, 2011.
- [23] Yang Wang, Hung Q. Ngo, and Thanh-Nhan Nguyen. Constructions of given-depth and optimal multirate rearrangeably nonblocking distributors. *J. Comb. Optim.*, 24(4):468–484, 2012.
- [24] Hung Q. Ngo, Duong Hieu Phan, and David Pointcheval. Black-box Trace&Revoke codes. *Algorithmica*, 67(3):418–448, 2013.
- [25] Hung Q. Ngo, Christopher Ré, and Atri Rudra. Skew strikes back: new developments in the theory of join algorithms. *SIGMOD Record*, 42(4):5–16, 2013.
- [26] Liang Ge, Jing Gao, Hung Ngo, Kang Li, and Aidong Zhang. On handling negative transfer and imbalanced distributions in multiple source transfer learning. *Stat. Anal. Data Min.*, 7(4):254–271, 2014.
- [27] Nikhil Londhe, Vishrawas Gopalakrishnan, Aidong Zhang, Hung Q. Ngo, and Rohini K. Srihari. Matching titles with cross title web-search enrichment and community detection. *PVLDB*, 7(12):1167–1178, 2014.
- [28] Mahmoud Abo Khamis, Anna Gilbert, Hung Q. Ngo, , and Atri Rudra. Sparse approximation, list decoding, and uncertainty principles. 2016. Submitted.
- [29] Yaniv Erlich, Anna Gilbert, Hung Q. Ngo, Atri Rudra, Nicolas Thierry-Mieg, Mary Wootters, Dina Zielinski, and Or Zuk. Biological screens from linear codes: theory and tools. 2016. Submitted.
- [30] Anna C. Gilbert, Hung Q. Ngo, Ely Porat, Atri Rudra, and Martin J. Strauss.  $\ell_2/\ell_2$ -foreach sparse recovery with low risk. 2016. Submitted.
- [31] Mahmoud Abo Khamis, Hung Q. Ngo, Christopher Ré, and Atri Rudra. Joins via geometric resolutions: Worst case and beyond. *ACM Trans. Database Syst.*, 41(4):22:1–22:45, November 2016.
- [32] Hung Q. Ngo, Dung T. Nguyen, Christopher Re, and Atri Rudra. Beyond worst-case analysis for joins with Minesweeper. 2016. Submitted.
- [33] Hung Q. Ngo, Thanh-Nhan Nguyen, and Dahai Xu. Hardness and approximation of the survivable multi-level fat tree problem. 2016. Submitted.
- [34] Hung Q. Ngo, Ely Porat, and Atri Rudra. Efficiently Decodable Compressed Sensing by List-Recoverable Codes and Recursion. 2016. Submitted.
- [35] Hung Q. Ngo, Ely Porat, and Atri Rudra. Efficiently decodable error-correcting list disjunct matrices and applications. 2016. Submitted.
- [36] Hung Q. Ngo, Atri Rudra, Anh N. Le, and Thanh-Nhan Nguyen. Analyzing nonblocking switching networks using linear programming (duality). 2016. Submitted.
- [37] Thanh-Nhan Nguyen, Hung Q. Ngo, and Yang Wang. Strictly nonblocking  $f$ -cast photonic switching networks under general crosstalk constraints. 2016. Submitted.
- [38] Mahmoud Abo Khamis, Hung Q. Ngo, and Atri Rudra. FAQ: Questions asked frequently. *Journal of the ACM*, 2017. Invited.
- [39] Mahmoud Abo Khamis, Hung Q. Ngo, and Atri Rudra. Juggling functions inside a database. *SIGMOD Record*, 2017. SIGMOD Research Highlights.
- [40] Mahmoud Abo Khamis, Hung Q. Ngo, and Dan Suciu. What do Shannon-type inequalities, submodular width, and disjunctive datalog have to do with one another? *Journal of the ACM*, 2017. Invited.
- [41] Hung Q. Ngo, Ely Porat, Christopher Ré, and Atri Rudra. Worst-case optimal join algorithms. *Journal of the ACM*, 2017. Accepted.

- [1] Wonjun Lee, Difu Su, Hung Q. Ngo, and J. Srivastava. A qos-driven networked continuous media server. In *Proceedings of SPIE International Symposium on Lasers, Optoelectronics, and Microphonics: Electronic Imaging and Multimedia Systems II*, volume 3526, pages 274–285, Sep 1998.
- [2] Hung Q. Ngo, S. Varadarajan, and J. Srivastava. Error spreading: reducing bursty errors in continuous media streaming. In *Proceedings of the IEEE International Conference on Multimedia Computing and Systems (ICMCS)*, pages 314–319, Florence, Italy, June 1999. [acceptance rate 35%].
- [3] Hung Q. Ngo and Ding-Zhu Du. On the rearrangeability of shuffle-exchange networks. In *Proceedings of the 4th International Conference on Algorithms and Architectures for Parallel Processing (ICA3PP)*, HongKong, China, Dec 2000. World Scientific Publishing.
- [4] S. Varadarajan, Hung Q. Ngo, and J. Srivastava. Error spreading: A perception-driven approach to error handling in continuous media streaming. In *Proceedings of the 20th International Conference on Distributed Computing Systems (ICDCS)*, pages 475–483, Taipei, Taiwan, Republic of China, Apr 2000. IEEE Comp. Soc. [acceptance rate 39%].
- [5] Hung Q. Ngo, Ding-Zhu Du, and R. L. Graham. New bounds on a hypercube coloring problem and linear codes. In *Proceedings of the International Conference on Information Technology: Coding and Computing (ITCC)*, pages 542–546, Las Vegas, Nevada, Apr 2001. IEEE Comp. Soc.
- [6] Purnima M. Marvinkurve, Hung Q. Ngo, and Himanshu Mehra. MIP3S: Algorithms for power-conserving multicasting in wireless ad hoc networks. In *Proceedings of the 11th IEEE International Conference on Networks (ICON 2003, Sydney, Australia)*. IEEE, 2003. [acceptance rate 35%].
- [7] Hung Q. Ngo and Van H. Vu. Multirate rearrangeable Clos networks and a generalized bipartite graph edge coloring problem. In *Proceedings of the Fourteenth Annual ACM-SIAM Symposium on Discrete Algorithms (SODA'2003, Baltimore, MD)*, pages 834–840, New York, 2003. ACM. [acceptance rate 27%].
- [8] Vikas P. Verma, Amit Chandak, and Hung Q. Ngo. DIP3S: A distributive routing algorithm for power-conserving broadcasting in wireless ad hoc networks. In *Proceedings of the Fifth IFIP-TC6 International Conference on Mobile and Wireless Communications Networks (MWCN'2003, Singapore)*, pages 159–162. World Scientific, 2003. [acceptance rate 35%].
- [9] Hung Q. Ngo, Dazhen Pan, and Chunming Qiao. Nonblocking WDM switches based on arrayed waveguide grating and limited wavelength conversion. In *Proceedings of the 23rd Conference of the IEEE Communications Society (INFOCOM)*, Hong Kong, China, 2004. IEEE. [acceptance rate 18% – 260 of 1420].
- [10] Dazhen Pan, Vishal Anand, and Hung Q. Ngo. Cost-effective constructions for nonblocking wdm multicast switching networks. In *Proceedings of the 2004 IEEE International Conference on Communications (ICC)*, volume 3, pages 1801–1805, Paris, France, June 2004. IEEE. [acceptance rate 29%].
- [11] Ramkumar Chinchani, Anusha Iyer, Hung Q. Ngo, and Shambhu Upadhyaya. Towards a theory of insider threat assessment. In *Proceedings of the International Conference on Dependable Systems and Networks (DSN)*, pages 108–117, Yokohama, Japan, 2005. IEEE. [acceptance rate 27%].
- [12] Harleen Dhillon and Hung Q. Ngo. CQMP: A mesh-based multicast routing protocol with consolidated query packets. In *Proceedings of the IEEE Wireless Communications and Networking Conference (WCNC)*, pages 2168–2174, New Orleans, LA, U.S.A., March 2005. IEEE. [acceptance rate about 42%].
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