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# Olympic Athletes Analysis

Team 23

Eric Ho

Kewei Xu

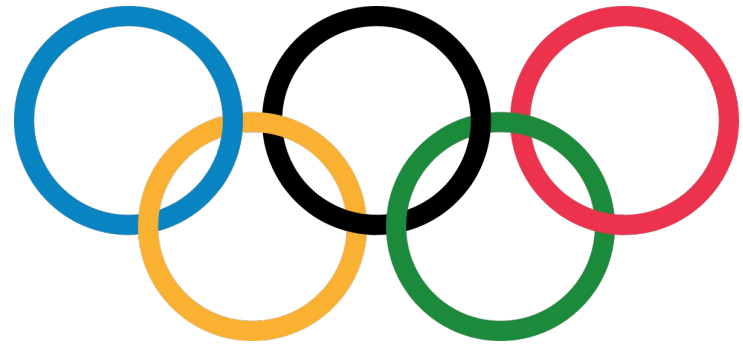
Zifan Qian

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# Overview

- Olympic Games:
  - Most well known international sporting event
  - 200+ nations participating
  - Summer and winter competitions
- Various effects of Olympics:
  - Economic benefits for hosting
  - National pride
  - International fame



# Motivation

- Assist coaches in selecting high potential athletes in winning medals
- Give aspiring Olympic athletes insight on their future career
- Find patterns in Olympic games to gauge chances of winning medals



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# Objectives

1. Analyze Olympic data to infer characteristics on medal winning athletes
2. Gain insight on the trends in Olympic games that contribute to winning medals



# Dataset

- 120 Years of Olympic History Dataset (Kaggle)
  - Contains **271116** data samples
  - Ranged from **1950** to **2016**
  - Features:

Name	Sex	Age	Height	Weight	Team	NOC	Games	Year	Season	City	Sport	Event	Medal
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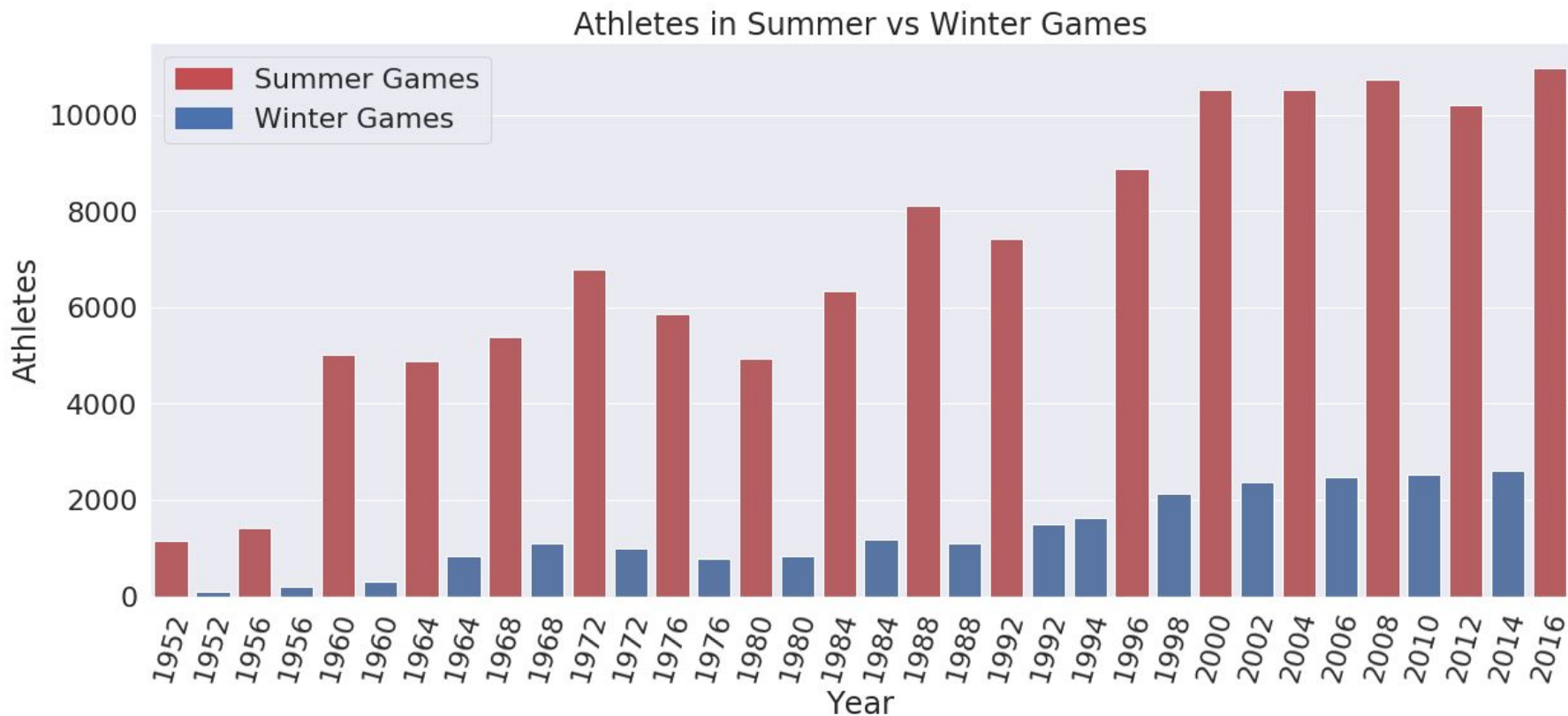
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- NOC: National Olympic Committee (3 letter code)

# Methodology

- Clean data
  - Remove rows with NaNs
  - Extract athletes that won gold, silver, and bronze
- Plot data
  - Summer vs Winter games
  - Age
  - Sex
  - Height/Weight ratio
- Analyze data
  - Find patterns in each plot
  - Recommend sport based on Olympic trends

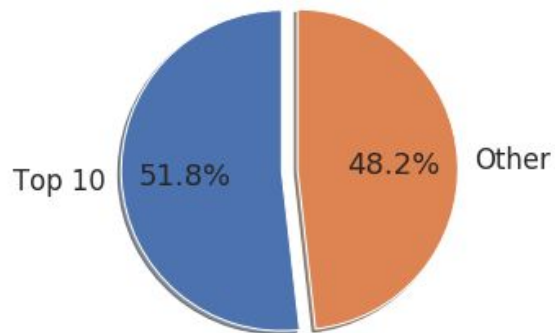
# Summer and Winter Games



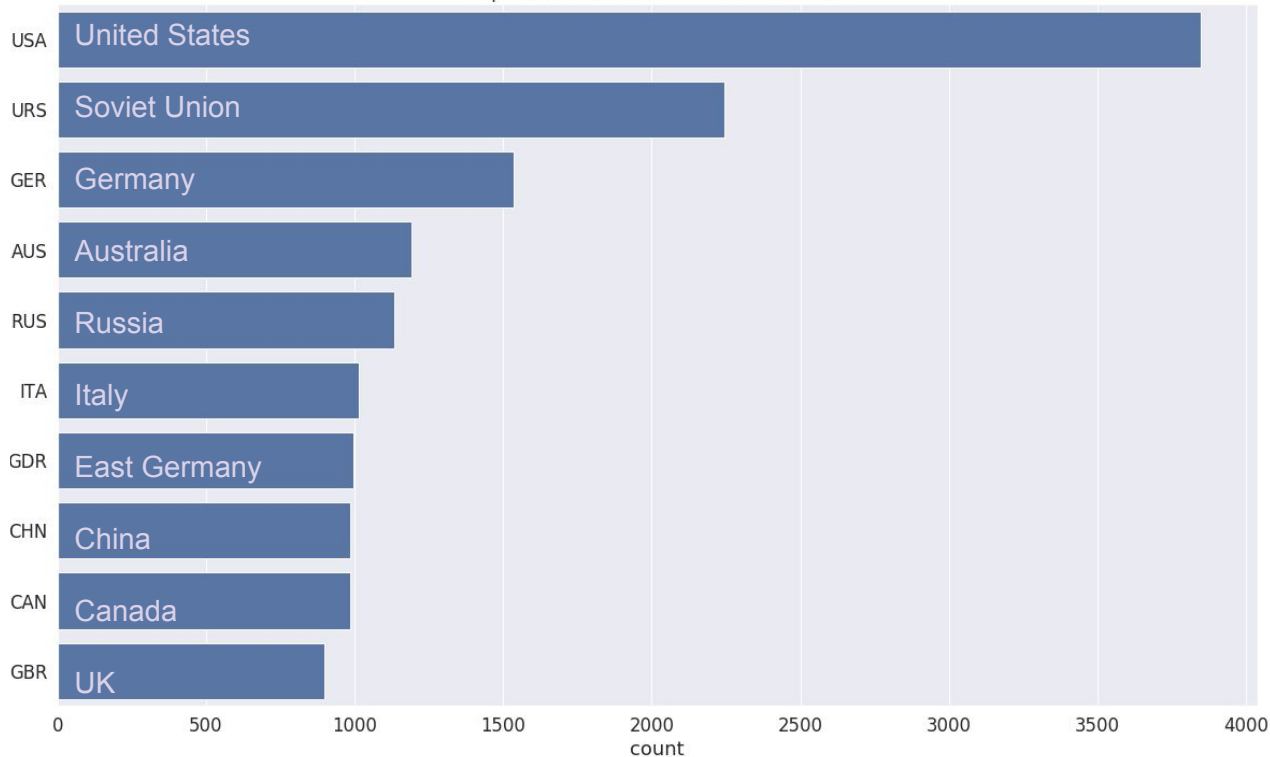
# Most Successful Countries

- ❖ Top 10 countries secured more than half (51.8%) of all medals

Top 10 Countries vs Other nations

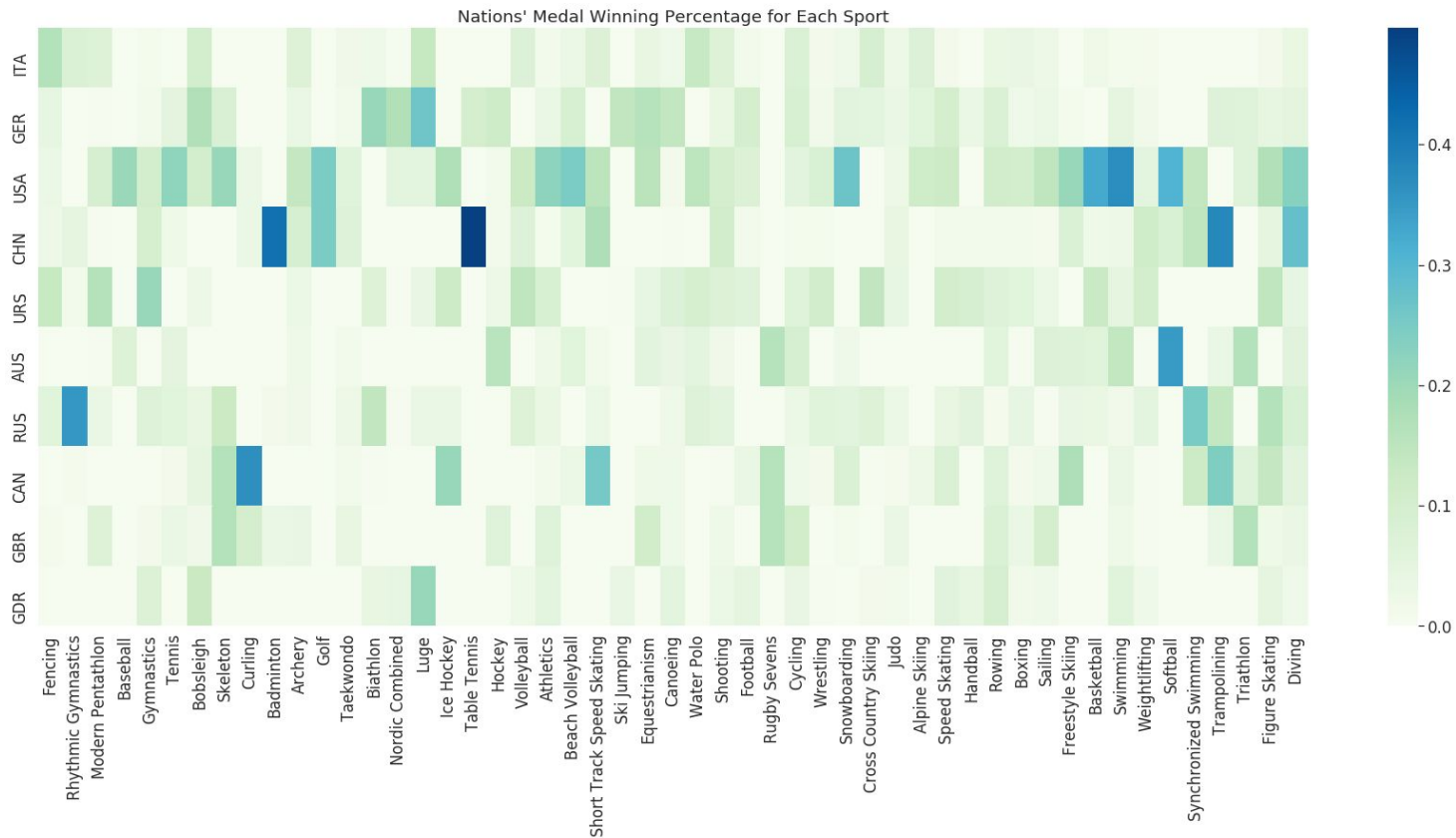


Top 10 Countries with the most Medals





# Competitiveness of Countries for Each Sport

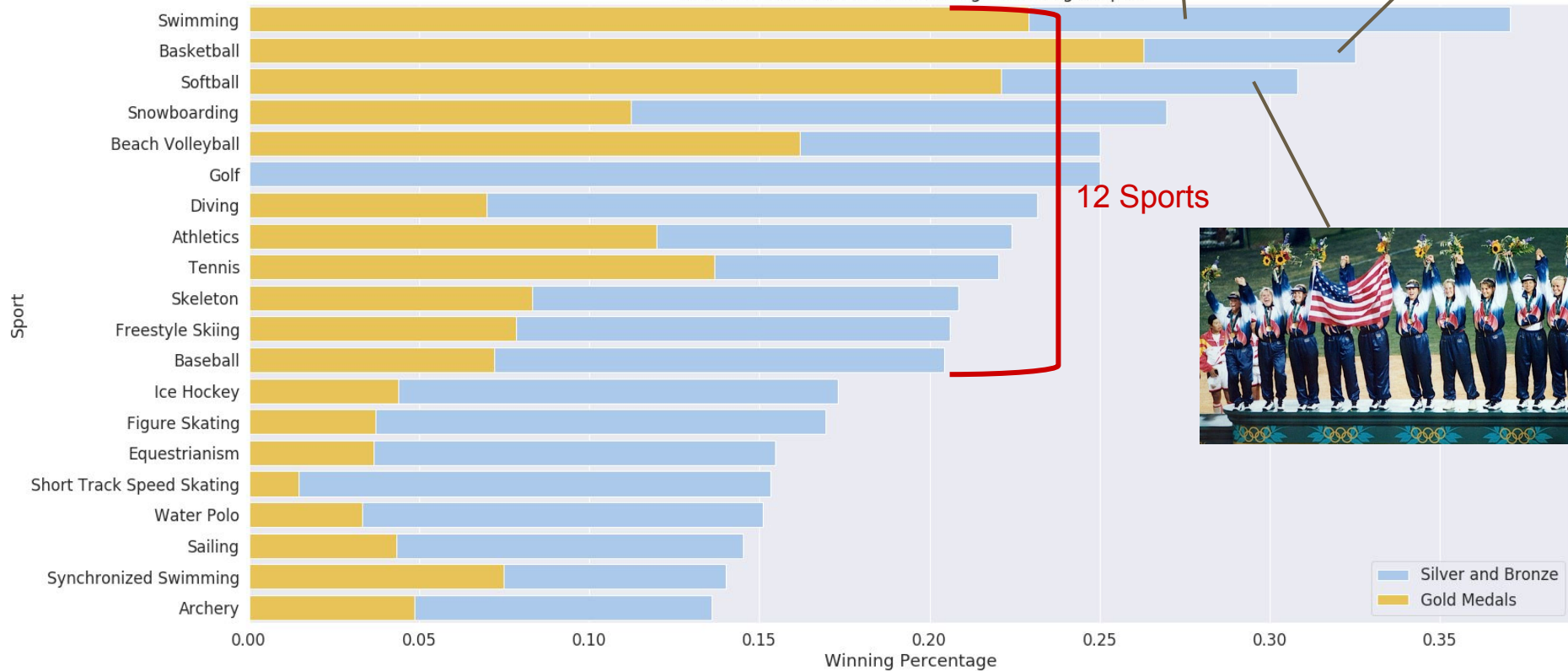


Medal winning percentage = # medals won / total # medals

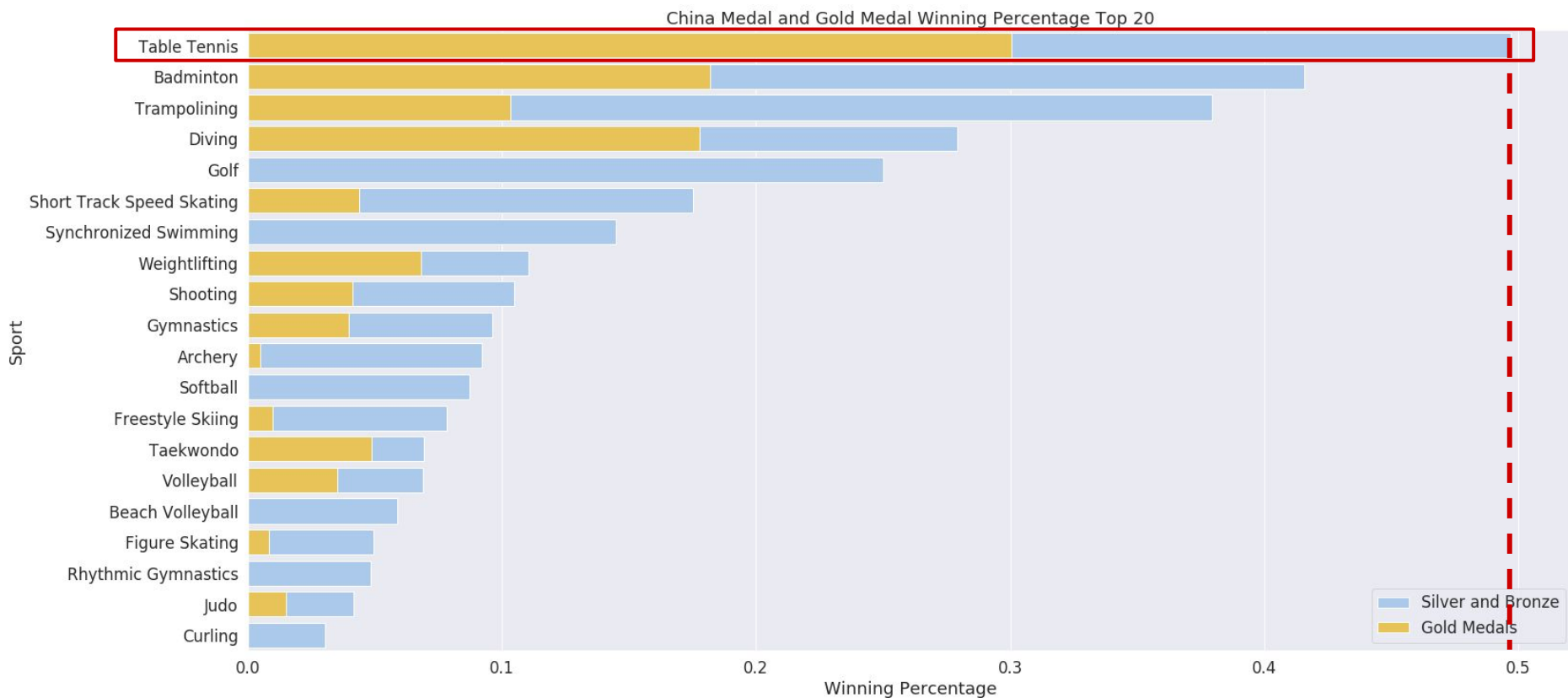
# Strengths of a Country: US



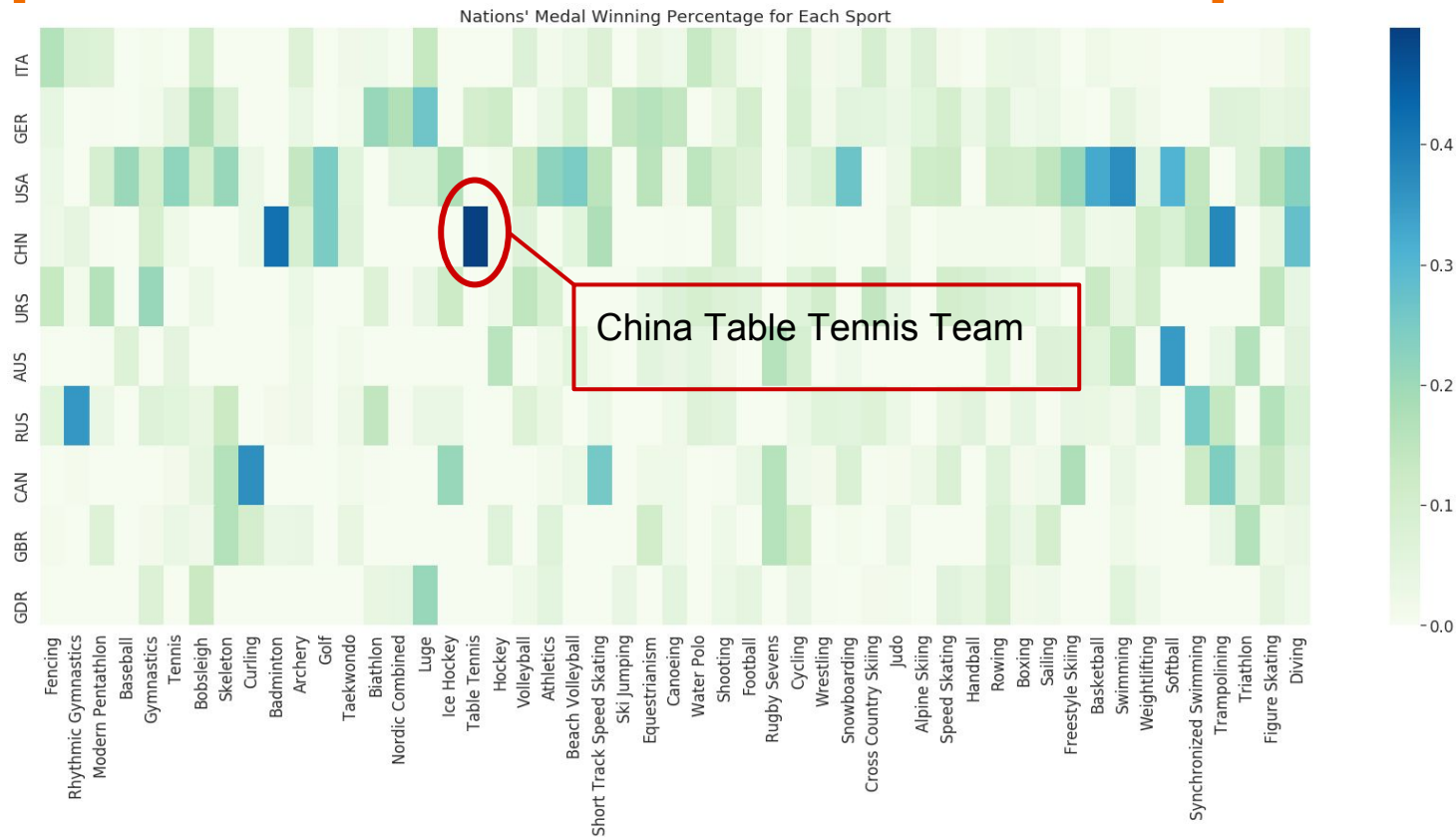
USA Medal and Gold Medal Winning Percentage Top 20



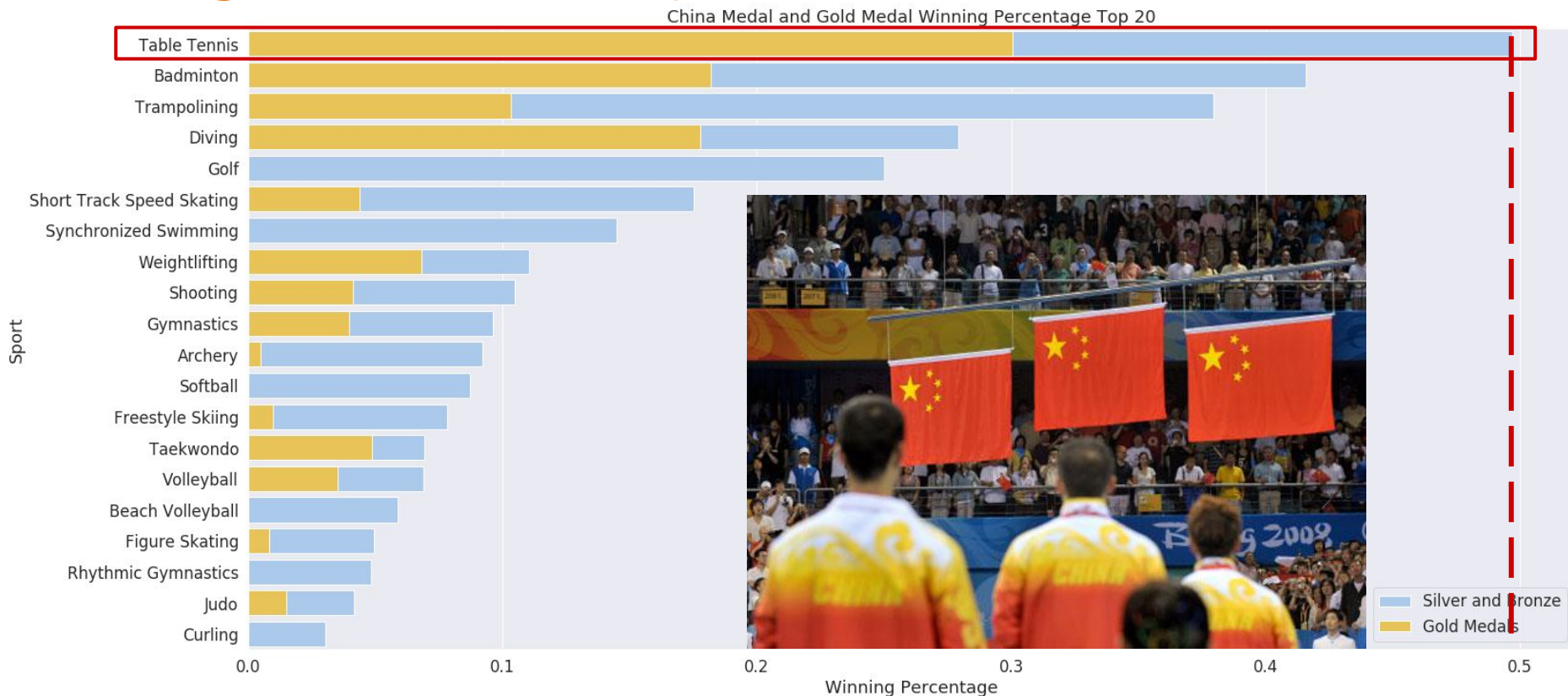
# Strengths of a Country: China



## Competitiveness of Countries for Each Sport



# Strengths of a Country: China



# Strengths of a Country: Canada

Canada Medal and Gold Medal Winning Percentage Top 20



# Observations and Insight

- 10 countries rule the leaderboard
  - All large countries with large population
  - All developed countries: higher winning probability
  - Larger population x higher winning probability = MORE MEDALS!
- Each country has a few consistently advantageous sports
  - Leading tactics, strategies, training systems and methodologies...which are inheritable
  - Experience of coaches
  - Inherent advantage: Once a winner, always a winner!



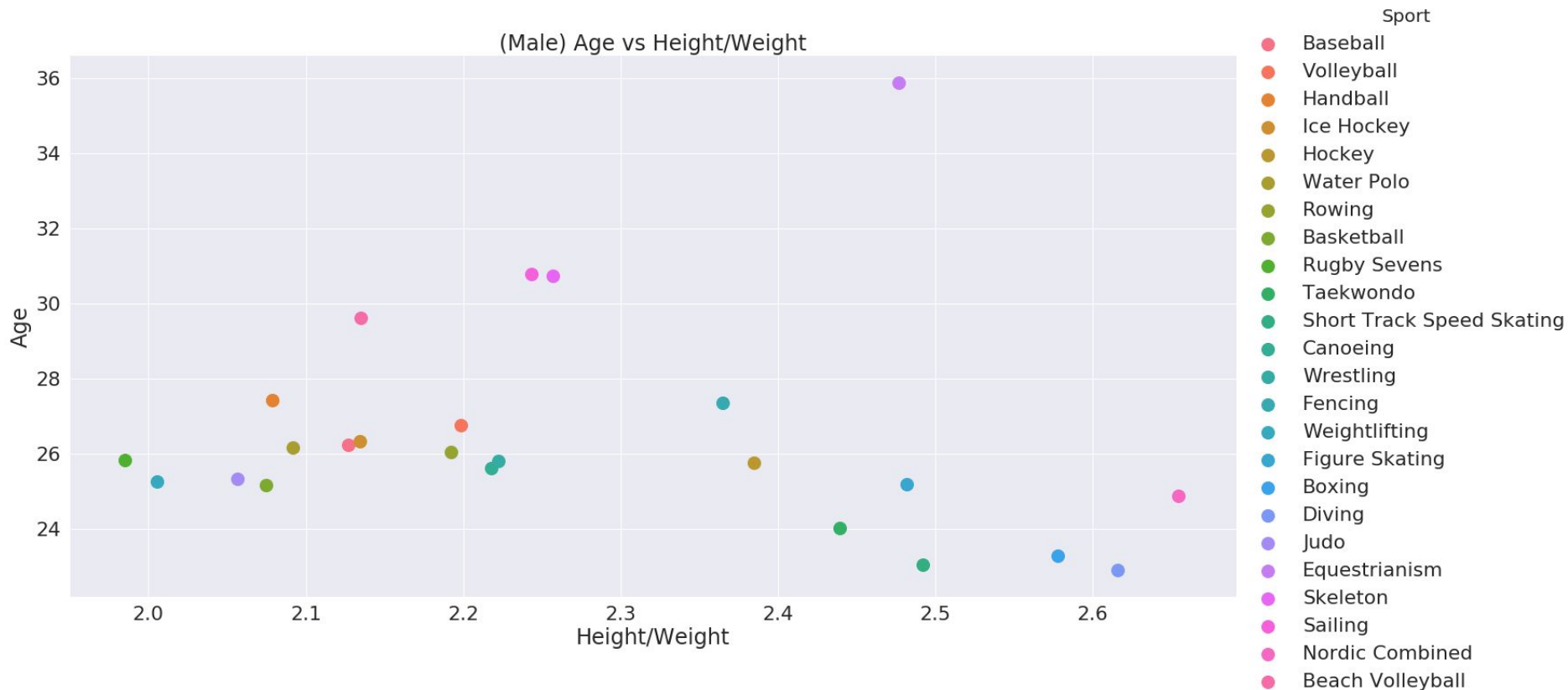
# Back to Athletes

- ❖ What is significant for an athlete?
  - Career Decision: Evaluate the winning probability within the training system if you want to become pro
  - Sport Selection: If you really want to become a medalist, choose the right sport and go for it!

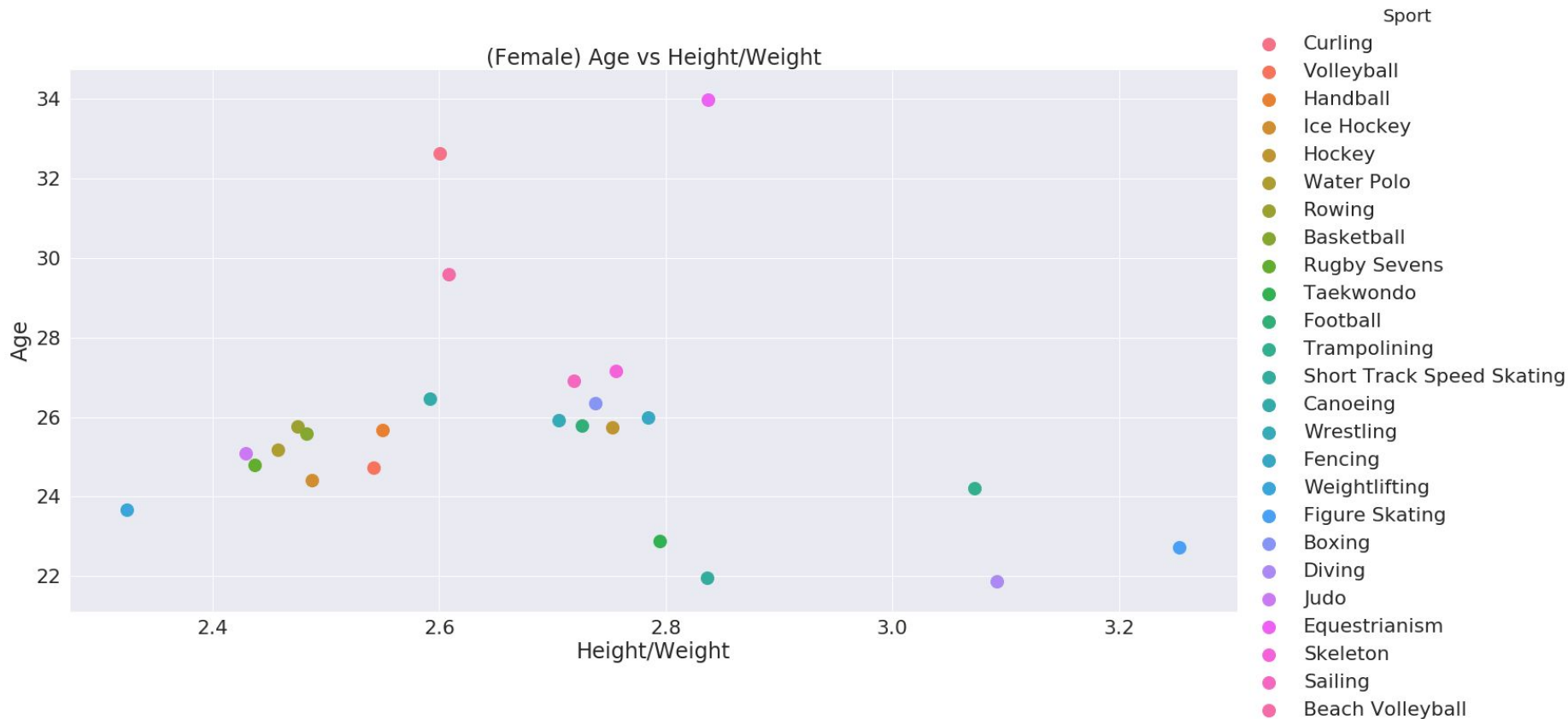




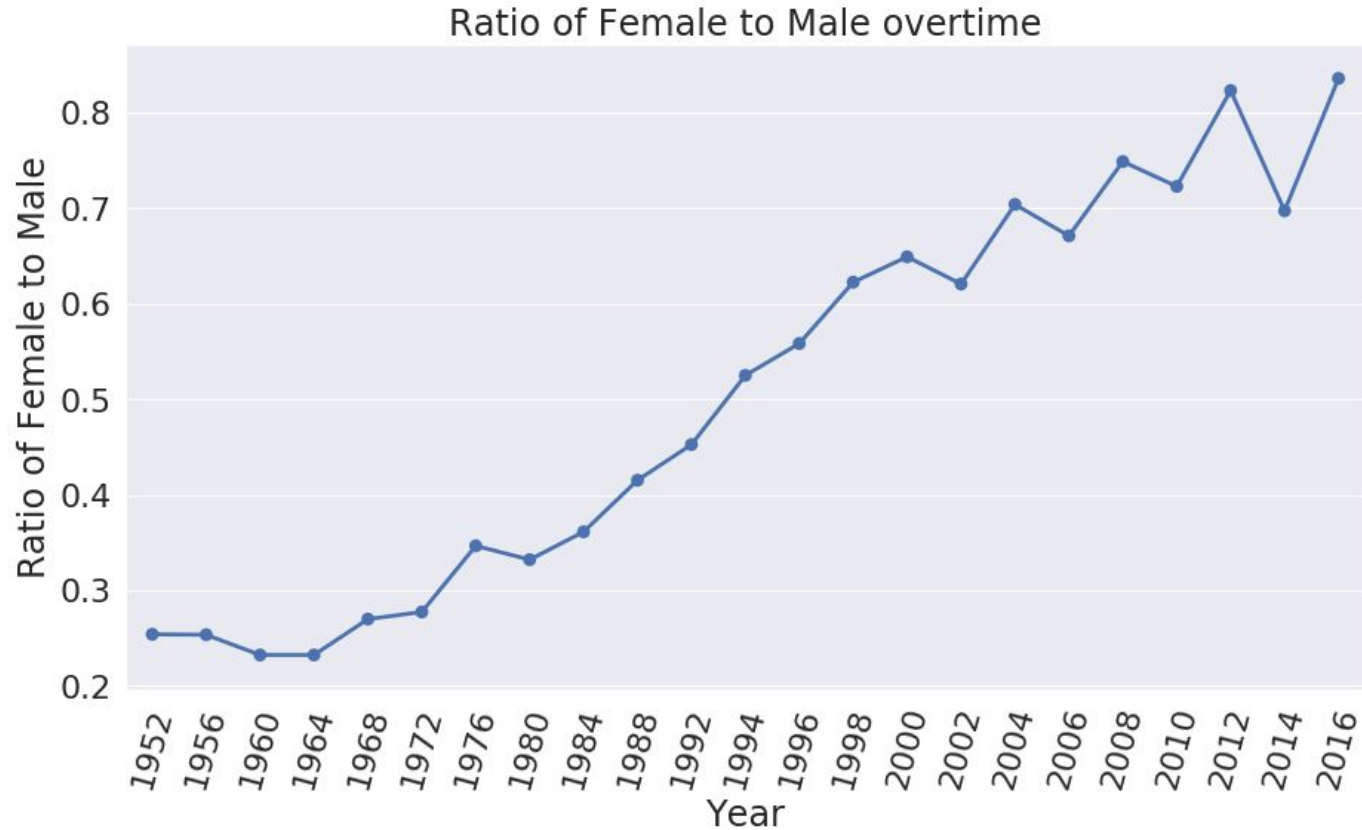
# Analysis for Male Athletes



# Analysis for Female Athletes



# Female Athletes Over Time



# Conclusion

- Better to enter in Winter games (less athletes/competition)
- Each country excel in certain sports
  - Refined training programs
  - More experience
- Use age vs height/weight plot to find recommended sport
- More equality for female athletes

**Thank you!**

**Any Questions?**