prediction-LinearRegression.R

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```
library(e1071)
library(ggplot2)
library(plyr)

dirpath <- "~/Doctorate/svm-gpuperf/"
setwd(paste(dirpath, sep=""))

gpus <- read.table("./R-code/deviceInfo.csv", sep=",", header=T)
NoGPU <- dim(gpus)[1]

apps <- c("matMul_gpu_uncoalesced","matMul_gpu", "matMul_gpu_sharedmem_uncoalesced", "matMul_gpu_sharedm
          "matrix_sum_normal", "matrix_sum_coalesced",
          "dotProd", "vectorAdd",  "subSeqMax")

Parameters <- c("gpu_name","gpu_id", "AppName", "AppId", "Input.Size", "Duration",
                    "max_clock_rate",    "num_of_cores",
                    "Achieved.Occupancy",
                     "totalLoadGM", "totalStoreGM", "totalLoadSM", "totalStoreSM",
                "Floating.Point.Operations.Single.Precision.",
                "L2.Read.Transactions", "L2.Write.Transactions",
                   "blockSize", "GridSize", "totalThreads"
)

DataAppGPU <- read.csv(file = paste("./R-code/Datasets/CleanData/App-GPU-CC-All.csv", sep = ""))
DataAppGPU <- rbind(DataAppGPU[c(Parameters)])

result <- data.frame()
for (CC in c(1:10)){
    for( j in 1:9) {
        # if (CC <= 6){
        #     Data <- subset(DataAppGPU, AppId == j & gpu_id <= 6  & blockSize >= 256)
        # } else{
        #     Data <- subset(DataAppGPU, AppId == j & gpu_id > 7 & blockSize >= 256)
        # }

        if (j <= 4){
            Data <- subset(DataAppGPU, AppId == j & Input.Size >= 4096 )
        } else if (j > 4 & j < 7) {
            Data <- subset(DataAppGPU, AppId == j & Input.Size >= 4096 )
        } else{
            Data <- subset(DataAppGPU, AppId == j  & Input.Size >= 71303168)
        }


        if (j == 3 | j == 4 | j == 9){
            print(j)
        } else {
```

```
    Data$totalLoadSM <- NULL
    Data$totalStoreSM <- NULL
}

Data <- Data[complete.cases(Data),]
# Data[["max_clock_rate"]] <- scale(Data[["max_clock_rate"]], center = FALSE, scale = max(Data[

trainingSet <- subset(Data, gpu_id != CC)
testSet <- subset(Data, gpu_id == CC )

# if (j <= 6){
#     trainingSet <- subset(Data, Input.Size <= 4096 | Input.Size >= 6912 | blockSize != 1024)
#     testSet <- subset(Data, (Input.Size > 4096 & Input.Size < 6912) & blockSize == 1024)
# } else if(j >  6 & j <9 ){
#     trainingSet <- subset(Data, Input.Size <= 71303168 | Input.Size >= 121634816 | blockSize
#     testSet <- subset(Data, (Input.Size > 71303168 & Input.Size < 121634816) & blockSize == 2
# } else {
#     trainingSet <- subset(Data, Input.Size <= 163577856 | Input.Size >= 218103808 )
#     testSet <- subset(Data, (Input.Size > 163577856 & Input.Size < 218103808) )
# }

dim(Data)
dim(trainingSet)
dim(testSet)

trainingSet$AppName <- NULL
trainingSet$gpu_name <- NULL
trainingSet$AppId <- NULL
trainingSet$gpu_id <- NULL

trainingSet$max_clock_rate <- NULL
trainingSet$num_of_cores <- NULL
trainingSet$Achieved.Occupancy <- NULL
trainingSet$blockSize <- NULL
# trainingSet$GridSize <- NULL
# trainingSet$totalThreads <- NULL
trainingSet$inst_issued2 <- NULL
trainingSet$L2.Read.Transactions <- NULL
trainingSet$L2.Write.Transactions <- NULL
trainingSet$totalStoreGM <- NULL

TestDuration <- testSet["Duration"]
Size <- testSet["Input.Size"]
App <- testSet["AppName"]
Gpu <- testSet["gpu_name"]
Block <- testSet["blockSize"]

testSet$AppName <- NULL
testSet$gpu_name <- NULL
testSet$Duration <- NULL
testSet$AppId <- NULL
testSet$gpu_id <- NULL
```

```
        testSet$max_clock_rate <- NULL
        testSet$num_of_cores <- NULL
        testSet$Achieved.Occupancy <- NULL
        testSet$blockSize <- NULL
        # testSet$GridSize <- NULL
        # testSet$totalThreads <- NULL
        testSet$inst_issued2 <- NULL
        testSet$L2.Read.Transactions <- NULL
        testSet$L2.Write.Transactions <- NULL
        testSet$totalStoreGM <- NULL

        base <- lm(trainingSet$Duration ~ ., data = trainingSet)
        summary(base)
        fit <- step(base, direction = "forward")
        # summary(fit)
        print( gpus[CC,'gpu_name'])
        print( apps[j])
        print(fit)
        predictions <- predict(fit, testSet)

        mse <- mean((as.matrix(TestDuration)  - predictions)^2)
        mae <- mean(abs(as.matrix(TestDuration)  - predictions))
        mape <- mean(abs(as.matrix(TestDuration)  - predictions/predictions))
        # mpe <- mean(as.matrix(TestDuration)  - predictions/predictions)
        # smape = mean((abs(as.matrix(predictions)  -TestDuration)/ (abs(TestDuration) + abs(prediction

        Acc <- predictions/TestDuration
        AccMin <- min(Acc)
        AccMean <- mean(as.matrix(Acc))
        AccMedian <- median(as.matrix(Acc))
        AccMax <- max(Acc)
        AccSD <- sd(as.matrix(Acc))

        Tempresult <- data.frame(Gpu, App, Size, Block, TestDuration, predictions, Acc, AccMin, AccMax,

        result <- rbind(result, Tempresult)

    }
}
```

```
## Start:  AIC=229.15
## trainingSet$Duration ~ Input.Size + totalLoadGM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] GTX-680
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "matMul_gpu_uncoalesced"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     Floating.Point.Operations.Single.Precision. + GridSize +
##     totalThreads, data = trainingSet)
##
```

```
## Coefficients:
##                                   (Intercept)
##                                    -6.869e+00
##                                    Input.Size
##                                     3.671e-03
##                                   totalLoadGM
##                                    -1.264e-08
## Floating.Point.Operations.Single.Precision.
##                                     1.138e-10
##                                      GridSize
##                                     1.741e-05
##                                  totalThreads
##                                    -7.095e-07
##
## Start:  AIC=-329.08
## trainingSet$Duration ~ Input.Size + totalLoadGM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] GTX-680
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "matMul_gpu"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     Floating.Point.Operations.Single.Precision. + GridSize +
##     totalThreads, data = trainingSet)
##
## Coefficients:
##                                   (Intercept)
##                                    -3.372e+00
##                                    Input.Size
##                                     1.602e-03
##                                   totalLoadGM
##                                    -3.834e-10
## Floating.Point.Operations.Single.Precision.
##                                     2.420e-11
##                                      GridSize
##                                     1.199e-06
##                                  totalThreads
##                                    -2.378e-07
##
## [1] 3
## Start:  AIC=353.22
## trainingSet$Duration ~ Input.Size + totalLoadGM + totalLoadSM +
##     totalStoreSM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] GTX-680
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "matMul_gpu_sharedmem_uncoalesced"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     totalLoadSM + totalStoreSM + Floating.Point.Operations.Single.Precision. +
```

```
##     GridSize + totalThreads, data = trainingSet)
##
## Coefficients:
##                                   (Intercept)
##                                     4.023e+00
##                                    Input.Size
##                                    -1.602e-03
##                                   totalLoadGM
##                                     1.987e-07
##                                   totalLoadSM
##                                    -5.168e-09
##                                  totalStoreSM
##                                    -9.425e-09
## Floating.Point.Operations.Single.Precision.
##                                     3.563e-11
##                                      GridSize
##                                    -2.853e-06
##                                  totalThreads
##                                     1.690e-07
##
## [1] 4
## Start:  AIC=-609.02
## trainingSet$Duration ~ Input.Size + totalLoadGM + totalLoadSM +
##     totalStoreSM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] GTX-680
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "matMul_gpu_sharedmem"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     totalLoadSM + totalStoreSM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads, data = trainingSet)
##
## Coefficients:
##                                   (Intercept)
##                                     4.479e-01
##                                    Input.Size
##                                    -1.708e-04
##                                   totalLoadGM
##                                    -4.554e-09
##                                   totalLoadSM
##                                    -2.509e-10
##                                  totalStoreSM
##                                     1.123e-09
## Floating.Point.Operations.Single.Precision.
##                                     1.077e-11
##                                      GridSize
##                                     1.593e-06
##                                  totalThreads
##                                     1.681e-09
##
## Start:  AIC=-4082.84
```

```
## trainingSet$Duration ~ Input.Size + totalLoadGM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] GTX-680
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "matrix_sum_normal"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     Floating.Point.Operations.Single.Precision. + GridSize +
##     totalThreads, data = trainingSet)
##
## Coefficients:
##                                   (Intercept)
##                                     6.991e-03
##                                    Input.Size
##                                    -2.567e-06
##                                   totalLoadGM
##                                     3.104e-08
## Floating.Point.Operations.Single.Precision.
##                                     7.094e-10
##                                      GridSize
##                                    -2.093e-08
##                                  totalThreads
##                                            NA

## Warning in predict.lm(fit, testSet): prediction from a rank-deficient fit
## may be misleading

## Start:  AIC=-6272.68
## trainingSet$Duration ~ Input.Size + totalLoadGM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] GTX-680
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "matrix_sum_coalesced"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     Floating.Point.Operations.Single.Precision. + GridSize +
##     totalThreads, data = trainingSet)
##
## Coefficients:
##                                   (Intercept)
##                                    -2.998e-04
##                                    Input.Size
##                                     9.736e-08
##                                   totalLoadGM
##                                    -3.989e-10
## Floating.Point.Operations.Single.Precision.
##                                     8.821e-11
##                                      GridSize
##                                     3.767e-10
##                                  totalThreads
```

```
##                                         NA

## Warning in predict.lm(fit, testSet): prediction from a rank-deficient fit
## may be misleading

## Start:  AIC=-12309.37
## trainingSet$Duration ~ Input.Size + totalLoadGM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] GTX-680
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "dotProd"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     Floating.Point.Operations.Single.Precision. + GridSize +
##     totalThreads, data = trainingSet)
##
## Coefficients:
##                                   (Intercept)
##                                     6.332e-04
##                                    Input.Size
##                                     3.323e-07
##                                   totalLoadGM
##                                     3.271e-06
## Floating.Point.Operations.Single.Precision.
##                                    -1.788e-07
##                                      GridSize
##                                    -1.794e-07
##                                  totalThreads
##                                    -6.232e-11
##
## Start:  AIC=-13865.51
## trainingSet$Duration ~ Input.Size + totalLoadGM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] GTX-680
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "vectorAdd"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     Floating.Point.Operations.Single.Precision. + GridSize +
##     totalThreads, data = trainingSet)
##
## Coefficients:
##                                   (Intercept)
##                                     4.983e-04
##                                    Input.Size
##                                     5.762e-11
##                                   totalLoadGM
##                                     1.432e-10
## Floating.Point.Operations.Single.Precision.
##                                         NA
```

```
##                                   GridSize
##                                  4.693e-10
##                                totalThreads
##                                         NA
```

```
## Warning in predict.lm(fit, testSet): prediction from a rank-deficient fit
## may be misleading
```

```
## [1] 9
## Start:  AIC=-3989.49
## trainingSet$Duration ~ Input.Size + totalLoadGM + totalLoadSM +
##     totalStoreSM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] GTX-680
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "subSeqMax"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     totalLoadSM + totalStoreSM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads, data = trainingSet)
##
## Coefficients:
##                                 (Intercept)
##                                  -6.826e-02
##                                  Input.Size
##                                   1.197e-07
##                                totalLoadGM
##                                  -3.059e-05
##                                totalLoadSM
##                                   2.920e-02
##                               totalStoreSM
##                                         NA
## Floating.Point.Operations.Single.Precision.
##                                  -1.086e-05
##                                   GridSize
##                                         NA
##                               totalThreads
##                                         NA
```

```
## Warning in predict.lm(fit, testSet): prediction from a rank-deficient fit
## may be misleading
```

```
## Start:  AIC=226.73
## trainingSet$Duration ~ Input.Size + totalLoadGM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] Tesla-K40
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "matMul_gpu_uncoalesced"
##
## Call:
```

```
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     Floating.Point.Operations.Single.Precision. + GridSize +
##     totalThreads, data = trainingSet)
##
## Coefficients:
##                                  (Intercept)
##                                   -5.850e+00
##                                   Input.Size
##                                    3.379e-03
##                                  totalLoadGM
##                                   -1.199e-08
## Floating.Point.Operations.Single.Precision.
##                                    1.100e-10
##                                     GridSize
##                                    1.635e-05
##                                 totalThreads
##                                   -6.749e-07
##
## Start:  AIC=-285.92
## trainingSet$Duration ~ Input.Size + totalLoadGM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] Tesla-K40
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "matMul_gpu"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     Floating.Point.Operations.Single.Precision. + GridSize +
##     totalThreads, data = trainingSet)
##
## Coefficients:
##                                  (Intercept)
##                                   -2.927e+00
##                                   Input.Size
##                                    1.485e-03
##                                  totalLoadGM
##                                   -3.905e-10
## Floating.Point.Operations.Single.Precision.
##                                    2.460e-11
##                                     GridSize
##                                    1.243e-06
##                                 totalThreads
##                                   -2.330e-07
##
## [1] 3
## Start:  AIC=356.47
## trainingSet$Duration ~ Input.Size + totalLoadGM + totalLoadSM +
##     totalStoreSM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] Tesla-K40
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "matMul_gpu_sharedmem_uncoalesced"
```

```
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     totalLoadSM + totalStoreSM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads, data = trainingSet)
##
## Coefficients:
##                                   (Intercept)
##                                     4.165e+00
##                                    Input.Size
##                                    -1.582e-03
##                                   totalLoadGM
##                                     1.941e-07
##                                   totalLoadSM
##                                    -5.045e-09
##                                  totalStoreSM
##                                    -9.116e-09
## Floating.Point.Operations.Single.Precision.
##                                     3.581e-11
##                                      GridSize
##                                    -3.136e-06
##                                  totalThreads
##                                     1.586e-07
##
## [1] 4
## Start:  AIC=-576.64
## trainingSet$Duration ~ Input.Size + totalLoadGM + totalLoadSM +
##     totalStoreSM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] Tesla-K40
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "matMul_gpu_sharedmem"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     totalLoadSM + totalStoreSM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads, data = trainingSet)
##
## Coefficients:
##                                   (Intercept)
##                                     2.154e-01
##                                    Input.Size
##                                    -1.919e-05
##                                   totalLoadGM
##                                    -4.409e-09
##                                   totalLoadSM
##                                    -1.883e-10
##                                  totalStoreSM
##                                     1.023e-09
## Floating.Point.Operations.Single.Precision.
##                                     1.080e-11
##                                      GridSize
##                                     1.857e-06
```

```
##                                totalThreads
##                                  -2.903e-08
##
## Start:  AIC=-3762.02
## trainingSet$Duration ~ Input.Size + totalLoadGM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] Tesla-K40
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "matrix_sum_normal"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     Floating.Point.Operations.Single.Precision. + GridSize +
##     totalThreads, data = trainingSet)
##
## Coefficients:
##                                 (Intercept)
##                                   4.679e-03
##                                  Input.Size
##                                  -1.695e-06
##                                 totalLoadGM
##                                   6.051e-08
## Floating.Point.Operations.Single.Precision.
##                                   6.944e-10
##                                    GridSize
##                                  -3.283e-08
##                                totalThreads
##                                          NA

## Warning in predict.lm(fit, testSet): prediction from a rank-deficient fit
## may be misleading

## Start:  AIC=-6255.46
## trainingSet$Duration ~ Input.Size + totalLoadGM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] Tesla-K40
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "matrix_sum_coalesced"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     Floating.Point.Operations.Single.Precision. + GridSize +
##     totalThreads, data = trainingSet)
##
## Coefficients:
##                                 (Intercept)
##                                  -3.725e-06
##                                  Input.Size
##                                  -1.301e-08
##                                 totalLoadGM
##                                  -3.232e-10
## Floating.Point.Operations.Single.Precision.
```

```
##                                   9.690e-11
##                                    GridSize
##                                   5.514e-10
##                                 totalThreads
##                                          NA

## Warning in predict.lm(fit, testSet): prediction from a rank-deficient fit
## may be misleading

## Start:  AIC=-11956.6
## trainingSet$Duration ~ Input.Size + totalLoadGM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] Tesla-K40
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "dotProd"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     Floating.Point.Operations.Single.Precision. + GridSize +
##     totalThreads, data = trainingSet)
##
## Coefficients:
##                                   (Intercept)
##                                     9.097e-04
##                                    Input.Size
##                                     3.333e-07
##                                   totalLoadGM
##                                     3.282e-06
## Floating.Point.Operations.Single.Precision.
##                                    -1.794e-07
##                                      GridSize
##                                    -1.801e-07
##                                 totalThreads
##                                    -6.064e-11
##
## Start:  AIC=-12940.99
## trainingSet$Duration ~ Input.Size + totalLoadGM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] Tesla-K40
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "vectorAdd"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     Floating.Point.Operations.Single.Precision. + GridSize +
##     totalThreads, data = trainingSet)
##
## Coefficients:
##                                   (Intercept)
##                                     8.077e-04
##                                    Input.Size
##                                     5.601e-11
```

```
##                                totalLoadGM
##                                  1.565e-10
## Floating.Point.Operations.Single.Precision.
##                                         NA
##                                   GridSize
##                                  4.506e-10
##                                totalThreads
##                                         NA
```

```
## Warning in predict.lm(fit, testSet): prediction from a rank-deficient fit
## may be misleading
```

```
## [1] 9
## Start:  AIC=-3935.33
## trainingSet$Duration ~ Input.Size + totalLoadGM + totalLoadSM +
##     totalStoreSM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] Tesla-K40
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "subSeqMax"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     totalLoadSM + totalStoreSM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads, data = trainingSet)
##
## Coefficients:
##                                (Intercept)
##                                 -6.578e-02
##                                 Input.Size
##                                  1.169e-07
##                                totalLoadGM
##                                 -2.987e-05
##                                totalLoadSM
##                                  2.851e-02
##                               totalStoreSM
##                                         NA
## Floating.Point.Operations.Single.Precision.
##                                  -1.086e-05
##                                   GridSize
##                                         NA
##                                totalThreads
##                                         NA
```

```
## Warning in predict.lm(fit, testSet): prediction from a rank-deficient fit
## may be misleading
```

```
## Start:  AIC=204.11
## trainingSet$Duration ~ Input.Size + totalLoadGM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] Tesla-K20
```

```
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "matMul_gpu_uncoalesced"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     Floating.Point.Operations.Single.Precision. + GridSize +
##     totalThreads, data = trainingSet)
##
## Coefficients:
##                                   (Intercept)
##                                    -5.909e+00
##                                    Input.Size
##                                     3.263e-03
##                                   totalLoadGM
##                                    -1.208e-08
## Floating.Point.Operations.Single.Precision.
##                                     1.084e-10
##                                      GridSize
##                                     1.685e-05
##                                  totalThreads
##                                    -6.457e-07
##
## Start:  AIC=-316.91
## trainingSet$Duration ~ Input.Size + totalLoadGM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] Tesla-K20
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "matMul_gpu"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     Floating.Point.Operations.Single.Precision. + GridSize +
##     totalThreads, data = trainingSet)
##
## Coefficients:
##                                   (Intercept)
##                                    -2.956e+00
##                                    Input.Size
##                                     1.466e-03
##                                   totalLoadGM
##                                    -3.851e-10
## Floating.Point.Operations.Single.Precision.
##                                     2.407e-11
##                                      GridSize
##                                     1.154e-06
##                                  totalThreads
##                                    -2.257e-07
##
## [1] 3
## Start:  AIC=356.77
## trainingSet$Duration ~ Input.Size + totalLoadGM + totalLoadSM +
##     totalStoreSM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
```

```
##
## [1] Tesla-K20
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "matMul_gpu_sharedmem_uncoalesced"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     totalLoadSM + totalStoreSM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads, data = trainingSet)
##
## Coefficients:
##                                   (Intercept)
##                                     4.602e+00
##                                    Input.Size
##                                    -1.789e-03
##                                   totalLoadGM
##                                     2.019e-07
##                                   totalLoadSM
##                                    -5.199e-09
##                                  totalStoreSM
##                                    -9.806e-09
## Floating.Point.Operations.Single.Precision.
##                                     3.563e-11
##                                      GridSize
##                                    -2.635e-06
##                                  totalThreads
##                                     1.832e-07
##
## [1] 4
## Start:  AIC=-600.2
## trainingSet$Duration ~ Input.Size + totalLoadGM + totalLoadSM +
##     totalStoreSM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] Tesla-K20
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "matMul_gpu_sharedmem"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     totalLoadSM + totalStoreSM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads, data = trainingSet)
##
## Coefficients:
##                                   (Intercept)
##                                     9.291e-01
##                                    Input.Size
##                                    -4.038e-04
##                                   totalLoadGM
##                                    -4.632e-09
##                                   totalLoadSM
##                                    -3.034e-10
##                                  totalStoreSM
##                                     1.107e-09
```

```
## Floating.Point.Operations.Single.Precision.
##                                   1.075e-11
##                                    GridSize
##                                   1.647e-06
##                                totalThreads
##                                   3.767e-08
##
## Start:  AIC=-3759.78
## trainingSet$Duration ~ Input.Size + totalLoadGM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] Tesla-K20
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "matrix_sum_normal"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     Floating.Point.Operations.Single.Precision. + GridSize +
##     totalThreads, data = trainingSet)
##
## Coefficients:
##                                 (Intercept)
##                                   4.381e-03
##                                  Input.Size
##                                  -1.594e-06
##                                 totalLoadGM
##                                   6.070e-08
## Floating.Point.Operations.Single.Precision.
##                                   6.772e-10
##                                    GridSize
##                                  -3.223e-08
##                                totalThreads
##                                          NA

## Warning in predict.lm(fit, testSet): prediction from a rank-deficient fit
## may be misleading

## Start:  AIC=-6264.23
## trainingSet$Duration ~ Input.Size + totalLoadGM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] Tesla-K20
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "matrix_sum_coalesced"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     Floating.Point.Operations.Single.Precision. + GridSize +
##     totalThreads, data = trainingSet)
##
## Coefficients:
##                                 (Intercept)
##                                   3.303e-05
##                                  Input.Size
```

```
##                                  -2.518e-08
##                                totalLoadGM
##                                 -4.110e-10
## Floating.Point.Operations.Single.Precision.
##                                  9.856e-11
##                                   GridSize
##                                  4.604e-10
##                                totalThreads
##                                          NA

## Warning in predict.lm(fit, testSet): prediction from a rank-deficient fit
## may be misleading

## Start:  AIC=-12126.65
## trainingSet$Duration ~ Input.Size + totalLoadGM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] Tesla-K20
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "dotProd"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     Floating.Point.Operations.Single.Precision. + GridSize +
##     totalThreads, data = trainingSet)
##
## Coefficients:
##                                  (Intercept)
##                                    9.512e-04
##                                   Input.Size
##                                    3.335e-07
##                                  totalLoadGM
##                                    3.283e-06
## Floating.Point.Operations.Single.Precision.
##                                   -1.795e-07
##                                     GridSize
##                                   -1.802e-07
##                                  totalThreads
##                                    -6.044e-11
##
## Start:  AIC=-13217.9
## trainingSet$Duration ~ Input.Size + totalLoadGM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] Tesla-K20
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "vectorAdd"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     Floating.Point.Operations.Single.Precision. + GridSize +
##     totalThreads, data = trainingSet)
##
## Coefficients:
```

```
##                                   (Intercept)
##                                     9.112e-04
##                                    Input.Size
##                                     5.603e-11
##                                   totalLoadGM
##                                     7.816e-11
## Floating.Point.Operations.Single.Precision.
##                                            NA
##                                     GridSize
##                                     4.564e-10
##                                  totalThreads
##                                            NA
```

```
## Warning in predict.lm(fit, testSet): prediction from a rank-deficient fit
## may be misleading
```

```
## [1] 9
## Start:  AIC=-4152.46
## trainingSet$Duration ~ Input.Size + totalLoadGM + totalLoadSM +
##     totalStoreSM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] Tesla-K20
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "subSeqMax"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     totalLoadSM + totalStoreSM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads, data = trainingSet)
##
## Coefficients:
##                                   (Intercept)
##                                    -6.575e-02
##                                    Input.Size
##                                     1.168e-07
##                                   totalLoadGM
##                                    -2.986e-05
##                                   totalLoadSM
##                                     2.850e-02
##                                  totalStoreSM
##                                            NA
## Floating.Point.Operations.Single.Precision.
##                                    -1.086e-05
##                                     GridSize
##                                            NA
##                                  totalThreads
##                                            NA
```

```
## Warning in predict.lm(fit, testSet): prediction from a rank-deficient fit
## may be misleading
```

```
## Start:  AIC=206.05
```

```
## trainingSet$Duration ~ Input.Size + totalLoadGM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] TitanBlack
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "matMul_gpu_uncoalesced"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     Floating.Point.Operations.Single.Precision. + GridSize +
##     totalThreads, data = trainingSet)
##
## Coefficients:
##                                  (Intercept)
##                                   -9.346e+00
##                                   Input.Size
##                                    4.888e-03
##                                  totalLoadGM
##                                   -1.272e-08
## Floating.Point.Operations.Single.Precision.
##                                    1.209e-10
##                                     GridSize
##                                    1.646e-05
##                                 totalThreads
##                                   -8.743e-07
##
## Start:  AIC=-398.88
## trainingSet$Duration ~ Input.Size + totalLoadGM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] TitanBlack
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "matMul_gpu"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     Floating.Point.Operations.Single.Precision. + GridSize +
##     totalThreads, data = trainingSet)
##
## Coefficients:
##                                  (Intercept)
##                                   -3.355e+00
##                                   Input.Size
##                                    1.663e-03
##                                  totalLoadGM
##                                   -3.743e-10
## Floating.Point.Operations.Single.Precision.
##                                    2.557e-11
##                                     GridSize
##                                    1.406e-06
##                                 totalThreads
##                                   -2.588e-07
##
## [1] 3
```

```
## Start:  AIC=336.64
## trainingSet$Duration ~ Input.Size + totalLoadGM + totalLoadSM +
##     totalStoreSM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] TitanBlack
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "matMul_gpu_sharedmem_uncoalesced"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     totalLoadSM + totalStoreSM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads, data = trainingSet)
##
## Coefficients:
##                                   (Intercept)
##                                     3.293e+00
##                                    Input.Size
##                                    -1.219e-03
##                                   totalLoadGM
##                                     1.846e-07
##                                   totalLoadSM
##                                    -4.837e-09
##                                  totalStoreSM
##                                    -8.318e-09
## Floating.Point.Operations.Single.Precision.
##                                     3.606e-11
##                                     GridSize
##                                    -3.772e-06
##                                  totalThreads
##                                     1.187e-07
##
## [1] 4
## Start:  AIC=-632.75
## trainingSet$Duration ~ Input.Size + totalLoadGM + totalLoadSM +
##     totalStoreSM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] TitanBlack
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "matMul_gpu_sharedmem"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     totalLoadSM + totalStoreSM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads, data = trainingSet)
##
## Coefficients:
##                                   (Intercept)
##                                     2.786e-03
##                                    Input.Size
##                                     6.300e-05
##                                   totalLoadGM
##                                    -4.042e-09
```

```
##                                totalLoadSM
##                                 -1.710e-10
##                               totalStoreSM
##                                  9.110e-10
## Floating.Point.Operations.Single.Precision.
##                                  1.082e-11
##                                   GridSize
##                                  2.077e-06
##                               totalThreads
##                                 -3.988e-08
##
## Start:  AIC=-3768.05
## trainingSet$Duration ~ Input.Size + totalLoadGM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] TitanBlack
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "matrix_sum_normal"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     Floating.Point.Operations.Single.Precision. + GridSize +
##     totalThreads, data = trainingSet)
##
## Coefficients:
##                                (Intercept)
##                                  4.433e-03
##                                 Input.Size
##                                 -1.613e-06
##                               totalLoadGM
##                                  6.326e-08
## Floating.Point.Operations.Single.Precision.
##                                  6.906e-10
##                                   GridSize
##                                 -3.367e-08
##                               totalThreads
##                                         NA

## Warning in predict.lm(fit, testSet): prediction from a rank-deficient fit
## may be misleading

## Start:  AIC=-6273.67
## trainingSet$Duration ~ Input.Size + totalLoadGM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] TitanBlack
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "matrix_sum_coalesced"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     Floating.Point.Operations.Single.Precision. + GridSize +
##     totalThreads, data = trainingSet)
##
```

```
## Coefficients:
##                                   (Intercept)
##                                    -1.158e-04
##                                    Input.Size
##                                     2.526e-08
##                                   totalLoadGM
##                                    -2.457e-10
## Floating.Point.Operations.Single.Precision.
##                                     9.307e-11
##                                      GridSize
##                                     6.817e-10
##                                  totalThreads
##                                            NA

## Warning in predict.lm(fit, testSet): prediction from a rank-deficient fit
## may be misleading

## Start:  AIC=-12144.85
## trainingSet$Duration ~ Input.Size + totalLoadGM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] TitanBlack
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "dotProd"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     Floating.Point.Operations.Single.Precision. + GridSize +
##     totalThreads, data = trainingSet)
##
## Coefficients:
##                                   (Intercept)
##                                     6.930e-04
##                                    Input.Size
##                                     3.325e-07
##                                   totalLoadGM
##                                     3.274e-06
## Floating.Point.Operations.Single.Precision.
##                                    -1.790e-07
##                                      GridSize
##                                    -1.796e-07
##                                  totalThreads
##                                    -6.172e-11
##
## Start:  AIC=-13167.72
## trainingSet$Duration ~ Input.Size + totalLoadGM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] TitanBlack
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "vectorAdd"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
```

```
##     Floating.Point.Operations.Single.Precision. + GridSize +
##     totalThreads, data = trainingSet)
##
## Coefficients:
##                                   (Intercept)
##                                     7.075e-04
##                                    Input.Size
##                                     5.578e-11
##                                   totalLoadGM
##                                     2.222e-10
## Floating.Point.Operations.Single.Precision.
##                                            NA
##                                      GridSize
##                                     4.870e-10
##                                  totalThreads
##                                            NA

## Warning in predict.lm(fit, testSet): prediction from a rank-deficient fit
## may be misleading

## [1] 9
## Start:  AIC=-4021.27
## trainingSet$Duration ~ Input.Size + totalLoadGM + totalLoadSM +
##     totalStoreSM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] TitanBlack
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "subSeqMax"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     totalLoadSM + totalStoreSM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads, data = trainingSet)
##
## Coefficients:
##                                   (Intercept)
##                                    -6.697e-02
##                                    Input.Size
##                                     1.182e-07
##                                   totalLoadGM
##                                    -3.022e-05
##                                   totalLoadSM
##                                     2.885e-02
##                                  totalStoreSM
##                                            NA
## Floating.Point.Operations.Single.Precision.
##                                    -1.086e-05
##                                      GridSize
##                                            NA
##                                  totalThreads
##                                            NA

## Warning in predict.lm(fit, testSet): prediction from a rank-deficient fit
```

```
## may be misleading

## Start:  AIC=227.22
## trainingSet$Duration ~ Input.Size + totalLoadGM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] Titan
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "matMul_gpu_uncoalesced"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     Floating.Point.Operations.Single.Precision. + GridSize +
##     totalThreads, data = trainingSet)
##
## Coefficients:
##                                   (Intercept)
##                                    -6.638e+00
##                                    Input.Size
##                                     3.701e-03
##                                   totalLoadGM
##                                    -1.202e-08
## Floating.Point.Operations.Single.Precision.
##                                     1.116e-10
##                                      GridSize
##                                     1.625e-05
##                                  totalThreads
##                                    -7.139e-07
##
## Start:  AIC=-304.5
## trainingSet$Duration ~ Input.Size + totalLoadGM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] Titan
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "matMul_gpu"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     Floating.Point.Operations.Single.Precision. + GridSize +
##     totalThreads, data = trainingSet)
##
## Coefficients:
##                                   (Intercept)
##                                    -3.053e+00
##                                    Input.Size
##                                     1.539e-03
##                                   totalLoadGM
##                                    -3.897e-10
## Floating.Point.Operations.Single.Precision.
##                                     2.501e-11
##                                      GridSize
##                                     1.269e-06
##                                  totalThreads
```

```
##                                  -2.413e-07
##
## [1] 3
## Start:  AIC=356.56
## trainingSet$Duration ~ Input.Size + totalLoadGM + totalLoadSM +
##     totalStoreSM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] Titan
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "matMul_gpu_sharedmem_uncoalesced"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     totalLoadSM + totalStoreSM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads, data = trainingSet)
##
## Coefficients:
##                                  (Intercept)
##                                    4.200e+00
##                                   Input.Size
##                                   -1.597e-03
##                                  totalLoadGM
##                                    1.908e-07
##                                  totalLoadSM
##                                   -5.032e-09
##                                 totalStoreSM
##                                   -8.781e-09
## Floating.Point.Operations.Single.Precision.
##                                    3.580e-11
##                                     GridSize
##                                   -3.141e-06
##                                 totalThreads
##                                    1.609e-07
##
## [1] 4
## Start:  AIC=-574.11
## trainingSet$Duration ~ Input.Size + totalLoadGM + totalLoadSM +
##     totalStoreSM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] Titan
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "matMul_gpu_sharedmem"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     totalLoadSM + totalStoreSM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads, data = trainingSet)
##
## Coefficients:
##                                  (Intercept)
##                                    1.076e-01
##                                   Input.Size
```

```
##                                   4.736e-05
##                                totalLoadGM
##                                 -4.573e-09
##                                totalLoadSM
##                                 -1.654e-10
##                               totalStoreSM
##                                   1.047e-09
## Floating.Point.Operations.Single.Precision.
##                                   1.079e-11
##                                    GridSize
##                                   1.843e-06
##                               totalThreads
##                                 -4.159e-08
##
## Start:  AIC=-3766.38
## trainingSet$Duration ~ Input.Size + totalLoadGM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] Titan
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "matrix_sum_normal"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     Floating.Point.Operations.Single.Precision. + GridSize +
##     totalThreads, data = trainingSet)
##
## Coefficients:
##                                (Intercept)
##                                  4.408e-03
##                                 Input.Size
##                                 -1.607e-06
##                                totalLoadGM
##                                  6.331e-08
## Floating.Point.Operations.Single.Precision.
##                                  6.860e-10
##                                   GridSize
##                                 -3.338e-08
##                               totalThreads
##                                         NA

## Warning in predict.lm(fit, testSet): prediction from a rank-deficient fit
## may be misleading

## Start:  AIC=-6266.44
## trainingSet$Duration ~ Input.Size + totalLoadGM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] Titan
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "matrix_sum_coalesced"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
```

```
##     Floating.Point.Operations.Single.Precision. + GridSize +
##     totalThreads, data = trainingSet)
##
## Coefficients:
##                                   (Intercept)
##                                    -1.147e-04
##                                    Input.Size
##                                     2.501e-08
##                                   totalLoadGM
##                                    -2.732e-10
## Floating.Point.Operations.Single.Precision.
##                                     9.354e-11
##                                      GridSize
##                                     6.264e-10
##                                  totalThreads
##                                            NA

## Warning in predict.lm(fit, testSet): prediction from a rank-deficient fit
## may be misleading

## Start:  AIC=-11989.91
## trainingSet$Duration ~ Input.Size + totalLoadGM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] Titan
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "dotProd"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     Floating.Point.Operations.Single.Precision. + GridSize +
##     totalThreads, data = trainingSet)
##
## Coefficients:
##                                   (Intercept)
##                                     8.588e-04
##                                    Input.Size
##                                     3.331e-07
##                                   totalLoadGM
##                                     3.280e-06
## Floating.Point.Operations.Single.Precision.
##                                    -1.793e-07
##                                      GridSize
##                                    -1.799e-07
##                                  totalThreads
##                                    -6.114e-11
##
## Start:  AIC=-13079.9
## trainingSet$Duration ~ Input.Size + totalLoadGM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] Titan
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "vectorAdd"
```

```
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     Floating.Point.Operations.Single.Precision. + GridSize +
##     totalThreads, data = trainingSet)
##
## Coefficients:
##                                   (Intercept)
##                                     7.359e-04
##                                    Input.Size
##                                     5.606e-11
##                                   totalLoadGM
##                                     2.066e-10
## Floating.Point.Operations.Single.Precision.
##                                            NA
##                                      GridSize
##                                     4.409e-10
##                                  totalThreads
##                                            NA

## Warning in predict.lm(fit, testSet): prediction from a rank-deficient fit
## may be misleading

## [1] 9
## Start:  AIC=-3961.33
## trainingSet$Duration ~ Input.Size + totalLoadGM + totalLoadSM +
##     totalStoreSM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] Titan
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "subSeqMax"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     totalLoadSM + totalStoreSM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads, data = trainingSet)
##
## Coefficients:
##                                   (Intercept)
##                                    -6.659e-02
##                                    Input.Size
##                                     1.178e-07
##                                   totalLoadGM
##                                    -3.010e-05
##                                   totalLoadSM
##                                     2.874e-02
##                                  totalStoreSM
##                                            NA
## Floating.Point.Operations.Single.Precision.
##                                    -1.086e-05
##                                      GridSize
##                                            NA
##                                  totalThreads
```

```
##                                         NA

## Warning in predict.lm(fit, testSet): prediction from a rank-deficient fit
## may be misleading

## Start:  AIC=246.52
## trainingSet$Duration ~ Input.Size + totalLoadGM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] Quadro
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "matMul_gpu_uncoalesced"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     Floating.Point.Operations.Single.Precision. + GridSize +
##     totalThreads, data = trainingSet)
##
## Coefficients:
##                                   (Intercept)
##                                    -5.609e+00
##                                    Input.Size
##                                     3.366e-03
##                                   totalLoadGM
##                                    -1.258e-08
## Floating.Point.Operations.Single.Precision.
##                                     1.146e-10
##                                      GridSize
##                                     1.697e-05
##                                  totalThreads
##                                    -6.971e-07
##
## Start:  AIC=-313.49
## trainingSet$Duration ~ Input.Size + totalLoadGM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] Quadro
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "matMul_gpu"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     Floating.Point.Operations.Single.Precision. + GridSize +
##     totalThreads, data = trainingSet)
##
## Coefficients:
##                                   (Intercept)
##                                    -2.978e+00
##                                    Input.Size
##                                     1.490e-03
##                                   totalLoadGM
##                                    -3.838e-10
## Floating.Point.Operations.Single.Precision.
##                                     2.437e-11
```

```
##                                   GridSize
##                                  1.225e-06
##                                totalThreads
##                                  -2.314e-07
##
## [1] 3
## Start:  AIC=358.23
## trainingSet$Duration ~ Input.Size + totalLoadGM + totalLoadSM +
##     totalStoreSM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] Quadro
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "matMul_gpu_sharedmem_uncoalesced"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     totalLoadSM + totalStoreSM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads, data = trainingSet)
##
## Coefficients:
##                                  (Intercept)
##                                    4.473e+00
##                                   Input.Size
##                                   -1.725e-03
##                                  totalLoadGM
##                                    1.945e-07
##                                  totalLoadSM
##                                   -5.123e-09
##                                 totalStoreSM
##                                   -9.029e-09
## Floating.Point.Operations.Single.Precision.
##                                    3.568e-11
##                                    GridSize
##                                   -2.970e-06
##                                 totalThreads
##                                    1.766e-07
##
## [1] 4
## Start:  AIC=-608.52
## trainingSet$Duration ~ Input.Size + totalLoadGM + totalLoadSM +
##     totalStoreSM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] Quadro
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "matMul_gpu_sharedmem"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     totalLoadSM + totalStoreSM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads, data = trainingSet)
##
## Coefficients:
```

```
##                                   (Intercept)
##                                     2.873e-01
##                                    Input.Size
##                                    -4.863e-05
##                                   totalLoadGM
##                                    -4.484e-09
##                                   totalLoadSM
##                                    -1.946e-10
##                                  totalStoreSM
##                                     1.066e-09
## Floating.Point.Operations.Single.Precision.
##                                     1.077e-11
##                                      GridSize
##                                     1.731e-06
##                                  totalThreads
##                                    -2.489e-08
##
## Start:  AIC=-3777.21
## trainingSet$Duration ~ Input.Size + totalLoadGM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] Quadro
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "matrix_sum_normal"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     Floating.Point.Operations.Single.Precision. + GridSize +
##     totalThreads, data = trainingSet)
##
## Coefficients:
##                                   (Intercept)
##                                     7.565e-03
##                                    Input.Size
##                                    -2.989e-06
##                                   totalLoadGM
##                                     2.493e-08
## Floating.Point.Operations.Single.Precision.
##                                     7.969e-10
##                                      GridSize
##                                    -2.242e-08
##                                  totalThreads
##                                            NA

## Warning in predict.lm(fit, testSet): prediction from a rank-deficient fit
## may be misleading

## Start:  AIC=-6023.19
## trainingSet$Duration ~ Input.Size + totalLoadGM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] Quadro
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "matrix_sum_coalesced"
```

```
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     Floating.Point.Operations.Single.Precision. + GridSize +
##     totalThreads, data = trainingSet)
##
## Coefficients:
##                                   (Intercept)
##                                    -6.860e-05
##                                    Input.Size
##                                     9.553e-09
##                                   totalLoadGM
##                                    -3.555e-10
## Floating.Point.Operations.Single.Precision.
##                                     9.431e-11
##                                      GridSize
##                                     5.817e-10
##                                  totalThreads
##                                            NA

## Warning in predict.lm(fit, testSet): prediction from a rank-deficient fit
## may be misleading

## Start:  AIC=-11955.49
## trainingSet$Duration ~ Input.Size + totalLoadGM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] Quadro
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "dotProd"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     Floating.Point.Operations.Single.Precision. + GridSize +
##     totalThreads, data = trainingSet)
##
## Coefficients:
##                                   (Intercept)
##                                     8.036e-04
##                                    Input.Size
##                                     3.329e-07
##                                   totalLoadGM
##                                     3.278e-06
## Floating.Point.Operations.Single.Precision.
##                                    -1.792e-07
##                                      GridSize
##                                    -1.799e-07
##                                  totalThreads
##                                    -6.113e-11
##
## Start:  AIC=-13018.93
## trainingSet$Duration ~ Input.Size + totalLoadGM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
```

```
## [1] Quadro
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "vectorAdd"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     Floating.Point.Operations.Single.Precision. + GridSize +
##     totalThreads, data = trainingSet)
##
## Coefficients:
##                                   (Intercept)
##                                     7.436e-04
##                                    Input.Size
##                                     5.639e-11
##                                   totalLoadGM
##                                     1.127e-10
## Floating.Point.Operations.Single.Precision.
##                                            NA
##                                      GridSize
##                                     4.937e-10
##                                  totalThreads
##                                            NA

## Warning in predict.lm(fit, testSet): prediction from a rank-deficient fit
## may be misleading

## [1] 9
## Start:  AIC=-3978.48
## trainingSet$Duration ~ Input.Size + totalLoadGM + totalLoadSM +
##     totalStoreSM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] Quadro
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "subSeqMax"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     totalLoadSM + totalStoreSM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads, data = trainingSet)
##
## Coefficients:
##                                   (Intercept)
##                                    -7.071e-02
##                                    Input.Size
##                                     1.225e-07
##                                   totalLoadGM
##                                    -3.130e-05
##                                   totalLoadSM
##                                     2.988e-02
##                                  totalStoreSM
##                                            NA
## Floating.Point.Operations.Single.Precision.
##                                    -1.086e-05
```

```
##                                   GridSize
##                                         NA
##                                totalThreads
##                                         NA

## Warning in predict.lm(fit, testSet): prediction from a rank-deficient fit
## may be misleading

## Start:  AIC=230.1
## trainingSet$Duration ~ Input.Size + totalLoadGM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] GTX-750
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "matMul_gpu_uncoalesced"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     Floating.Point.Operations.Single.Precision. + GridSize +
##     totalThreads, data = trainingSet)
##
## Coefficients:
##                                  (Intercept)
##                                   -3.466e+00
##                                   Input.Size
##                                    2.676e-03
##                                  totalLoadGM
##                                   -1.610e-08
## Floating.Point.Operations.Single.Precision.
##                                    1.370e-10
##                                     GridSize
##                                    2.520e-05
##                                 totalThreads
##                                    -7.567e-07
##
## Start:  AIC=-378.23
## trainingSet$Duration ~ Input.Size + totalLoadGM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] GTX-750
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "matMul_gpu"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     Floating.Point.Operations.Single.Precision. + GridSize +
##     totalThreads, data = trainingSet)
##
## Coefficients:
##                                  (Intercept)
##                                   -2.115e+00
##                                   Input.Size
##                                    1.069e-03
##                                  totalLoadGM
```

```
##                                   -2.554e-10
## Floating.Point.Operations.Single.Precision.
##                                    1.961e-11
##                                     GridSize
##                                    1.471e-06
##                                  totalThreads
##                                    -1.665e-07
##
## [1] 3
## Start:  AIC=-237.65
## trainingSet$Duration ~ Input.Size + totalLoadGM + totalLoadSM +
##     totalStoreSM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] GTX-750
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "matMul_gpu_sharedmem_uncoalesced"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     totalLoadSM + totalStoreSM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads, data = trainingSet)
##
## Coefficients:
##                                   (Intercept)
##                                     3.539e+00
##                                     Input.Size
##                                    -1.327e-03
##                                   totalLoadGM
##                                     5.115e-08
##                                   totalLoadSM
##                                    -2.398e-09
##                                  totalStoreSM
##                                     2.346e-10
## Floating.Point.Operations.Single.Precision.
##                                     2.262e-11
##                                     GridSize
##                                    -1.123e-06
##                                  totalThreads
##                                     1.469e-07
##
## [1] 4
## Start:  AIC=-753.76
## trainingSet$Duration ~ Input.Size + totalLoadGM + totalLoadSM +
##     totalStoreSM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] GTX-750
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "matMul_gpu_sharedmem"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     totalLoadSM + totalStoreSM + Floating.Point.Operations.Single.Precision. +
```

```
##     GridSize + totalThreads, data = trainingSet)
##
## Coefficients:
##                                   (Intercept)
##                                    -1.969e+00
##                                    Input.Size
##                                     1.128e-03
##                                   totalLoadGM
##                                    -4.148e-10
##                                   totalLoadSM
##                                     3.590e-10
##                                  totalStoreSM
##                                     2.080e-10
## Floating.Point.Operations.Single.Precision.
##                                     4.519e-12
##                                      GridSize
##                                     2.380e-06
##                                  totalThreads
##                                    -2.229e-07
##
## Start:  AIC=-3794.09
## trainingSet$Duration ~ Input.Size + totalLoadGM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] GTX-750
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "matrix_sum_normal"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     Floating.Point.Operations.Single.Precision. + GridSize +
##     totalThreads, data = trainingSet)
##
## Coefficients:
##                                   (Intercept)
##                                    -2.181e-03
##                                    Input.Size
##                                     8.517e-07
##                                   totalLoadGM
##                                     6.735e-08
## Floating.Point.Operations.Single.Precision.
##                                     3.812e-10
##                                      GridSize
##                                    -3.241e-08
##                                  totalThreads
##                                            NA

## Warning in predict.lm(fit, testSet): prediction from a rank-deficient fit
## may be misleading

## Start:  AIC=-7050.5
## trainingSet$Duration ~ Input.Size + totalLoadGM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
```

```
## [1] GTX-750
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "matrix_sum_coalesced"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     Floating.Point.Operations.Single.Precision. + GridSize +
##     totalThreads, data = trainingSet)
##
## Coefficients:
##                                   (Intercept)
##                                    -1.871e-04
##                                    Input.Size
##                                     4.765e-08
##                                   totalLoadGM
##                                     3.475e-10
## Floating.Point.Operations.Single.Precision.
##                                     5.436e-11
##                                      GridSize
##                                     1.801e-09
##                                  totalThreads
##                                            NA

## Warning in predict.lm(fit, testSet): prediction from a rank-deficient fit
## may be misleading

## Start:  AIC=-13039.63
## trainingSet$Duration ~ Input.Size + totalLoadGM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] GTX-750
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "dotProd"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     Floating.Point.Operations.Single.Precision. + GridSize +
##     totalThreads, data = trainingSet)
##
## Coefficients:
##                                   (Intercept)
##                                     8.026e-04
##                                    Input.Size
##                                    -9.933e-10
##                                   totalLoadGM
##                                    -9.182e-09
## Floating.Point.Operations.Single.Precision.
##                                     5.799e-10
##                                      GridSize
##                                            NA
##                                  totalThreads
##                                            NA

## Warning in predict.lm(fit, testSet): prediction from a rank-deficient fit
```

```
## may be misleading

## Start:  AIC=-14769.8
## trainingSet$Duration ~ Input.Size + totalLoadGM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] GTX-750
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "vectorAdd"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     Floating.Point.Operations.Single.Precision. + GridSize +
##     totalThreads, data = trainingSet)
##
## Coefficients:
##                                   (Intercept)
##                                     4.002e-04
##                                    Input.Size
##                                     5.738e-11
##                                   totalLoadGM
##                                     1.608e-10
## Floating.Point.Operations.Single.Precision.
##                                            NA
##                                      GridSize
##                                     5.026e-10
##                                  totalThreads
##                                            NA

## Warning in predict.lm(fit, testSet): prediction from a rank-deficient fit
## may be misleading

## [1] 9
## Start:  AIC=-4044.69
## trainingSet$Duration ~ Input.Size + totalLoadGM + totalLoadSM +
##     totalStoreSM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] GTX-750
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "subSeqMax"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     totalLoadSM + totalStoreSM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads, data = trainingSet)
##
## Coefficients:
##                                   (Intercept)
##                                     4.552e-02
##                                    Input.Size
##                                    -7.606e-08
##                                   totalLoadGM
```

```
##                                   1.951e-05
##                                totalLoadSM
##                                 -1.862e-02
##                               totalStoreSM
##                                         NA
## Floating.Point.Operations.Single.Precision.
##                                   5.172e-06
##                                    GridSize
##                                         NA
##                               totalThreads
##                                         NA

## Warning in predict.lm(fit, testSet): prediction from a rank-deficient fit
## may be misleading

## Start:  AIC=199.69
## trainingSet$Duration ~ Input.Size + totalLoadGM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] TitanX
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "matMul_gpu_uncoalesced"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     Floating.Point.Operations.Single.Precision. + GridSize +
##     totalThreads, data = trainingSet)
##
## Coefficients:
##                                 (Intercept)
##                                  -8.561e+00
##                                  Input.Size
##                                   4.863e-03
##                                totalLoadGM
##                                  -1.153e-08
## Floating.Point.Operations.Single.Precision.
##                                   1.107e-10
##                                    GridSize
##                                   1.254e-05
##                                totalThreads
##                                  -8.464e-07
##
## Start:  AIC=-277.42
## trainingSet$Duration ~ Input.Size + totalLoadGM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] TitanX
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "matMul_gpu"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     Floating.Point.Operations.Single.Precision. + GridSize +
##     totalThreads, data = trainingSet)
```

```
##
## Coefficients:
##                                   (Intercept)
##                                    -2.391e+00
##                                    Input.Size
##                                     1.231e-03
##                                   totalLoadGM
##                                    -3.826e-10
## Floating.Point.Operations.Single.Precision.
##                                     2.339e-11
##                                      GridSize
##                                     1.101e-06
##                                  totalThreads
##                                    -1.921e-07
##
## [1] 3
## Start:  AIC=297.82
## trainingSet$Duration ~ Input.Size + totalLoadGM + totalLoadSM +
##     totalStoreSM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] TitanX
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "matMul_gpu_sharedmem_uncoalesced"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     totalLoadSM + totalStoreSM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads, data = trainingSet)
##
## Coefficients:
##                                   (Intercept)
##                                     5.469e+00
##                                    Input.Size
##                                    -2.149e-03
##                                   totalLoadGM
##                                     2.560e-07
##                                   totalLoadSM
##                                    -5.965e-09
##                                  totalStoreSM
##                                    -1.254e-08
## Floating.Point.Operations.Single.Precision.
##                                     3.485e-11
##                                      GridSize
##                                    -6.383e-06
##                                  totalThreads
##                                     2.553e-07
##
## [1] 4
## Start:  AIC=-527.07
## trainingSet$Duration ~ Input.Size + totalLoadGM + totalLoadSM +
##     totalStoreSM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
```

```
## [1] TitanX
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "matMul_gpu_sharedmem"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     totalLoadSM + totalStoreSM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads, data = trainingSet)
##
## Coefficients:
##                                  (Intercept)
##                                    3.111e-01
##                                   Input.Size
##                                   -3.214e-05
##                                  totalLoadGM
##                                   -4.413e-09
##                                  totalLoadSM
##                                   -1.738e-10
##                                 totalStoreSM
##                                    1.200e-09
## Floating.Point.Operations.Single.Precision.
##                                    1.049e-11
##                                     GridSize
##                                    1.388e-06
##                                 totalThreads
##                                   -3.095e-08
##
## Start:  AIC=-3623.48
## trainingSet$Duration ~ Input.Size + totalLoadGM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] TitanX
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "matrix_sum_normal"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     Floating.Point.Operations.Single.Precision. + GridSize +
##     totalThreads, data = trainingSet)
##
## Coefficients:
##                                  (Intercept)
##                                    3.098e-03
##                                   Input.Size
##                                   -1.119e-06
##                                  totalLoadGM
##                                    3.364e-08
## Floating.Point.Operations.Single.Precision.
##                                    7.156e-10
##                                     GridSize
##                                   -2.691e-08
##                                 totalThreads
##                                           NA
```

```
## Warning in predict.lm(fit, testSet): prediction from a rank-deficient fit
## may be misleading

## Start:  AIC=-6140.98
## trainingSet$Duration ~ Input.Size + totalLoadGM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] TitanX
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "matrix_sum_coalesced"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     Floating.Point.Operations.Single.Precision. + GridSize +
##     totalThreads, data = trainingSet)
##
## Coefficients:
##                                   (Intercept)
##                                    -1.503e-04
##                                    Input.Size
##                                     4.110e-08
##                                   totalLoadGM
##                                    -6.762e-10
## Floating.Point.Operations.Single.Precision.
##                                     1.100e-10
##                                      GridSize
##                                     2.441e-10
##                                  totalThreads
##                                            NA

## Warning in predict.lm(fit, testSet): prediction from a rank-deficient fit
## may be misleading

## Start:  AIC=-11950.72
## trainingSet$Duration ~ Input.Size + totalLoadGM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] TitanX
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "dotProd"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     Floating.Point.Operations.Single.Precision. + GridSize +
##     totalThreads, data = trainingSet)
##
## Coefficients:
##                                   (Intercept)
##                                     7.882e-04
##                                    Input.Size
##                                     3.329e-07
##                                   totalLoadGM
##                                     3.277e-06
```

```
## Floating.Point.Operations.Single.Precision.
##                                   -1.792e-07
##                                     GridSize
##                                   -1.796e-07
##                                 totalThreads
##                                   -5.210e-11
##
## Start:  AIC=-13410.53
## trainingSet$Duration ~ Input.Size + totalLoadGM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] TitanX
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "vectorAdd"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     Floating.Point.Operations.Single.Precision. + GridSize +
##     totalThreads, data = trainingSet)
##
## Coefficients:
##                                   (Intercept)
##                                     7.786e-04
##                                    Input.Size
##                                     6.646e-11
##                                   totalLoadGM
##                                    -2.511e-11
## Floating.Point.Operations.Single.Precision.
##                                            NA
##                                     GridSize
##                                     5.761e-10
##                                   totalThreads
##                                            NA

## Warning in predict.lm(fit, testSet): prediction from a rank-deficient fit
## may be misleading

## [1] 9
## Start:  AIC=-3931.21
## trainingSet$Duration ~ Input.Size + totalLoadGM + totalLoadSM +
##     totalStoreSM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] TitanX
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "subSeqMax"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     totalLoadSM + totalStoreSM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads, data = trainingSet)
##
## Coefficients:
##                                   (Intercept)
```

```
##                                   -6.476e-02
##                                   Input.Size
##                                    1.142e-07
##                                  totalLoadGM
##                                   -2.918e-05
##                                  totalLoadSM
##                                    2.786e-02
##                                 totalStoreSM
##                                           NA
## Floating.Point.Operations.Single.Precision.
##                                   -1.128e-05
##                                     GridSize
##                                           NA
##                                 totalThreads
##                                           NA

## Warning in predict.lm(fit, testSet): prediction from a rank-deficient fit
## may be misleading

## Start:  AIC=198.64
## trainingSet$Duration ~ Input.Size + totalLoadGM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] GTX-980
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "matMul_gpu_uncoalesced"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     Floating.Point.Operations.Single.Precision. + GridSize +
##     totalThreads, data = trainingSet)
##
## Coefficients:
##                                   (Intercept)
##                                     3.804e+01
##                                    Input.Size
##                                    -1.473e-02
##                                   totalLoadGM
##                                    -1.139e-08
## Floating.Point.Operations.Single.Precision.
##                                     1.066e-10
##                                      GridSize
##                                     9.926e-06
##                                  totalThreads
##                                     1.240e-06
##
## Start:  AIC=-257.53
## trainingSet$Duration ~ Input.Size + totalLoadGM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] GTX-980
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "matMul_gpu"
##
```

```
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     Floating.Point.Operations.Single.Precision. + GridSize +
##     totalThreads, data = trainingSet)
##
## Coefficients:
##                                  (Intercept)
##                                   -2.947e+00
##                                   Input.Size
##                                    1.510e-03
##                                  totalLoadGM
##                                   -3.774e-10
## Floating.Point.Operations.Single.Precision.
##                                    2.442e-11
##                                     GridSize
##                                    1.241e-06
##                                 totalThreads
##                                   -2.376e-07
##
## [1] 3
## Start:  AIC=331.21
## trainingSet$Duration ~ Input.Size + totalLoadGM + totalLoadSM +
##     totalStoreSM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] GTX-980
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "matMul_gpu_sharedmem_uncoalesced"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     totalLoadSM + totalStoreSM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads, data = trainingSet)
##
## Coefficients:
##                                  (Intercept)
##                                    4.813e+00
##                                   Input.Size
##                                   -1.820e-03
##                                  totalLoadGM
##                                    2.421e-07
##                                  totalLoadSM
##                                   -5.792e-09
##                                 totalStoreSM
##                                   -1.174e-08
## Floating.Point.Operations.Single.Precision.
##                                    3.623e-11
##                                     GridSize
##                                   -5.352e-06
##                                 totalThreads
##                                    1.958e-07
##
## [1] 4
## Start:  AIC=-518.02
```

```
## trainingSet$Duration ~ Input.Size + totalLoadGM + totalLoadSM +
##     totalStoreSM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] GTX-980
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "matMul_gpu_sharedmem"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     totalLoadSM + totalStoreSM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads, data = trainingSet)
##
## Coefficients:
##                                   (Intercept)
##                                     5.947e-01
##                                    Input.Size
##                                    -1.839e-04
##                                   totalLoadGM
##                                    -4.374e-09
##                                   totalLoadSM
##                                    -2.370e-10
##                                  totalStoreSM
##                                     1.230e-09
## Floating.Point.Operations.Single.Precision.
##                                     1.071e-11
##                                      GridSize
##                                     1.412e-06
##                                  totalThreads
##                                    -5.103e-09
##
## Start:  AIC=-3765.21
## trainingSet$Duration ~ Input.Size + totalLoadGM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] GTX-980
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "matrix_sum_normal"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     Floating.Point.Operations.Single.Precision. + GridSize +
##     totalThreads, data = trainingSet)
##
## Coefficients:
##                                   (Intercept)
##                                     2.999e-03
##                                    Input.Size
##                                    -1.084e-06
##                                   totalLoadGM
##                                     4.192e-08
## Floating.Point.Operations.Single.Precision.
##                                     6.925e-10
##                                      GridSize
```

```
##                                  -2.964e-08
##                                totalThreads
##                                          NA
```

```
## Warning in predict.lm(fit, testSet): prediction from a rank-deficient fit
## may be misleading
```

```
## Start:  AIC=-6274.39
## trainingSet$Duration ~ Input.Size + totalLoadGM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] GTX-980
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "matrix_sum_coalesced"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     Floating.Point.Operations.Single.Precision. + GridSize +
##     totalThreads, data = trainingSet)
##
## Coefficients:
##                                   (Intercept)
##                                    -6.929e-05
##                                    Input.Size
##                                     9.757e-09
##                                   totalLoadGM
##                                    -4.807e-10
## Floating.Point.Operations.Single.Precision.
##                                     1.030e-10
##                                      GridSize
##                                     3.023e-10
##                                   totalThreads
##                                             NA
```

```
## Warning in predict.lm(fit, testSet): prediction from a rank-deficient fit
## may be misleading
```

```
## Start:  AIC=-11885.9
## trainingSet$Duration ~ Input.Size + totalLoadGM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] GTX-980
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "dotProd"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     Floating.Point.Operations.Single.Precision. + GridSize +
##     totalThreads, data = trainingSet)
##
## Coefficients:
##                                   (Intercept)
##                                     9.175e-04
```

```
##                                   Input.Size
##                                    3.333e-07
##                                  totalLoadGM
##                                    3.282e-06
## Floating.Point.Operations.Single.Precision.
##                                   -1.794e-07
##                                     GridSize
##                                   -1.798e-07
##                                 totalThreads
##                                   -6.110e-11
##
## Start:  AIC=-12963.71
## trainingSet$Duration ~ Input.Size + totalLoadGM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] GTX-980
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "vectorAdd"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     Floating.Point.Operations.Single.Precision. + GridSize +
##     totalThreads, data = trainingSet)
##
## Coefficients:
##                                   (Intercept)
##                                     8.204e-04
##                                    Input.Size
##                                     5.239e-11
##                                   totalLoadGM
##                                     1.971e-10
## Floating.Point.Operations.Single.Precision.
##                                            NA
##                                      GridSize
##                                     5.701e-10
##                                   totalThreads
##                                            NA

## Warning in predict.lm(fit, testSet): prediction from a rank-deficient fit
## may be misleading

## [1] 9
## Start:  AIC=-3934.71
## trainingSet$Duration ~ Input.Size + totalLoadGM + totalLoadSM +
##     totalStoreSM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] GTX-980
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "subSeqMax"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     totalLoadSM + totalStoreSM + Floating.Point.Operations.Single.Precision. +
```

```
##     GridSize + totalThreads, data = trainingSet)
##
## Coefficients:
##                                   (Intercept)
##                                    -6.035e-02
##                                    Input.Size
##                                     1.066e-07
##                                   totalLoadGM
##                                    -2.724e-05
##                                   totalLoadSM
##                                     2.600e-02
##                                  totalStoreSM
##                                            NA
## Floating.Point.Operations.Single.Precision.
##                                    -1.066e-05
##                                      GridSize
##                                            NA
##                                  totalThreads
##                                            NA

## Warning in predict.lm(fit, testSet): prediction from a rank-deficient fit
## may be misleading

## Start:  AIC=241.93
## trainingSet$Duration ~ Input.Size + totalLoadGM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] GTX-970
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "matMul_gpu_uncoalesced"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     Floating.Point.Operations.Single.Precision. + GridSize +
##     totalThreads, data = trainingSet)
##
## Coefficients:
##                                   (Intercept)
##                                    -5.218e+00
##                                    Input.Size
##                                     3.262e-03
##                                   totalLoadGM
##                                    -1.265e-08
## Floating.Point.Operations.Single.Precision.
##                                     1.143e-10
##                                      GridSize
##                                     1.735e-05
##                                   totalThreads
##                                    -6.887e-07
##
## Start:  AIC=-281.59
## trainingSet$Duration ~ Input.Size + totalLoadGM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
```

```
## [1] GTX-970
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "matMul_gpu"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     Floating.Point.Operations.Single.Precision. + GridSize +
##     totalThreads, data = trainingSet)
##
## Coefficients:
##                                  (Intercept)
##                                   -2.072e+00
##                                   Input.Size
##                                    1.197e-03
##                                  totalLoadGM
##                                   -3.778e-10
## Floating.Point.Operations.Single.Precision.
##                                    2.512e-11
##                                     GridSize
##                                    1.221e-06
##                                 totalThreads
##                                   -2.174e-07
##
## [1] 3
## Start:  AIC=333.01
## trainingSet$Duration ~ Input.Size + totalLoadGM + totalLoadSM +
##     totalStoreSM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] GTX-970
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "matMul_gpu_sharedmem_uncoalesced"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     totalLoadSM + totalStoreSM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads, data = trainingSet)
##
## Coefficients:
##                                  (Intercept)
##                                    5.111e+00
##                                   Input.Size
##                                   -1.904e-03
##                                  totalLoadGM
##                                    2.349e-07
##                                  totalLoadSM
##                                   -5.708e-09
##                                 totalStoreSM
##                                   -1.115e-08
## Floating.Point.Operations.Single.Precision.
##                                    3.670e-11
##                                     GridSize
##                                   -5.176e-06
##                                 totalThreads
```

```
##                                   1.931e-07
##
## [1] 4
## Start:  AIC=-531.39
## trainingSet$Duration ~ Input.Size + totalLoadGM + totalLoadSM +
##     totalStoreSM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] GTX-970
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "matMul_gpu_sharedmem"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     totalLoadSM + totalStoreSM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads, data = trainingSet)
##
## Coefficients:
##                                  (Intercept)
##                                    5.323e-01
##                                   Input.Size
##                                   -1.562e-04
##                                  totalLoadGM
##                                   -4.417e-09
##                                  totalLoadSM
##                                   -2.470e-10
##                                 totalStoreSM
##                                    1.179e-09
## Floating.Point.Operations.Single.Precision.
##                                    1.108e-11
##                                     GridSize
##                                    1.423e-06
##                                 totalThreads
##                                   -8.761e-09
##
## Start:  AIC=-3760.81
## trainingSet$Duration ~ Input.Size + totalLoadGM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] GTX-970
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "matrix_sum_normal"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     Floating.Point.Operations.Single.Precision. + GridSize +
##     totalThreads, data = trainingSet)
##
## Coefficients:
##                                  (Intercept)
##                                    2.393e-03
##                                   Input.Size
##                                   -8.380e-07
##                                  totalLoadGM
```

```
##                                   4.514e-08
## Floating.Point.Operations.Single.Precision.
##                                   6.573e-10
##                                    GridSize
##                                  -3.044e-08
##                                totalThreads
##                                          NA
```

```
## Warning in predict.lm(fit, testSet): prediction from a rank-deficient fit
## may be misleading
```

```
## Start:  AIC=-6260.08
## trainingSet$Duration ~ Input.Size + totalLoadGM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] GTX-970
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "matrix_sum_coalesced"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     Floating.Point.Operations.Single.Precision. + GridSize +
##     totalThreads, data = trainingSet)
##
## Coefficients:
##                                   (Intercept)
##                                    -1.245e-04
##                                    Input.Size
##                                     3.018e-08
##                                   totalLoadGM
##                                    -4.144e-10
## Floating.Point.Operations.Single.Precision.
##                                     9.758e-11
##                                      GridSize
##                                     4.201e-10
##                                   totalThreads
##                                             NA
```

```
## Warning in predict.lm(fit, testSet): prediction from a rank-deficient fit
## may be misleading
```

```
## Start:  AIC=-11987.74
## trainingSet$Duration ~ Input.Size + totalLoadGM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] GTX-970
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "dotProd"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     Floating.Point.Operations.Single.Precision. + GridSize +
##     totalThreads, data = trainingSet)
```

```
##
## Coefficients:
##                                   (Intercept)
##                                     7.626e-04
##                                    Input.Size
##                                     3.327e-07
##                                   totalLoadGM
##                                     3.276e-06
## Floating.Point.Operations.Single.Precision.
##                                    -1.791e-07
##                                      GridSize
##                                    -1.795e-07
##                                  totalThreads
##                                    -7.500e-11
##
## Start:  AIC=-13140.13
## trainingSet$Duration ~ Input.Size + totalLoadGM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] GTX-970
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "vectorAdd"
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     Floating.Point.Operations.Single.Precision. + GridSize +
##     totalThreads, data = trainingSet)
##
## Coefficients:
##                                   (Intercept)
##                                     8.354e-04
##                                    Input.Size
##                                     4.735e-11
##                                   totalLoadGM
##                                     2.764e-10
## Floating.Point.Operations.Single.Precision.
##                                            NA
##                                      GridSize
##                                     5.702e-10
##                                  totalThreads
##                                            NA

## Warning in predict.lm(fit, testSet): prediction from a rank-deficient fit
## may be misleading

## [1] 9
## Start:  AIC=-3929.37
## trainingSet$Duration ~ Input.Size + totalLoadGM + totalLoadSM +
##     totalStoreSM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads
##
## [1] GTX-970
## 10 Levels: GTX-680 GTX-750 GTX-970 GTX-980 Quadro Tesla-K20 ... TitanX
## [1] "subSeqMax"
```

```
##
## Call:
## lm(formula = trainingSet$Duration ~ Input.Size + totalLoadGM +
##     totalLoadSM + totalStoreSM + Floating.Point.Operations.Single.Precision. +
##     GridSize + totalThreads, data = trainingSet)
##
## Coefficients:
##                                   (Intercept)
##                                    -6.137e-02
##                                    Input.Size
##                                     1.084e-07
##                                   totalLoadGM
##                                    -2.769e-05
##                                   totalLoadSM
##                                     2.643e-02
##                                  totalStoreSM
##                                            NA
## Floating.Point.Operations.Single.Precision.
##                                    -1.081e-05
##                                      GridSize
##                                            NA
##                                  totalThreads
##                                            NA

## Warning in predict.lm(fit, testSet): prediction from a rank-deficient fit
## may be misleading
```

```
# result
colnames(result) <-c("Gpus", "Apps", "InputSize", "ThreadBlock" , "Measured", "Predicted",  "accuracy",


Tempresult <- data.frame(Gpu, App, Size, Block, TestDuration, predictions, Acc, AccMin, AccMax, AccMean

result$Apps <- factor(result$Apps, levels =  c("matMul_gpu_uncoalesced","matMul_gpu", "matMul_gpu_share
                                               "matrix_sum_normal", "matrix_sum_coalesced",
                                               "dotProd", "vectorAdd",  "subSeqMax"))

result$Apps <- revalue(result$Apps, c("matMul_gpu_uncoalesced"="matMul_GM_uncoalesced", "matMul_gpu"="ma
                                      "matMul_gpu_sharedmem_uncoalesced"="matMul_SM_uncoalesced", "
                                      "matrix_sum_normal"="matrix_sum_uncoalesced"))


result$Gpus <- factor(result$Gpus, levels = c("Tesla-K40",  "Tesla-K20", "Quadro", "Titan", "TitanBlack

# result[result$Apps %in% "matrix_sum_normal" & result$Gpus %in% c("Quadro", "TitanX"),]

Graph <- ggplot(data=result, aes(x=Gpus, y=accuracy, group=Gpus, col=Gpus)) +
    geom_boxplot( size=1.5, outlier.size = 2.5) + #scale_y_continuous(limits =  c(0, 3.5)) +
    stat_boxplot(geom ='errorbar') +
    xlab("GPUs") +
    ggtitle("Linear Regression") +
    ylab(expression(paste("Accuracy ",T[k]/T[m] ))) +
    theme(plot.title = element_text(family = "Times", face="bold", size=40)) +
    theme(axis.title = element_text(family = "Times", face="bold", size=30)) +
```

```
    theme(axis.text  = element_text(family = "Times", face="bold", size=20, colour = "Black")) +
    theme(axis.text.x=element_blank()) +
    theme(legend.title  = element_text(family = "Times", face="bold", size=0)) +
    theme(legend.text  = element_text(family = "Times", face="bold", size=20)) +
    theme(legend.direction = "horizontal",
          legend.position = "bottom",
          legend.key=element_rect(size=5),
          legend.key.size = unit(5, "lines")) +
    # facet_grid(.~Apps, scales="fixed")
    facet_wrap(~Apps, ncol=3, scales="free_y") +
    theme(strip.text = element_text(size=20))+
    scale_colour_grey()

ggsave(paste("./images/ResultsLearning/ResultLinearRegression.pdf",sep=""), Graph, device = pdf, height=
write.csv(result, file = "./R-code/Results/LinearRegression.csv")
# ggsave(paste("./images/ResultsLearning/ResultLinearRegression.png",sep=""), Graph, height=10, width=1
```