

Mahdi Jafari Siavoshani

Ecole Polytechnique Fédérale de Lausanne
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Research Interests

Network Coding, Coding and Information Theory, Wireless Communications, Signal Processing.

Education

- 2007–present **Ph.D. Candidate in Communication System**, *Ecole Polytechnique Fédérale de Lausanne*, Switzerland.
Supervisor: Prof. Christina Fragouli.
- 2005–2007 **Master of Science in Communication System**, *Ecole Polytechnique Fédérale de Lausanne*, Switzerland.
Thesis: On Randomized Network Coding Properties and their Applications.
Adviser: Prof. Christina Fragouli.
- 2000–2004 **Bachelor of Science in Communication System**, *Sharif University of Technology*, Tehran, Iran.
Thesis : Application of Radio over Fiber in Cellular Communication.
Adviser: Prof. Jawad A. Salehi.
- 2003–2005 **Minor in Physics**, *Sharif University of Technology*, Tehran, Iran.
- 1996–2000 **High School Diploma**, *Allame Helli High School*, Tehran, Iran.
The National Institute for the Development of Exceptional Talents,
High-school diploma in Mathematics and Physics discipline.

Honors, Awards and Distinctions

- 2007–Now EPFL Scholarship for Ph.D. program in Communication and Computer Science at Ecole Polytechnique Fédérale de Lausanne, Switzerland.
- 2005–2007 Excellency Scholarship for M.S program in Communication Systems at Ecole Polytechnique Fédérale de Lausanne, Switzerland.
- Aug, 2002 Ranked first in Robocup Rescue League, Fukuoka, Japan.
- Sep, 1999 Gold Medal in the 12th National Physics Olympiad, Tehran, Iran.

Publications

Journal Papers

- M. Jafari Siavoshani, S. Mohajer, C. Fragouli, and S. Diggavi, "On the capacity of non-coherent network coding," *IEEE Transactions on Information Theory*, vol. 57, no. 2, pp. 1046–1066, Feb. 2011.
- L. Keller, M. Jafari Siavoshani, K. Argyraki, C. Fragouli, and S. Diggavi, "Joint identity-message coding," *IEEE Journal on Selected Areas in Communications (JSAC)*, vol. 28, no. 7, Sep. 2010.

- M. Jafari Siavoshani, C. Fragouli, and S. Diggavi, "Subspace properties of network coding and their applications," submitted to *IEEE Transactions on Information Theory*, Dec. 2008.

Conference Proceedings

- M. Jafari Siavoshani, S. Mishra, C. Fragouli, S. N. Diggavi, "Group secret key agreement over state-dependent wireless broadcast channels," *to appear in IEEE International Symposium on Information Theory*, 2011.
- M. Jafari Siavoshani, C. Fragouli, S. Diggavi, U. Pulleti, and k. Argyraki, "Group secret key generation over broadcast erasure channels," *Asilomar Conference on Signals, Systems, and Computers*, Nov. 2010.
- S. Mohajer, M. Jafari Siavoshani, S. N. Diggavi, C. Fragouli, "On the capacity of multisource non-coherent network coding," *Information Theory Workshop (ITW)*, Jun. 2009.
- M. Jafari Siavoshani, C. Fragouli, and S. Diggavi, "Code construction for multiple sources network coding," *MobiHoc-S3'09*, May 2009.
- M. Jafari Siavoshani, L. Keller, C. Fragouli, and K. Argyraki, "Compressed network coding vectors," *IEEE International Symposium on Information Theory (ISIT)*, Jun. 2009.
- M. Jafari Siavoshani, S. Mohajer, C. Fragouli, and S. Diggavi, "On the capacity of non-coherent network coding," *IEEE International Symposium on Information Theory (ISIT)*, Jun. 2009.
- L. Keller, M. Jafari Siavoshani, K. Argyraki, C. Fragouli, and S. Diggavi, "Identity aware sensor networks," *IEEE INFOCOM*, Apr. 2009.
- M. Jafari Siavoshani, C. Fragouli, and S. Diggavi, "Noncoherent multisource network coding," *IEEE International Symposium on Information Theory (ISIT)*, Jul 2008.
- M. Jafari Siavoshani, C. Fragouli, and S. Diggavi, "On locating byzantine attackers," *Network Coding Workshop (NETCOD)*, Jan. 2008.
- M. Jafari Siavoshani, C. Fragouli, and S. Diggavi, "Subspace properties of randomized network coding," *IEEE Information Theory Workshop (ITW)*, Jul. 2007.
- M. Jafari Siavoshani, C. Fragouli, S. Diggavi, and C. Gkantsidis, "Bottleneck discovery and overlay management in network coded peer-to-peer systems," *Internet Network Management Workshop*, Aug. 2007.

Experience

Research

- Summer 2011 **Internship at Institute of Network Coding (INC)**, *Chinese University of Hong Kong*.
Advisor: Professor Raymond Yeung.
- Summer 2006 **Internship at Algo Lab**, *Ecole Polytechnique Fédérale de Lausanne*.
Project: Network Topology Inference using Network Coding.
- 2004 **Internship at Wireless Communication Group**, *Iran Telecommunication Research Center*, Tehran, Iran.
Project: A Survey on Radio Over Fiber and its Application on Mobile Communication Networks.

Teaching

- 2006–present **Teaching Assistant**, *Ecole Polytechnique Fédérale de Lausanne*.
- Network Coding and Information Flow (Summer 2011).
- Principles of Digital Communications (Summer 2007, Summer 2010).
- Information Theory and Coding (Winter 2006, Winter 2009).
- Graph Theory Applications (Summer 2009).
- Convex Optimization Applications (Winter 2008).

2000–2001 **Teaching and Training**, *National Committee of Physics Olympiad*, Tehran, Iran.

Computer skills

Software Skills

- Operating Systems: Linux/Unix, Mac OS, Windows, DOS.
- Development Environments: Matlab, Network Simulator, Mathematica.
- Programming Languages: C, C++, Pascal, familiar with visual C++, Java, and VHDL.
- Web Programming: Familiar with PHP, Javascript, HTML, SQLs.
- Electronic Design Tools: Orcad, Spice, Max Plus II.
- Digital Typography: Proficient in \LaTeX .

Hardware Skills

- Experience of work with MAX7000, FLEX10K, and Cyclone II FPGAs.
- Experience of work with TI DSP C2x series.
- Experience of work with MCS-51 micro controller family.

Languages

Persian	Native
English	Fluent
French	Elementary

Extracurricular Activities and Hobbies

- Photographing (<http://photos.mahdijafari.com>)
- Blogging (<http://blog.mahdijafari.com>)
- Reading, Writing, Cycling
- Vice president of Iranian association at EPFL (IRSA), 2009.

References

1. **Professor Christina Fragouli**, School of Computer and Communication Sciences (IC), Ecole Polytechnique Fédérale de Lausanne, Switzerland.
email: christina.fragouli@epfl.ch, phone: +41(21)693-7513.
2. **Professor Suhaz Diggavi**, School of Electrical Engineering (EE), University of California, Los Angeles (UCLA), USA.
email: suhasdiggavi@ucla.edu, phone: +1(310)206-5171.
3. **Professor Jawad A. Salehi**, Electrical Engineering Department (EE), Sharif University of Technology, Tehran, Iran.
email: jasalehi@sharif.edu, phone: +98(21)6616-4346.