Topics in Error Correcting Codes

Klim Efremenko

Ben Gurion University

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Section 1

Administration

Important Details

1. Klim Efremenko 37/303, email klim at bgu.ac.il Reception: Tue 12:00-14:00 (please coordinate via email in advance)

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- 2. Course website:

https://www.cs.bgu.ac.il/~klim/Teaching/Webpage Make sure to read all what is there.

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- 5. By 01.08.2021 each group should submit the report on the project.

Grades

1. The grade will be composed from: 70% evaluation of the final project, and 30% evaluation of the progress of the pair throughout the semester.

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- 8. The last part of the report should include conclusions, and ideas for improvement.

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Section 2

Error Correcting Codes

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- Error Correcting Code is a way to encode information such that it will be resilient to noise.

Communication

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- Storage

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- Crypto

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- Pseudo-Randomness

Section 3

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- Example Repition code(repeat each symbol 3 times) has rate $\frac{1}{3}$.
- Linear Code if Σ is a finite field and C is a linear mapping. Almost all codes are linear.

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- We want both R and d to be large ussually this is contraditing goals.

Section 4

Selected Projects

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- You can achieve better rates than in case of unique decoding.