IQC delta scoring modeling

1. **Defining our variables**

Let be a matrix that represents our set of alpha expression that passed all the IS conditions

The IS conditions are:

1. Fitness > 1
2. Sharpe > 1.25
3. 0.01 < Turnover < 0.7
4. Weight not too concentrated and adequate positions held

Let represent the score delta for each of our alpha expression which is also our target expression

Let represent the highest correlation value for each alpha expression

number of alpha expression in our set

number of features we have

In our case,

We have data on: *sharpe, turnover, fitness, returns, margin, long\_count, short\_count* for 2013 until 2018 which yields 42 different variables.

\*Note: I intentionally excluded the highest correlation value since calculating it is infeasible because WebSim only allows us to run 50 correlation tests in a given time frame.

1. **Goals**

Objective function: s.t.

Find a subset

1. **Metrics we would need to approximate**
   1. How does submitting one alpha affect the score delta of all the other alphas?

Let represent the effect matrix where represents the effect of submitting alpha on alpha given that I submitted alpha .

1. **Models to approximate this metric?**

**EM? Any way to decompose into simpler parts?**