

simulation_analysis

2023-11-01

```
library(knitr)

women_sims <- readRDS("~/gym2024data/simulations_Aimi.rds")
men_sims <- readRDS("~/gym2024data/simulations_m_katie.rds")

men_sims_for_second = men_sims[-1]

max_medals = -1
max_sim_index = -1

for (i in seq_along(men_sims_for_second)){
  summaryTeam <- men_sims_for_second[[i]]@teamSummary
  USA_medals <- summaryTeam$total_medals[summaryTeam$clean_country == "USA"]

  if (USA_medals > max_medals){
    max_medals <- USA_medals
    max_sim_index <- i
  }
}

second_USA_sim <- men_sims_for_second[[max_sim_index]]@teamSummary
print(second_USA_sim$athletes[second_USA_sim$clean_country == "USA"])

## [[1]]
## [1] "Brody MALONE"      "Javier ALFONSO"    "Curran PHILLIPS"
## [4] "Frederick RICHARD" "Joshua KARNES"
USA_medals <- vector("list", length = 5000)

for (i in seq_along(USA_medals)) {
  summaryTeam <- men_sims[[i]]@teamSummary
  USA_medals[i] <- summaryTeam$total_medals[summaryTeam$clean_country == "USA"]
}

USA_medals = unlist(USA_medals)

top_indices <- order(USA_medals, decreasing = TRUE)[1:10]
top_indices

## [1] 779 1160 4028 858 1174 1901 2083 2964 3260 3940

first_medals <- men_sims[[779]]@teamSummary
first_team_usa <- first_medals$athletes[first_medals$clean_country == "USA"]
first_medals

## clean_country
## 1 CAN
```

```

## 2          CHN
## 3          ESP
## 4          GBR
## 5          GER
## 6          ITA
## 7          JPN
## 8          NED
## 9          SUI
## 10         TUR
## 11         UKR
## 12         USA
## 13         Other
##
## 1
## 2
## 3
## 4
## 5
## 6
## 7
## 8
## 9
## 10
## 11
## 12
## 13 Abdelrahman ABDELHALEEM, Ahmed ABDELRAHMAN, Rasuljon ABDURAKHIMOV, Saba ABESADZE, Ahmad ABU, Mohar
##      Team_AA_medal indiv_medal VT_medal SR_medal FX_medal PH_medal PB_medal
## 1          0          0          0          0          0          0          0
## 2          2          3          0          0          0          0          3
## 3          0          0          0          0          0          0          0
## 4          0          0          1          0          0          0          0
## 5          0          0          0          0          0          0          0
## 6          0          0          0          1          0          0          0
## 7          0          0          0          0          0          0          0
## 8          0          0          0          0          0          0          0
## 9          1          0          0          0          0          0          1
## 10         0          0          0          0          0          0          0
## 11         0          0          0          0          0          0          0
## 12         3          3          0          5          3          0          2
## 13         0          0          5          0          3          6          0
##      HB_medal total_medals
## 1          0          0
## 2          0          8
## 3          0          0
## 4          0          1
## 5          0          0
## 6          0          1
## 7          0          0
## 8          0          0
## 9          0          2
## 10         0          0
## 11         0          0
## 12         4          20
## 13         2          16

```

```

second_medals <- men_sims[[1160]]@teamSummary
second_medals$athletes[second_medals$clean_country == "USA"]

## [[1]]
## [1] "Blake SUN"          "Brody MALONE"      "Frederick RICHARD"
## [4] "Shane WISKUS"      "Paul JUDA"

top_medalists <- data.frame(
  "Top US Performance" = c("Brody Malone", "Javier Alfonso", "Curran Phillips", "Frederick Richard", "J
  "Second Top US Performance" = c("Blake Sun", "Brody Malone", "Frederick Richard", "Shane Wiskus", "Pa
)

#kable(top_medalists, format = "latex")

```

Best Simulated Outcome for Team USA					
Team All-Around	Individual All-Around	Vault	Still Rings	Pommel Horse	Parallel Bars
USA	USA (Brody Malone)	Armenia (Artur Davtyan)	USA (Javier Alfonso)	Chinese Taipei (Chih Lee)	China (Jingyuan Zou)
China	China (Boheng Zhang)	Philippines (Carlos Yulo)	USA (Brody Malone)	Kazakhstan (Nariman Kurbanov)	USA (Curran Phillips)
Switzerland	China (Wei Sun)	Great Britain (Luke Whitehouse)	Italy (Salvatore Maresca)	Uzbekistan (Abdulla Azimov)	Switzerland (Noe Seifert)

First Row			Second Row		
Col 1	Col 2	Col 3	Col 4	Col 5	Col 6
R1C1	R1C2	R1C3	R2C1	R2C2	R2C3
R1C4	R1C5	R1C6	R2C4	R2C5	R2C6

Event	Gold	Silver	Bronze
Team All-Around	USA	China	Switzerland
Individual All-Around	USA (Brody Malone)	China (Boheng Zhang)	China (Wei Sun)
Vault	Armenia (Artur Davtyan)	Philippines (Carlos Yulo)	Great Britain (Luke Whitehouse)
Still Rings	USA (Javier Alfonso)	USA (Brody Malone)	Italy (Salvatore Maresca)
Pommel Horse	Chinese Taipei (Chih Lee)	Kazakhstan (Nariman Kurbanov)	Uzbekistan (Abdulla Azimov)
Parallel Bars	China (Jingyuan Zou)	USA (Curran Phillips)	Switzerland (Noe Seifert)
High Bar	USA (Frederick Richard)	Kazakhstan (Ilyas Azizov)	USA (Brody Malone)
Floor Exercise	USA (Brody Malone)	Israel (Artem Dolgopyat)	India (Satyajit Mondal)

Table 1: Best Simulated Outcome for Team USA in Men's Artistic Gymnastics

Team USA Medal Count: 8

Team USA Weighted Medal Count: 20 (where Gold = 3, Silver = 2, Bronze = 1)

Team USA Medal Breakdown: 5 Gold, 2 Silver, 1 Bronze