

Amin Jafarian

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Research Interests

- Information Theory, Network Coding, Distributed Algorithms, Communication Networks, Optimization

Education

Ph.D.

- Electrical and Computer Engineering, University of Texas at Austin (UT), Austin, Texas, Fall 2007-present - GPA 4.0
- **Advisor:** Prof. Sriram Vishwanath
- **Theses Title:** Structured Coding and Rate Allocation for Interference Networks

M.Sc.

- Electrical and Computer Engineering, University of Texas at Austin (UT), Austin, Texas, Fall 2005-2007 - GPA 3.92
- **Advisor:** Prof. Sriram Vishwanath

B.Sc.

- Electrical Engineering, Sharif University of Technology (SUT), Tehran, Iran, Fall 2001-2005 - GPA 3.6

Honors & Awards

- Silver medal in 42nd International Math. Olympiad (IMO), USA , 2001
- Gold medal in 18th Iran National Math. Olympiad, 2000
- Silver medal in 17th Iran National Math. Olympiad, 1999

Publications

Journals

- A. Jafarian, S. Vishwanath, *Achievable Rates for Gaussian Interference Channels*, IEEE Trans. on Info. Theory (under revision).
- S. Shridharan, A. Jafarian, S. Vishwanath, S. A. Jafar, S. Shamai, *Lattice Coding for K User Gaussian Interference Channels*, IEEE Trans. on Info. Theory (under revision).
- A. Jafarian, S. Vishwanath, *New Outer-Bound on the Capacity Region of Fading Broadcast Channel*, In prep.
- A. Jafarian, S. Vishwanath, *Lattice Alignment: Cognitive Networks*, In prep.

Conferences

- A. Jafarian, S. Vishwanath, *On Achievable Rates for Non-Linear Deterministic Interference Channels*, Information Theory Workshop (ITW) Sep 2010.
- S. Shadbakht, A. Jafarian, B. Hassibi, *Entropy Region and Scalar Linear Codes*, International Communications Conference (ICC) May 2010.
- A. Jafarian, S. Vishwanath, *Gaussian Interference Networks: Lattice Alignment*, Information Theory Workshop (ITW) Jan 2010.
- A. Jafarian, U. Erez, S. Vishwanath, *Should One Always Connect to the Base-Station With the Strongest Signal?*, Asilomar Conference Nov 2009.

- A. Jafarian, J. Jose, S. Vishwanath, *Algebraic Lattice Alignment for K-User Interference Channels*, Allerton Conference Sep 2009.
- A. Jafarian, S. H. Lee, S. Vishwanath, C. Fragouli, *On Distributed Rate Allocation for a Network-Coded Systems*, Workshop on Wireless and Network Coding (WiNC) Jun 2009.
- A. Jafarian, S. Vishwanath, *On the Capacity of Multi-User Cognitive Radio Networks*, International Symposium on Information Theory (ISIT) Jul 2009.
- A. Jafarian, S. Vishwanath, *On the Capacity of One-sided Two user Gaussian Fading Broadcast Channels*, Global Comm. Conference (Globecom) Dec 2008.
- S. Sridharan, A. Jafarian, S. Vishwanath, S. A. Jafar, *A Layered Lattice Coding Scheme for a Class of Three User Gaussian Interference Channels*, Global Comm. Conference (Globecom) Dec 2008.
- S. Sridharan, A. Jafarian, S. Vishwanath, S. A. Jafar, S. Shamai, *Capacity of Symmetric K-User Gaussian Very Strong Interference Channels*, Allerton Conference Sep 2008.
- A. Jafarian, J. Jose, S. Vishwanath, *On the Capacity of Fading Broadcast Channel*, Information Theory and Applications (ITA) Jan 2008.
- A. Jafarian, *An Algorithm in Extrapolating the Band-Limited Signals*, presentation, National Instrument, May 2006.

Industry Experiences (Internships)

- Corporate R&D, Qualcomm Inc., San Diego, Fall 2010
- Corporate R&D, Qualcomm Inc., San Diego, Summer 2010
 - DO-Advanced group. Project: Network load balancing/scheduling Algos
- MAHVA Communication Company, Tehran, Iran, Summer 2004

Academic Experiences

Visiting Researcher

- Caltech, Summer 2009, Advisor: Babak Hassibi
- EPFL, Switzerland, Summer 2008, Advisor: Christina Fragouli

Research Assistant

- Wireless, Networks and Communication Group, University of Texas at Austin, under supervision Sriram Vishwanath, 2005-present

Teaching Experience

- Teaching assistant: Cryptography (UT, Fall 2006), Introduction to C Programming (UT, Spring 2006), Graduate DSP (SUT, Fall 2004),
- Instructor and designer of National Math Olympiad exams, 2001-2005.

Relevant Courses

- *Electrical Engineering*: Probability & Stochastic Process, Digital Communications, Information Theory, Channel Coding, Analysis And Design Of Comm. Network, Adv. Topics In Channel Coding, Adv. Telecomm. Networks, Convex Optimization
- *Mathematics*: Algebraic Structure, Algebra I, Algebraic Combinatorics, Linear Algebra, Combinatorics and its Application, Combinatorics and Graph Theory
- *Other*: Nonlinear Optimization, Systems Analysis , Microeconomics I

Computer Skills

- *Operating systems*: Windows, Linux, Unix.
- *Languages*: C, Shell Programming, MYSQL, PHP, CGI, HTML, Delphi, Assembly.
- *Applications*: MATLAB, Mathematica, GAMS, ORCAD, KEIL.