Hung Q. Ngo

Curriculumn Vitae

RelationalAI
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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

Employment History

2017–present **VP Research, led the design and implementation of query optimizer**, *RelationalAI Inc.*

2015–2017 **Computer Scientist**, *LogicBlox Inc.*, Runtime Group

2001–2017 **Assistant→Associate→Full Professor**, *Computer Science and Engineering, SUNY Buffalo*

Awards and Honors

2022 **Alberto Mendelzon Test of Time Award**, *(For the 2012 "Worst-case Optimal Join" paper)*

2022 **Best paper award**, *PODS 2022*

2022 **ACM SIGMOD Research Highlights Award**, *(For the Datalogo paper)*

2022 **Best paper award**, *ICDT 2019*

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 Execellence 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

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)

Selected Professional Activities

Simons Program (2023)	**Co-Organizer** Logic and Algorithms in Database Theory and AI
PODS 2023	**PC Chair** The 41st ACM Symposium on Principles of Database SystemsTheory
ICDT 2022	**TPC member** The 25th International Conference on Database Theory
VLDB 2021	**TPC member** International Conference on Very Large Data Bases
PODS 2020	**TPC member** The 38th ACM Symposium on Principles of Database SystemsTheory
PODS 2019	**TPC member** The 37th ACM Symposium on Principles of Database SystemsTheory
PODS 2018	**TPC member** The 36th ACM Symposium on Principles of Database SystemsTheory
ICDT 2017	**TPC member** International Conference on Database Theory
2010–2015	**Associate Editor** Discrete Mathematics, Algorithms, and Applications
INFOCOM 2008–2015	**TPC member** IEEE Conference on Computer Communications (INFOCOM)
COCOON 2009	**Conference and program chair** The 15th International Conference on Combinatorics and Computing (COCOON)
WoWMoM 2006	**Local arrangement chair** IEEE International Symposium on a World of Wireless, Mobile and Multimedia Networks
2011–2014	**Co-organizer** Coding, Complexity, and Sparsity Workshop
GLOBECOM 2011	**TPC member** IEEE Global Communications Conference
ICC 2008–2010	**TPC member** IEEE International Conference on Communications
ISAAC 2009	**TPC member** International Symposium on Algorithm and Computation
AINA 2007–2009	**TPC member** IEEE International Conference on Advanced Information Networking and Applications
HPSR 2006	**TPC member** IEEE Workshop on High Performance Switching and Routing
COCOON 2003	**TPC member** International Conference on Combinatorics and Computing
NSF Panels	**Panelist** Several NSF panels

Selected Departmental Services

2012–2015	**Director of Graduate Studies**
2012–2015	**CSE Executive Commitee**
2012–2015	**Alternate Member of SEAS Tenture Committee**
2001–2006 2007–2012	**Graduate Affairs Committee**

2011–2012 **Faculty Search Committee**
2002–2006

2006–2007 **Undergraduate Affairs Committee**

2002–2003 **Library Commitee**
2008–2010

2003–2004 **Internship Commitee**

2004–2005 **Chair of the Colloquium Committee**

2001–2002 **Facilities Committee**

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"

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 Soyal, *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

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

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 Uphadyaya. 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, Rutger'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

Selected Invited Talks

AAIT 2022 **Online Seminar on Algorithmic Aspects of Information Theory**, *On an Information Theoretic Approach to Cardinality Estimation*

UC Berkeley 2022 **Sky Computing DB Seminar**, *On an Information Theoretic Approach to Cardinality Estimation*

ICDT 2022 **Keynote**, *On an Information Theoretic Approach to Cardinality Estimation*

NorthEastern Univ 2020 **Database Seminar**, *Answering (Functional Aggregate) Queries via Tensor Decomposition*

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 Submodular Width*
Department of Computer Science, Oxford University, UK. Fall 2017.

HIGHLIGHTS 2017 **Keynote**, *Disjunctive Datalog, Shannon-type Inequalities, and Submodular Width*
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 2016 **Database Seminar**, *Functional Aggregate Queries Asked Frequently*
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.

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.

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.

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. **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-Egevarý 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. ℓ_2/ℓ_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 Rec.*, 46(1):6–13, 2017.

[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] Vishrawas Gopalakrishnan, Kishlay Jha, Guangxu Xun, Hung Q. Ngo, and Aidong Zhang. Towards self-learning based hypotheses generation in biomedical text domain. *Bioinform.*, 34(12):2103–2115, 2018.

[42] Hung Q. Ngo, Ely Porat, Christopher Ré, and Atri Rudra. Worst-case optimal join algorithms. *J. ACM*, 65(3):16:1–16:40, 2018.

[43] Ahmet Kara, Hung Q. Ngo, Milos Nikolic, Dan Olteanu, and Haozhe Zhang. Maintaining triangle queries under updates. *ACM Trans. Database Syst.*, 45(3):11:1–11:46, 2020.

[44] Mahmoud Abo Khamis, Ryan R. Curtin, Benjamin Moseley, Hung Q. Ngo, XuanLong Nguyen, Dan Olteanu, and Maximilian Schleich. Functional aggregate queries with additive inequalities. *ACM Trans. Database Syst.*, 45(4):17:1–17:41, 2020.

[45] Mahmoud Abo Khamis, Hung Q. Ngo, XuanLong Nguyen, Dan Olteanu, and Maximilian Schleich. Learning models over relational data using sparse tensors and functional dependencies. *ACM Trans. Database Syst.*, 45(2):7:1–7:66, 2020.

[46] Mahmoud Abo Khamis, Phokion G. Kolaitis, Hung Q. Ngo, and Dan Suciu. Bag query containment and information theory. *ACM Trans. Database Syst.*, 46(3):12:1–12:39, 2021.

[47] Mahmoud Abo Khamis, Hung Q. Ngo, Reinhard Pichler, Dan Suciu, and Yisu Remy Wang. Datalog in wonderland. *SIGMOD Rec.*, 51(2):6–17, 2022.

Refereed Conference Papers

[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, Optpelectronics, 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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