EE728 (22A004)
Δ. Τουμπακάρης

Φυλλάδιο 2
17 Φεβρουαρίου 2014

EE 376A/Stat 376A
Information Theory
TTh 11-12:15pm, 380-380c

Handout #3
Tuesday, January 6, 2009
T. Cover

Reference Books

Primary text:

- Cover and Thomas, *Elements of Information Theory*, Second Edition, Wiley, 2006. Course text.

Collections:

- *Claude Elwood Shannon: Collected Papers*, IEEE Press, 1993. Everything Shannon published including some internal Bell Labs memoranda as well.

- *Information Theory: 50 Years of Discovery*, Verdu and McLaughlin eds., IEEE Press, 1999. (Reprint of *IEEE Transactions on Information Theory*, October 1998 Commemorative Issue.) Characterization of the frontier of information theory on the fiftieth anniversary of the field.

Other recommended references:

- Gallager, *Information Theory and Reliable Communication*, Wiley, 1968. A benchmark text and research reference.

- Csiszar and Korner, *Information Theory*, 1981. An important research reference from a unique point of view. Develops the method of types.

- Slepian, *Key Papers in the Development of Information Theory*, IEEE Press, 1974. A collection of original papers for both historians and researchers. Contains Shannon's papers.

- Chuang and Nielsen, *Quantum Computation and Quantum Information*. An important basic text on quantum information.

- Pinsker, *Information and Information Stability of Random Variables and Processes*, Holden-Day, 1964. One of the first and most influential.

- Yeung, R.W., *A First Course in Information Theory*, Kluwer, 2002.

- Blahut, R., *Principles and Practice of Information Theory*, Addison Wesley, 1987.

- Han, Te Sun, *Information-Spectrum Methods in Information Theory*, Springer, 2003.

- MacKay, *Information Theory, Inference, and Learning Algorithms*, Cambridge, 2003.

- Blahut, *Principles and Practice of Information Theory*. A good text.

- McEliece, *The Theory of Information and Coding*. Readable and to the point. Emphasizes duality of channel capacity and rate distortion.

- Li and Vitányi, *An Introduction to Kolmogorov Complexity and its Applications*, Springer, 1993. The best reference on algorithmic complexity to date.

- Golomb, Peile and Scholtz, *Basic Concepts in Information and Coding: The Adventures of Secret Agent 00111*. A textbook on the subject.

- Ash, *Information Theory*. Concise. Well written.

- Abramson, *Information Theory and Coding*. Simple and intuitive. Good for the first part of the course.

- Berger, *Rate Distortion Theory*. A classic on the mathematics of data compression.

- Berlekamp, *Algebraic Coding Theory*. An important book in coding theory and algebra. Covered in EE387.

- Brillouin, *Science and Information Theory*. The role of information theory in physics. Maxwell's demon.

- Fano, *Transmission of Information*. A precursor to Gallager.

- Forney, *Information Theory*, unpublished course notes. A nice early treatment.

- Gray, *Entropy and Information Theory*. A research monograph.

- Gray, *Source Coding Theory*.

- Gray and Davisson, *Ergodic and Information Theory*. Collected papers.

- Hamming, *Coding and Information Theory*. Text based on Abramson's approach.

- Ihara, *Information Theory for Continuous Systems*, World Scientific, 1993. Has material on Gaussian channel with feedback.

- Jelinek, *Probabilistic Information Theory.* Early text. Some material not found elsewhere.

- Khinchin, *Mathematical Foundations of Information Theory.* Translated from the 1957 Russian edition.

- Kotel'nikov, *The Theory of Optimum Noise Immunity.* Russian translation of one of the original efforts in the area.

- Reza, *An Introduction to Information Theory.* Intermediate level — between Abramson and Gallager.

- Shannon and Weaver, *The Mathematical Theory of Communication*, 1948. The original book. Still very intuitive and interesting. The main body of this is reprinted in Slepian's *Key Papers in the Development of Information Theory* and can be found in Shannon's *Collected Works.*

- Szpankowski, *Average Case Analysis of Algorithims on Sequences*, Wiley, 2001. Detailed bounds on combinatorics arising in information theory.

- Viterbi and Omura, *Principles of Digital Communication and Coding.* Thorough study of information theory and its relevance to digital communication.

- Wells, *Applied Coding and Information Theory for Engineers*, Prentice Hall, 1999. Textbook.

- Wolfowitz, *Coding Theorems of Information Theory*, 1961. An early mathematical treatment of information theory. Concise.

- Yaglom and Yaglom, *Information Theory.* Translation of the principal Russian text on information theory. Contains a chapter on the entropy of language.