

Chen Feng

- AFFILIATION** Ph.D. Candidate
The Edward S. Rogers Sr. Department of
Electrical and Computer Engineering
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<http://iqua.ece.toronto.edu/~cfeng>
- RESEARCH INTERESTS** ◇ Information Theory, Coding Theory, Applied Probability, Optimization
◇ Cloud Computing, Wireless Networking, Peer-to-Peer Streaming
- EDUCATION** **Ph.D. in Communications**, August 2014
University of Toronto, Toronto, Canada
 ◇ *Dissertation:* "An Algebraic Approach to Physical-Layer Network Coding"
 ◇ *Advisors:* Frank R. Kschischang and Baochun Li
- M.A.Sc. in Computer Engineering**, March 2009
University of Toronto, Toronto, Canada
 ◇ *Dissertation:* "On Large-Scale Peer-to-Peer Streaming Systems"
 ◇ *Advisor:* Baochun Li
- B.Eng. in Communications Engineering**, July 2006
Shanghai Jiao Tong University, Shanghai, China
 ◇ *Ranking:* 4th out of 350 in Communications Engineering
- HONORS AND AWARDS** ◇ NSERC Postdoctoral Fellowship 2014
◇ Graduate Student Endowment Fund Scholarship 2013
◇ Shahid U.H. Qureshi Memorial Scholarship 2013
◇ IEEE NetCod Best Student Paper Runner-Up Award 2013
◇ ACM SIGMETRICS Student Travel Grant 2013
◇ IEEE ISIT Student Travel Grant 2013
◇ Chinese Government Award for Outstanding Students Abroad 2011 – 2012
◇ University of Toronto Fellowship 2006 – 2012
- RESEARCH EXPERIENCE** **Research Assistant** September 2008 – Present
Department of Electrical and Computer Engineering, University of Toronto
 ◇ *Advisor:* Frank R. Kschischang
 ◇ *Topic:* coding techniques for physical-layer network coding
- Research Assistant** September 2006 – Present
Department of Electrical and Computer Engineering, University of Toronto
 ◇ *Advisor:* Baochun Li
 ◇ *Topics:* design and analysis of cloud computing and peer-to-peer streaming

INDUSTRY
EXPERIENCE

Research Scientist
QKD Inc., Toronto, Canada

August 2013 – Present

- ◇ QKD Inc. is a startup company on next-generation quantum security
- ◇ *Topic*: coding techniques for continuous-variable quantum key distribution

PUBLICATIONS

◇ **Book Chapters**

[B1] Chen Feng and Baochun Li, “Network Coding for Content Distribution and Multimedia Streaming in Peer-to-Peer Networks,” Chapter 3 in *Network Coding: Fundamentals and Applications*, Muriel Médard and Alex Sprintson, Editors, pp. 61–86, Academic Press, ISBN 978–0–12–380918–6, Hardback, 2012.

◇ **Submitted Journal Articles** (in reverse chronological order)

[J7] Chen Feng, Hong Xu, and Baochun Li, “An Alternating Direction Method Approach to Cloud Traffic Management,” in preparation for submission.

[J6] Chen Feng, Danilo Silva, and Frank R. Kschischang, “Blind Compute-and-Forward,” submitted to *IEEE Journal on Selected Areas in Communications*, April 2014.

[J5] Roberto W. Nóbrega, Chen Feng, Danilo Silva, and Bartolomeu Ucha-Filho, “On Multiplicative Matrix Channels over Finite Chain Rings,” submitted to *IEEE Transactions on Information Theory*, November 2013.

◇ **Refereed Journal Articles** (in reverse chronological order)

[J4] Hong Xu, Chen Feng, and Baochun Li, “Temperature-Aware Workload Management in Geo-distributed Datacenters,” accepted by *IEEE Transactions on Parallel and Distributed Systems*, May 2014.

[J3] Chen Feng, Roberto W. Nóbrega, Frank R. Kschischang, and Danilo Silva, “Communication over Finite-Chain-Ring Matrix Channels,” accepted by *IEEE Transactions on Information Theory*, May 2014.

[J2] Chen Feng, Danilo Silva, and Frank R. Kschischang, “An Algebraic Approach to Physical-Layer Network Coding,” *IEEE Transactions on Information Theory*, vol. 59, no. 11, pp. 7576–7596, November 2013.

[J1] Chen Feng and Baochun Li, “Network Coding for Peer-Assisted Multimedia Streaming,” *IEEE Communications Society MMTC E-Letter*, vol. 5, no. 2, pp. 9–12, March 2010.

◇ **Refereed Conference Papers** (in reverse chronological order)

[C12] Chen Feng, Roberto W. Nóbrega, Frank R. Kschischang, and Danilo Silva, “Communication over Finite-Ring Matrix Channels,” in *Proc. IEEE Int. Symp. Information Theory (ISIT)*, Istanbul, Turkey, July 2013, pp. 2890–2894.

[C11] Hong Xu, Chen Feng, and Baochun Li, “Temperature-Aware Workload Management in Geo-distributed Datacenters,” in *Proc. USENIX Int. Conf. Autonomic Computing (ICAC)*, San Jose, CA, June 2013, pp. 303–314.

[C10] Roberto W. Nóbrega, Chen Feng, Danilo Silva, and Bartolomeu F. Uchôa-Filho, “On Multiplicative Matrix Channels over Finite Chain Rings,” in *Proc. IEEE Int. Symp. Network Coding (NetCod)*, Calgary, Canada, June 2013, pp. 1–6. (**Best Student Paper Runner-Up Award**)

[C9] Chen Feng, Danilo Silva, and Frank R. Kschischang, “Blind Compute-and-Forward,” in *Proc. IEEE Int. Symp. Information Theory (ISIT)*, Cambridge, MA, July 2012, pp. 408–412.

[C8] Di Niu, Chen Feng, and Baochun Li, “Pricing Cloud Bandwidth Reservations under Demand Uncertainty,” in *Proc. ACM SIGMETRICS/Performance 2012*, London, UK, June 2012, pp. 151–162.

[C7] Di Niu, Chen Feng, and Baochun Li, “A Theory of Cloud Bandwidth Pricing for Video-on-Demand Providers,” in *Proc. IEEE INFOCOM 2012*, Orlando, Florida, March 2012, pp. 711–719.

[C6] Chen Feng, Danilo Silva, and Frank R. Kschischang, “Lattice Network Coding via Signal Codes,” in *Proc. IEEE Int. Symp. Information Theory (ISIT)*, Saint Petersburg, Russia, July 2011, pp. 2578–2582.

[C5] Chen Feng, Danilo Silva, and Frank R. Kschischang, “Lattice Network Coding over Finite Rings,” in *Proc. 12th Canadian Workshop Inform. Theory (CWIT)*, Kelowna, British Columbia, Canada, May 2011, pp. 78–81.

[C4] Chen Feng, Danilo Silva, and Frank R. Kschischang, “Design Criteria for Lattice Network Coding,” in *Proc. Conf. Inform. Sci. and Systems (CISS)*, Baltimore, MD, March 2011, pp. 1–6.

[C3] Chen Feng, Danilo Silva, and Frank R. Kschischang, “An Algebraic Approach to Physical-Layer Network Coding,” in *Proc. IEEE Int. Symp. Information Theory (ISIT)*, Austin, TX, June 2010, pp. 1017–1021.

[C2] Chen Feng, Baochun Li, and Bo Li, “Understanding the Performance Gap between Pull-based Mesh Streaming Protocols and Fundamental Limits,” in *Proc. IEEE INFOCOM 2009*, Rio de Janeiro, Brazil, April 2009, pp. 891–899.

[C1] Chen Feng and Baochun Li, “On Large-Scale Peer-to-Peer Streaming Systems with Network Coding,” in *Proc. ACM Multimedia 2008*, Vancouver, British Columbia, Canada, October 2008, pp. 269–278.

INVITED TALKS **University of Michigan - Shanghai Jiao Tong University Joint Institute** April 17, 2014
An Algebraic Approach to Physical-Layer Network Coding
Host: Professor Yaping Dan

EE Department, University of Washington March 17, 2014
An Algebraic Approach to Compute-and-Forward
Host: Professors Matt Reynolds and Sumit Roy

ECE Department, McMaster University
An Algebraic Approach to Physical-Layer Network Coding
Host: Professor Jun Chen

June 3, 2013

Communications Group Event, University of Toronto
Efficient Physical-Layer Network Coding
Host: Professor Ben Liang

September 30, 2011

Banff International Research Station Workshop
An Algebraic Approach to Compute-and-Forward
Organizers: Professors Michael Gastpar and Frank R. Kschischang

August 17, 2011

MENTORING
EXPERIENCE

- ◇ *Shicong Yang* (Summer Student, University of Toronto) Summer 2010
 - Project on the applications of compressive sensing
 - Currently a graduate student at the University of California, Berkeley.

TEACHING
EXPERIENCE

- ◇ **Graduate Courses** (Teaching Assistant, University of Toronto)
 - ECE1500 *Stochastic Processes* Fall 2007
Duties include designing and marking midterm and final exams.
 - ECE1501 *Error-Control Codes* Fall 2008
Duties include marking assignments and preparing solutions.
 - ECE1520 *Data Communications* Spring 2009
Duties include marking assignments and preparing solutions.
- ◇ **Undergraduate Courses** (Teaching Assistant, University of Toronto)
 - CSC108 *Introduction to Computer Programming* Spring 2013
Duties include supervising weekly labs, assisting students with programming, and marking quizzes and exams.
 - MAT290 *Advanced Engineering Mathematics* Fall 2009/2010/2011
Duties include delivering weekly tutorials and marking exams.
 - ECE297 *Communication & Design* Spring 2009
Duties include supervising weekly labs, assisting students with implementing a storage server, and marking final exams.
 - ECE299 *Communication & Design II* Spring 2007/2008
Duties include supervising weekly labs, delivering technical talks, assisting students with implementing a web server, and marking final exams.
 - ECE302 *Probability and Applications* Spring/Fall 2013
Duties include delivering weekly tutorials and marking exams.
 - ECE316 *Communications Systems* Spring 2010
Duties include managing the workflow for all TA duties, designing weekly assignments, and preparing solutions.
 - ECE461 *Internetworking* Fall 2011
Duties include grading programming assignments and providing feedbacks, marking quizzes and exams.

- ECE466 *Computer Networks II* Spring 2011
Duties include grading programming assignments and providing feedbacks, marking quizzes and exams.
- ECE537 *Random Processes* Fall 2012
Duties include delivering weekly tutorials and marking exams.

PROFESSIONAL SERVICES

◇ **Conference Volunteer**

- The 2014 IEEE INFOCOM TPC Meeting
- The 2010 IEEE International Symposium on Network Coding
- The 2008 IEEE International Symposium on Information Theory

◇ **Reviewer for Journal Manuscript Submissions**

- IEEE Transactions on Communications
- IEEE Transactions on Information Theory
- IEEE Transactions on Multimedia
- IEEE Transactions on Wireless Communications
- IEEE Communications Letters
- IEEE Wireless Communications Letters
- IEEE/ACM Transactions on Networking
- Springer Multimedia Systems
- Springer Peer-to-Peer Networking and Applications

◇ **Reviewer for Conference Manuscript Submissions**

ACM MobiCom, ACM MobiHoc, ACM Multimedia, ACM NOSSDAV, IEEE GLOBECOM, IEEE ICDCS, IEEE ICME, IEEE ICNP, IEEE INFOCOM, IEEE ISIT, IEEE ITW, IEEE IWQoS, IEEE MASS, IEEE NetCod, IEEE SECON, IFIP Networking.

MEMBERSHIPS ACM, ACM SIGMETRICS, IEEE, IEEE Communications Society.

STATUS **Citizenship:** Chinese.
Permanent Residency: Canadian.

REFERENCES Available upon request.