Digital Communication System on Gaussion Noise using QPSK modulation and LDPC

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Overview

Overview

Communication Age

- of businesses primarily use email to communicate with their clients, as opposed to online tools (16%) phone calls (9%) and face-to-face (5%). Co (2020)

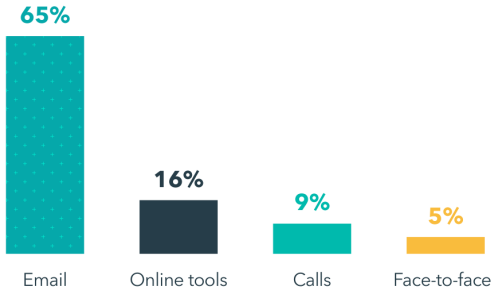

Figure 1: Ways of Communication Statistics

SOTA Solution

- Analog modulation methods:
  - Amplitude Modulation (AM): DSB, SSB, VSB, etc
  - Angle Modulation (AM): FM, PM, etc
- Digital modulation methods:
  - Phase-shift keying: PSK
  - Frequency-shift keying: FSK
  - Amplitude-shift keying: ASK
  - Quadrature amplitude modulation: QAM

Overview

Methodology

Construct a simulated communication system working on white noise environment using:

- Quadrature Phase Shift Keying (QSPK) modulation
- Low Density Parity Check (LDPC) code
- BER

QPSK

LDPC

White Noise

Overview

Experimental Setup

Experimental Result

References I

Project. Co. Communications statistics 2020. In *Communications statistics 2020*, page 9, 2020.

Ian Goodfellow, Jean Pouget-Abadie, Mehdi Mirza, Bing Xu, David Warde-Farley, Sherjil Ozair, Aaron Courville, and Yoshua Bengio. Generative adversarial nets. *Advances in neural information processing systems*, 27, 2014.