Source evaluation

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Error detecting and error correcting codes [1]

This is a paper by R. W. Hamming, who contributed much to modern error-correcting codes. One of the main encoding types used in my project is even named the Hamming code. It has formed much of the basis of modern communication theory and can certainly be trusted.

A mathematical theory of communication [2]

This paper, together with [1] are generally considered to be the seminal works on coding theory. This lays much of the groundwork for communication theory and gives a more general definition of the Hamming Code

Generalized dna barcode design based on hamming codes [3]

This article is very much relevant to what my project is about. It doesn't seem to be very clear though, and it uses a seemingly inoptimal form of parity. However it provides helpful insight into what actual researchers in the field are doing and have done with these ideas.

Introduction to coding theory [4]

This is not a great academic source, but very helpful for reaching more of a 'layman's' kind of understanding of coding theory.

References

- [1] R. W. Hamming. Error detecting and error correcting codes. *The Bell System Technical Journal*, 26(2):147–160, 1950. Accessed 26/01/2018 via http://sb.fluomedia.org/hamming/.
- [2] C. E. Shannon. A mathematical theory of communication. The Bell System Technical Journal, 27:379

 –423, 623

 –656, 1948. Accessed 2/02/2018 via http://affect-reason-utility.com/1301/4/shannon1948.pdf.
- [3] Leonid V. Bystrykh. Generalized dna barcode design based on hamming codes. *PLOS ONE*, 2012. Accessed 2/02/2018 via http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0036852.
- [4] Venkatesan Guruswami. Introduction to coding theory. http://www.cs.cmu.edu/venkatg/teaching/codingtheory/notes/notes1.pdf. Accessed: 26/01/2018.