

# Using MLModern in Quarto

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## Sample text

For example, suppose we treat each gene as a *term* and say each sample is a *document*. In that case, we can use word embedding methods in NLP like `word2vec` or `GloVe` to learn low-dimensional vector representations for genes, given the gene expression count data for a collection of samples.

$$\mathbb{E}[(T(F_n) - T(F))^r] = \mathbb{E}\left[\left(\sum_{j=1}^k T_{j,n}/j!\right)^r\right] + o\left(n^{-(r+k-1)/2}\right)$$

Traditional methods might assume two genes are similar if they have highly correlated expression profiles or overlaps in labels. We assume that two genes are similar if their **expression context** is similar, i.e., the groups of genes that frequently express together with them are similar.

## Sample code block

```
#' Classify any file into text or binary
is_text_file <- function(path, n = file.info(path)$size) {
  bytecode <- readBin(path, what = "raw", n = n)

  if (length(bytecode) == 0L) return(FALSE)

  allow <- as.raw(c(9, 10, 13, 32:255))
  block <- as.raw(c(0:6, 14:31))
  cond1 <- any(bytecode %in% allow)
  cond2 <- !any(bytecode %in% block)
  cond1 && cond2
}
```