

CS 2429F – Fall 2012
Course Presentation

1 Picking your Topic

Please send me an email or make an appointment by Sept 30, with your proposed topic and paper(s) that you will present. Include in your email who you will be working with or if you plan to work alone. Two people will be expected to cover the topic in more depth, and will have a longer time for the presentation (60-90 minutes for 2 people, 30-60 minutes for one person.) You are welcome to suggest a different topic than those that I list below but if you do so, please come and talk with me.

After your topic is approved, I will give you a date for your presentation. Your presentation may include slides (powerpoint or whatever you choose), and/or lecture notes.

2 Suggestions for Topics/Papers for Presentation

2.1 Communication Complexity

- (1.) The log-rank conjecture.

Nisan, Wigderson. On Rank vs Communication Complexity

Ben-Sasson, Lovett, Zewi. An additive combinatorics approach to the log-rank conjecture

- (2.) Lower bounds over product versus nonproduct distributions.

Alexander A. Sherstov. "Communication complexity under product and nonproduct distributions." CCC 2008.

- (3.) Lower bounds for unbounded error communication complexity

Forster. A linear lower bound on the unbounded error probabilistic comm complexity JCSS.

Sherstov. The unbounded error Communication Complexity of Symmetric Functions

- (4.) Using cc to prove strong results in data structures.

Mihai Patrascu. "Towards Polynomial Lower Bounds for Dynamic Problems"

Chattopadhyay, Edmonds, Ellen, Pitassi. "A little advice can be very helpful." Soda, 2011

- (5.) The Gap Hamming Problem

Sherstov. The communication complexity of gap Hamming distance

2.2 Information Complexity

- (1.) Mark Braverman and Anup Rao. "Information Equals Amortized Communication."

- (2.) Mark Braverman. "Interactive information complexity." STOC 2012.

- (3.) Amit Chakrabarti, Yaoyun Shi, Anthony Wirth, and Andrew Yao. "Information Complexity and the Direct Sum Problem for Simultaneous Message Complexity." FOCS 2001.

- (4.) Ziv Bar-Yossef, T. S. Jayram, Ravi Kumar, and D. Sivakumar. "An information statistics approach to data stream and communication complexity." Journal of Computer and System Sciences, Volume 68, p. 702-732, June 2004.