Hung Q. Ngo

Curriculumn Vitae

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

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**, *RelationalAI Inc.*

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

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

Awards and Honors

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

PODS 2023 **PC Chair**
The 41st ACM Symposium on Principles of Database SystemsTheory

ICDT 2022 **TPC member**
The 25th International Conference on Database Theory

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, 2002–2006 **Faculty Search Committee**

2006–2007 **Undergraduate Affairs Committee**

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

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

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%].

[13] Hung Q. Ngo, Dazhen Pan, and Yuanyuan Yang. Optical switching networks with minimum number of limited range wavelength converters. In *Proceedings of the 24rd Annual Joint Conference of the IEEE Computer and Communications Societies (INFOCOM)*, volume 2, pages 1128–1138, Miami, Florida, U.S.A., March 2005. IEEE. [acceptance rate 17% - 244 of 1419].

[14] Joy Ghosh, Hung Q. Ngo, and Chunming Qiao. Mobility profile based routing within intermittently connected mobile ad hoc networks (ICMAN). In *Proceedings of the International Wireless Communications and Mobile Computing Conference (IWCMC)*, pages 551–556, Vancouver, Canada, July 2006. ACM.

[15] Joy Ghosh, Cedric Westphal, Hung Q. Ngo, and Chunming Qiao. Bridging intermittently connected mobile ad hoc networks (ICMAN) with sociological orbits. In *The 25rd Conference of the IEEE Communications Society (INFOCOM), Poster and Demo Session*, Barcelona, Spain, 2006. IEEE.

[16] Peng Lin, Hung Q. Ngo, Chunming Qiao, Xin Wang, and Ting Wang. Minimum cost wireless broadband overlay network planning. In *Proceedings of the IEEE International Symposium on a World of Wireless, Mobile and Multimedia Networks (WoWMoM)*, Niagara Falls, NY, U.S.A., June 2006. IEEE. [acceptance rate: 48/144 = 33%].

[17] Sumesh J. Philip, Joy Ghosh, Hung Q. Ngo, and Chunming Qiao. Routing on overlay graphs in mobile ad hoc networks. In *Proceedings of the 49th annual IEEE Global Telecommunications Conference (GLOBECOM)*, San Francisco, CA, U.S.A., 2006. IEEE. [acceptance rate roughly 35%].

[18] Hoang Duong Tuan, Nguyen Thien Hoang, Hung Q. Ngo, Tuy Hoang, and Ba-Ngu Vo. A frequency-selective positive real lemma and its applications to iir filter design. In *Proceedings of the 45th IEEE Conference on Decision and Control (CDC)*, San Diego, CA, U.S.A., 2006. IEEE. [acceptance rate roughly 60%].

[19] Joy Ghosh, Hung Q. Ngo, Seokhoon Yoon, and Chunming Qiao. On a routing problem within probabilistic graph. In *Proceedings of the 26rd Annual Joint Conference of the IEEE Computer and Communications Societies (INFOCOM)*, pages 1721–1729, Anchorage, Alaska, U.S.A., May 2007. IEEE. [acceptance rate 252/1400 $\approx$ 18%].

[20] Duc T. Ha, Shambhu J. Upadhyaya, Hung Q. Ngo, Suranjan Pramanik, Ramkumar Chinchani, and Sunu Mathew. Insider threat analysis using information-centric modeling. In *Advances in Digital Forensics III - IFIP International Conference on Digital Forensics, National Centre for Forensic Science, Orlando, Florida, January 28-31, 2007*, pages 55–73, 2007.

[21] Duc T. Ha, Hung Q. Ngo, and Madhusudhanan Chandrasekaran. Crestbot: A new family of resilient botnets. In *Proceedings of the 2008 IEEE Global Communications Conference (GLOBECOM)*, pages 2148–2153, New Orleans, LA, U.S.A., 2008. IEEE. [acceptance rate 1051/2854 $\approx$ 36%].

[22] Sunu Mathew, Shambhu J. Upadhyaya, Duc T. Ha, and Hung Q. Ngo. Insider abuse comprehension through capability acquisition graphs. In *11th International Conference on Information Fusion, FUSION 2008, Cologne, Germany, June 30 - July 3, 2008*, pages 1–8, 2008.

[23] Hung Q. Ngo, Thanh-Nhan Nguyen, and Duc T. Ha. Crosstalk-free widesense nonblocking multicast photonic switching networks. In *Proceedings of the 2008 IEEE Global Communications Conference (GLOBECOM)*, pages 2643–2647, New Orleans, LA, U.S.A., 2008. IEEE. [acceptance rate 1051/2854 $\approx$ 36%].

[24] Hung Q. Ngo, Yang Wang, and Anh Le. A linear programming duality approach to analyzing strictly nonblocking d-ary multilog networks under general crosstalk constraints. In *Proceedings of the 14th Annual International Computing and Combinatorics Conference (COCOON)*, pages 509–519, Bejing, China, 2008. Springer, LNCS. **Best Paper Award.** [acceptance rate 66/172 $\approx$ 38%].

[25] Thanh-Nhan Nguyen, Hung Q. Ngo, and Yang Wang. Strictly nonblocking f-cast photonic switching networks under general crosstalk constraints. In *Proceedings of the 2008 IEEE Global Communications Conference (GLOBECOM)*, pages 2807–2811, New Orleans, LA, U.S.A., 2008. IEEE. [acceptance rate 1051/2854 $\approx$ 36%].

[26] Yang Wang, Hung Q. Ngo, and Xiaohong Jiang. Strictly nonblocking f-cast d-ary multilog networks under fanout and crosstalk constraints. In *Proceedings of the 2008 International Conference on Communications (ICC)*, Bejing, China, 2008. IEEE. [acceptance rate 35%].

[27] Duc T. Ha, Guanhua Yan, Stephan Eidenbenz, and Hung Q. Ngo. On the effectiveness of structural detection and defense against p2p-based botnets. In *DSN*, pages 297–306, 2009. [acceptance rate 20.9% - 37 of 177].

[28] Hung Q. Ngo, Thanh-Nhan Nguyen, and Dahai Xu. Hardness and approximation of the survivable multi-level fat tree problem. In *INFOCOM 2009. 28th IEEE International Conference on Computer Communications, Joint Conference of the IEEE Computer and Communications Societies, 19-25 April 2009, Rio de Janeiro, Brazil*, pages 774–782, 2009. [acceptance rate 282/1435 ≈ 19.6%].

[29] Piotr Indyk, Hung Q. Ngo, and Atri Rudra. Efficiently decodable non-adaptive group testing. In *Proceedings of the Twenty First Annual ACM-SIAM Symposium on Discrete Algorithms (SODA'2010)*, pages 1126–1142, New York, 2010. ACM. [acceptance rate 30% - 133 of 445].

[30] Sunu Mathew, Michalis Petropoulos, Hung Q. Ngo, and Shambhu J. Upadhyaya. A data-centric approach to insider attack detection in database systems. In *RAID*, pages 382–401, 2010. [acceptance rate 24/104 ≈ 23%].

[31] Hung Q. Ngo, Atri Rudra, Anh N. Le, and Thanh-Nhan Nguyen. Analyzing nonblocking switching networks using linear programming (duality). In *INFOCOM*, pages 2696–2704, 2010. [acceptance rate 276/1575 ≈ 17.5%].

[32] Arunabha Sen, Sujogya Banerjee, Pavel Ghosh, Sudheendra Murthy, and Hung Q. Ngo. Brief announcement: on regenerator placement problems in optical networks. In *SPAA 2010: Proceedings of the 22nd Annual ACM Symposium on Parallelism in Algorithms and Architectures, Thira, Santorini, Greece, June 13-15, 2010*, pages 178–180, 2010. [acceptance rate 28%].

[33] Hung Q. Ngo, Ely Porat, and Atri Rudra. Efficiently decodable error-correcting list disjunct matrices and applications - (extended abstract). In *Automata, Languages and Programming - 38th International Colloquium, ICALP 2011, Zurich, Switzerland, July 4-8, 2011, Proceedings, Part I*, pages 557–568, 2011. [acceptance rate 68/243 ≈ 28%].

[34] Enlong Che, Hoang Duong Tuan, Ha Hoang Kha, and Hung Q. Ngo. Bregman divergence based sensor selections for spectrum sensing. In *2012 IEEE Wireless Communications and Networking Conference, WCNC 2012, Paris, France, April 1-4, 2012*, pages 2648–2652, 2012. [acceptance rate 620/1407 ≈ 41%].

[35] Hung Q. Ngo, Ely Porat, Christopher Ré, and Atri Rudra. Worst-case optimal join algorithms: [extended abstract]. In *Proceedings of the 31st ACM SIGMOD-SIGACT-SIGART Symposium on Principles of Database Systems, PODS 2012, Scottsdale, AZ, USA, May 20-24, 2012*, pages 37–48, 2012. **Best Paper Award.** [acceptance rate 26/101 ≈ 25%].

[36] Hung Q. Ngo, Ely Porat, and Atri Rudra. Efficiently Decodable Compressed Sensing by List-Recoverable Codes and Recursion. In Christoph Dürr and Thomas Wilke, editors, *29th International Symposium on Theoretical Aspects of Computer Science (STACS 2012)*, volume 14 of *Leibniz International Proceedings in Informatics (LIPIcs)*, pages 230–241, Dagstuhl, Germany, 2012. Schloss Dagstuhl–Leibniz-Zentrum fuer Informatik. [acceptance rate 54/273 < 20%].

[37] Denisa Duma, Mary Wootters, Anna C. Gilbert, Hung Q. Ngo, Atri Rudra, Matthew Alpert, Timothy J. Close, Gianfranco Ciardo, and Stefano Lonardi. Accurate decoding of pooled sequenced data using compressed sensing. In *WABI*, pages 70–84, 2013. [acceptance rate 28/61 ≈ 46%].

[38] Jing Gao, Liang Ge, Kang Li, Hung Q. Ngo, and Aidong Zhang. On handling negative transfer and imbalanced distributions in multiple source transfer learning. In *Proceedings of the 13th SIAM International Conference on Data Mining (SDM), May 2-4, 2013. Austin, Texas, USA.*, pages 261–269, 2013. [acceptance rate 89/348 ≈ 25.5%].

[39] Anna C. Gilbert, Hung Q. Ngo, Ely Porat, Atri Rudra, and Martin J. Strauss. ℓ_2/ℓ_2-foreach sparse recovery with low risk. In *Automata, languages, and programming. Part I*, volume 7965 of *Lecture Notes in Comput. Sci.*, pages 461–472. Springer, Heidelberg, 2013.

[40] Anna C. Gilbert, Hung Q. Ngo, Ely Porat, Atri Rudra, and Martin J. Strauss. ℓ_2/ℓ_2-foreach sparse recovery with low risk. In *Automata, Languages, and Programming - 40th International Colloquium, ICALP 2013, Riga, Latvia, July 8-12, 2013, Proceedings, Part I*, pages 461–472. 2013. [acceptance rate 124/422 ≈ 29%].

[41] Hung Q. Ngo, Dung T. Nguyen, Christopher Re, and Atri Rudra. Beyond worst-case analysis for joins with Minesweeper. In *Proceedings of the 33rd ACM SIGMOD-SIGACT-SIGART Symposium on Principles of Database Systems, PODS'14, Snowbird, UT, USA, June 22-27, 2014*, pages 234–245, 2014. [acceptance rate 22/67 ≈ 33%].

[42] Yingbo Zhou, Utkarsh Porwal, Ce Zhang, Hung Q. Ngo, Long Nguyen, Christopher Ré, and Venu Govindaraju. Parallel feature selection inspired by group testing. In *Advances in Neural Information Processing Systems 27: Annual Conference on Neural Information Processing Systems 2014, December 8-13 2014, Montreal, Quebec, Canada*, pages 3554–3562, 2014. [acceptance rate 414/1678 ≈ 25%].

[43] Mahmoud Abo Khamis, Hung Q. Ngo, Christopher Ré, and Atri Rudra. A resolution-based framework for joins: Worst-case and beyond. In *Proceedings of the 34rd ACM SIGMOD-SIGACT-SIGART Symposium on Principles of Database Systems, PODS'15, Melbourne, Vic, Australia, May 31-June 04, 2015*, 2015. [acceptance rate 25/80 ≈ 31%], Invited to TODS.

[44] Mahmoud Abo Khamis, Hung Q. Ngo, and Dan Suciu. Computing join queries with functional dependencies. In *Proceedings of the 35st ACM SIGMOD-SIGACT-SIGART Symposium on Principles of Database Systems, PODS 2016, San Francisco, CA, USA, Jun 26-30, 2016*, 2016.

[45] Devansh Arpit, Yingbo Zhou, Hung Q. Ngo, and Venu Govindaraju. Why regularized auto-encoders learn sparse representation? In *Proceedings of the 33rd International Conference on Machine Learning, (ICML 2016), New York, NY, USA, Jun 19-24, 2016*, 2016.

[46] Mahmoud Abo Khamis, Hung Q. Ngo, and Atri Rudra. FAQ: Questions asked frequently. In *Proceedings of the 35st ACM SIGMOD-SIGACT-SIGART Symposium on Principles of Database Systems, PODS 2016, San Francisco, CA, USA, Jun 26-30, 2016*, 2016. **Best Paper Award.** [acceptance rate 31/94 ≈ 33%].

[47] 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? In *Proceedings of the 36st ACM SIGMOD-SIGACT-SIGART Symposium on Principles of Database Systems, PODS 2017, Chicago, IL, USA, May 14-19, 2017*, 2017.

[48] Ahmet Kara, Hung Q. Ngo, Milos Nikolic, Dan Olteanu, and Haozhe Zhang. Counting triangles under updates. In Dan Olteanu and Barbara Poblete, editors, *Proceedings of the 12th Alberto Mendelzon International Workshop on Foundations of Data Management, Cali, Colombia, May 21-25, 2018*, volume 2100 of *CEUR Workshop Proceedings*. CEUR-WS.org, 2018.

[49] Mahmoud Abo Khamis, Hung Q. Ngo, XuanLong Nguyen, Dan Olteanu, and Maximilian Schleich. AC/DC: in-database learning thunderstruck. In Sebastian Schelter, Stephan Seufert, and Arun Kumar, editors, *Proceedings of the Second Workshop on Data Management for End-To-End Machine Learning, DEEM@SIGMOD 2018, Houston, TX, USA, June 15, 2018*, pages 8:1–8:10. ACM, 2018.

[50] Mahmoud Abo Khamis, Hung Q. Ngo, XuanLong Nguyen, Dan Olteanu, and Maximilian Schleich. In-database learning with sparse tensors. In *Proceedings of the 37st ACM SIGMOD-SIGACT-SIGART Symposium on Principles of Database Systems, PODS 2018, Houston, TX, USA, June 10–15, 2018*, 2018.

[51] Hung Q. Ngo. Worst-case optimal join algorithms: Techniques, results, and open problems. In *Proceedings of the 37st ACM SIGMOD-SIGACT-SIGART Symposium on Principles of Database Systems, PODS 2018, Houston, TX, USA, June 10–15, 2018*, 2018.

[52] Ahmet Kara, Hung Q. Ngo, Milos Nikolic, Dan Olteanu, and Haozhe Zhang. Counting triangles under updates in worst-case optimal time. In Pablo Barceló and Marco Calautti, editors, *22nd International Conference on Database Theory, ICDT 2019, March 26-28, 2019, Lisbon, Portugal*, volume 127 of *LIPIcs*, pages 4:1–4:18. Schloss Dagstuhl - Leibniz-Zentrum für Informatik, 2019. **Best Paper Award.**

[53] Mahmoud Abo Khamis, Ryan R. Curtin, Benjamin Moseley, Hung Q. Ngo, XuanLong Nguyen, Dan Olteanu, and Maximilian Schleich. On functional aggregate queries with additive inequalities. In Dan Suciu, Sebastian Skritek, and Christoph Koch, editors, *Proceedings of the 38th ACM SIGMOD-SIGACT-SIGAI Symposium on Principles of Database Systems, PODS 2019, Amsterdam, The Netherlands, June 30 - July 5, 2019*, pages 414–431. ACM, 2019.

[54] Mahmoud Abo Khamis, Hung Q. Ngo, Dan Olteanu, and Dan Suciu. Boolean tensor decomposition for conjunctive queries with negation. In Pablo Barceló and Marco Calautti, editors, *22nd International Conference on Database Theory, ICDT 2019, March 26-28, 2019, Lisbon, Portugal*, volume 127 of *LIPIcs*, pages 21:1–21:19. Schloss Dagstuhl - Leibniz-Zentrum für Informatik, 2019.

[55] Maximilian Schleich, Dan Olteanu, Mahmoud Abo Khamis, Hung Q. Ngo, and XuanLong Nguyen. A layered aggregate engine for analytics workloads. In Peter A. Boncz, Stefan Manegold, Anastasia Ailamaki, Amol Deshpande, and Tim Kraska, editors, *Proceedings of the 2019 International Conference on Management of Data, SIGMOD Conference 2019, Amsterdam, The Netherlands, June 30 - July 5, 2019*, pages 1642–1659. ACM, 2019.

[56] Maximilian Schleich, Dan Olteanu, Mahmoud Abo Khamis, Hung Q. Ngo, and XuanLong Nguyen. Learning models over relational data: A brief tutorial. In Nahla Ben Amor, Benjamin Quost, and Martin Theobald, editors, *Scalable Uncertainty Management - 13th International Conference, SUM 2019, Compiègne, France, December 16-18, 2019, Proceedings*, volume 11940 of *Lecture Notes in Computer Science*, pages 423–432. Springer, 2019.

[57] Ryan R. Curtin, Benjamin Moseley, Hung Q. Ngo, XuanLong Nguyen, Dan Olteanu, and Maximilian Schleich. Rk-means: Fast clustering for relational data. In Silvia Chiappa and Roberto Calandra, editors, *The 23rd International*

Conference on Artificial Intelligence and Statistics, AISTATS 2020, 26-28 August 2020, Online [Palermo, Sicily, Italy], volume 108 of *Proceedings of Machine Learning Research*, pages 2742–2752. PMLR, 2020.

[58] Mahmoud Abo Khamis, Phokion G. Kolaitis, Hung Q. Ngo, and Dan Suciu. Bag query containment and information theory. In Dan Suciu, Yufei Tao, and Zhewei Wei, editors, *Proceedings of the 39th ACM SIGMOD-SIGACT-SIGAI Symposium on Principles of Database Systems, PODS 2020, Portland, OR, USA, June 14-19, 2020*, pages 95–112. ACM, 2020.

[59] Mahmoud Abo Khamis, Phokion G. Kolaitis, Hung Q. Ngo, and Dan Suciu. Decision problems in information theory. In Artur Czumaj, Anuj Dawar, and Emanuela Merelli, editors, *47th International Colloquium on Automata, Languages, and Programming, ICALP 2020, July 8-11, 2020, Saarbrücken, Germany (Virtual Conference)*, volume 168 of *LIPIcs*, pages 106:1–106:20. Schloss Dagstuhl - Leibniz-Zentrum für Informatik, 2020.

[60] Shikha Singh, Sergey Madaminov, Michael A. Bender, Michael Ferdman, Ryan Johnson, Benjamin Moseley, Hung Q. Ngo, Dung Nguyen, Soeren Olesen, Kurt Stirewalt, and Geoffrey Washburn. A scheduling approach to incremental maintenance of datalog programs. In *2020 IEEE International Parallel and Distributed Processing Symposium (IPDPS), New Orleans, LA, USA, May 18-22, 2020*, pages 864–873. IEEE, 2020.

[61] Mahmoud Abo Khamis, Ryan R. Curtin, Sungjin Im, Benjamin Moseley, Hung Q. Ngo, Kirk Pruhs, and Alireza Samadian. An approximation algorithm for the matrix tree multiplication problem. In Filippo Bonchi and Simon J. Puglisi, editors, *46th International Symposium on Mathematical Foundations of Computer Science, MFCS 2021, August 23-27, 2021, Tallinn, Estonia*, volume 202 of *LIPIcs*, pages 6:1–6:14. Schloss Dagstuhl - Leibniz-Zentrum für Informatik, 2021.

[62] Mahmoud Abo Khamis, Hung Q. Ngo, Reinhard Pichler, Dan Suciu, and Yisu Remy Wang. Convergence of datalog over (pre-) semirings. In Leonid Libkin and Pablo Barceló, editors, *PODS '22: International Conference on Management of Data, Philadelphia, PA, USA, June 12 - 17, 2022*, pages 105–117. ACM, 2022. **Best Paper Award.**

[63] Hung Q. Ngo. On an information theoretic approach to cardinality estimation (invited talk). In Dan Olteanu and Nils Vortmeier, editors, *25th International Conference on Database Theory, ICDT 2022, March 29 to April 1, 2022, Edinburgh, UK (Virtual Conference)*, volume 220 of *LIPIcs*, pages 1:1–1:21. Schloss Dagstuhl - Leibniz-Zentrum für Informatik, 2022.

[64] Yisu Remy Wang, Mahmoud Abo Khamis, Hung Q. Ngo, Reinhard Pichler, and Dan Suciu. Optimizing recursive queries with progam synthesis. In Zachary Ives, Angela Bonifati, and Amr El Abbadi, editors, *SIGMOD '22: International Conference on Management of Data, Philadelphia, PA, USA, June 12 - 17, 2022*, pages 79–93. ACM, 2022.

Refereed Workshop Papers

[1] X. Cheng, Ding-Zhu Du, J. Kim, and Hung Q. Ngo. Guillotine cut in approximation algorithms. In *Proceedings of the First Workshop on Cooperative Control and Optimization*, pages 21–34, Florence, Italy, Dec 2000.

[2] Hung Q. Ngo and Ding-Zhu Du. A survey on combinatorial group testing algorithms with applications to DNA library screening. In *Discrete mathematical problems with medical applications (New Brunswick, NJ, 1999)*, volume 55 of *DIMACS Ser. Discrete Math. Theoret. Comput. Sci.*, pages 171–182. Amer. Math. Soc., Providence, RI, 2000.

[3] Hung Q. Ngo. Multiwavelength distribution networks. In *Proceedings of the 2004 Workshop on High Performance Switching and Routing (HPSR)*, pages 186–190, Phoenix, Arizona, U.S.A., April 2004. IEEE.

[4] Dazhen Pan, Purnima M. Marvinkurve, Hung Q. Ngo, Vikas Verma, and Amit Chandak. DMIP3S: Distributive routing algorithms for power-conserving multicasting in static wireless ad hoc networks. In *Proceedings of the 2004 Workshop on High Performance Switching and Routing (HPSR)*, pages 236–240, Phoenix, Arizona, U.S.A., April 2004. IEEE.

[5] Joy Ghosh, Matt Beal, Hung Q. Ngo, and Chunming Qiao. On profiling mobility and predicting locations of wireless users. In *Proceedings of the Second International Workshop on Multi-hop Ad hoc Networks (ACM REALMAN), in conjunction with MOBIHOC 2006*, pages 55–62, Florence, Italy, 2006. ACM.

[6] Duc T. Ha and Hung Q. Ngo. On the trade-off between speed and resiliency of flashworms and similar malcodes. In *Proceedings of the 2007 ACM Workshop on Recurring Malcode*, WORM '07, pages 23–30, New York, NY, USA, 2007. ACM.

[7] Yang Wang, Hung Q. Ngo, and Thanh-Nhan Nguyen. Constructions of given-depth and optimal multirate rearrangeably nonblocking distributors. In *Proceedings of the 2007 Workshop on High Performance Switching and Routing*, pages 1–6. IEEE, May 2007.

[8] Seokhoon Yoon, H.Q. Ngo, and Chunming Qiao. On "shooting" a moving vehicle with data flows. In *2007 Workshop on Mobile Networking for Vehicular Environments*, pages 49–54, May 2007.

[9] Hung Q. Ngo, Yang Wang, Anh Le, and Xiaohong Jiang. Better necessary conditions for rearrangeably nonblocking f-cast d-ary multi-log networks under fanout and crosstalk constraints. In *Proceedings of the 2008 International Workshop on High Performance and Highly Survivable Routers and Networks (HPSRN)*, Sendai, Japan, Mar 2008. IEEE.

[10] Hung Q. Ngo, XuanLong Nguyen, Dan Olteanu, and Maximilian Schleich. In-database factorized learning. In *Alberto Mendelzon Workshop*, 2017.

Other Publications

[1] C. S. Cornuelle, J. E. Cabanela, Hung Q. Ngo, J. S. R. Rees, J. Kriessler, and R. M. Humphreys. The aps catalogs of the poss i - new data and new tools. In *Bulletin of the American Astronomical Society*, volume 29 of *Bulletin of the American Astronomical Society*, Jan 1997, #16.07.

[2] J. R. Kriessler, R. M. Humphreys, J. E. Cabanela, R. F. Rees Jr., Hung Q. Ngo, and J. Srivastava. The aps catalogs of the poss i. In *Bulletin of the American Astronomical Society*, volume 30 of *Bulletin of the American Astronomical Society*, June 1998. #55.09.

[3] Hung Q. Ngo. *Issues in Interconnection Networks*. Minneapolis, Minnesota, May 2001. Dissertation, Computer Science and Engineering Department, University of Minnesota, 2001.

[4] Hung Q. Ngo. **P**-*species and the q-Mehler formula*. Minneapolis, Minnesota, 2001. Masters Thesis, School of Mathematics, University of Minnesota.