

1. [Palash] Color Coding and chromatic coding based algorithms. Ref: any standard textbook on “Parameterized Algorithms”
2. [Palash] Path coupling technique and its application in bounding mixing time of a Markov chain. Ref: lecture notes available on Google
3. <del>[Palash] Johnson–Lindenstrauss lemma and its application. Ref: lecture notes available on Google</del>
4. [Palash] Yao’s lemma and its application. Ref: lecture notes available on Google
5. [Palash] Goemans-Williamson SDP based randomized approximation algorithm for computing a max cut of a graph. Ref: lecture notes available on Google
6. [Palash] Randomized binary search tree and treaps. Ref: lecture notes available on Google
7. [Palash] Locality sensitive hashing and its application in nearest neighbor search. Ref: lecture notes available on Google
8. [Palash] Estimating $F_k$ and reservoir sampling. Ref: <a href="https://www.cs.dartmouth.edu/~deepc/LecNotes/Rand/lec18.pdf">https://www.cs.dartmouth.edu/~deepc/LecNotes/Rand/lec18.pdf</a>
9. [Palash] Approximation algorithm using randomized rounding of LP solution. Ref: lecture notes available on Google
10. [Palash] Probabilistic tree embedding and its application. Ref: lecture notes available on Google
11. [Somindu] Randomised skip lists.
12. [Somindu] Pseudorandom functions: Naor-Reingold PRF
13. [Somindu] Algorithmic Lovasz Local Lemma: Moser–Tardos algorithm
14. [Somindu] Randomness Extractors
15. [Somindu] Randomised Primality Testing: Fermat Test, Solovay–Strassen Test, Miller-Rabin Test
16. [Somindu] Construction of expander graphs
17. [Somindu] Information, Entropy, Shannon’s Coding Theorem
18. [Somindu] Cuckoo hashing
19. [Somindu] Papadimitrou’s 2-SAT algorithm and its analysis.