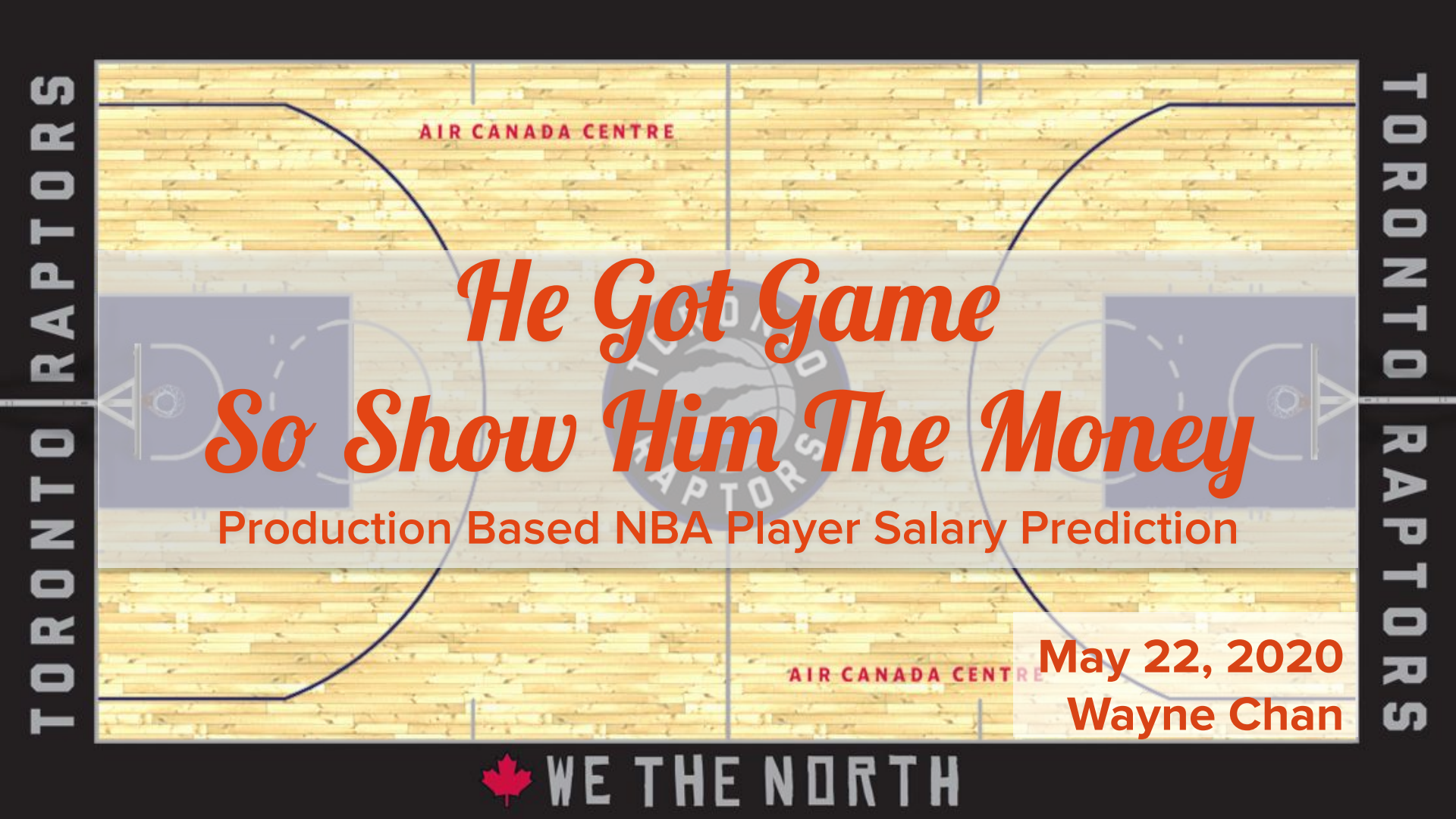
TORONTO RAPTORS
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He Got Game
So Show Him The Money
Production Based NBA Player Salary Prediction
AIR CANADA CENTRE
May 22, 2020
Wayne Chan
TORONTO RAPTORS
WE THE NORTH

Agenda

- Problem Statement
- Executive Summary
- Methodology
- Findings
- Demo
- Next Steps and Recommendations

Problem Statement

- Player/agent negotiations have the potential to be contentious which can cause anxiety to the player, team management as well as the fanbase
- Time, energy and money are at stake so it would be beneficial to accelerate the process
- We can do this with a model that can predict a fair salary based on production to start negotiations

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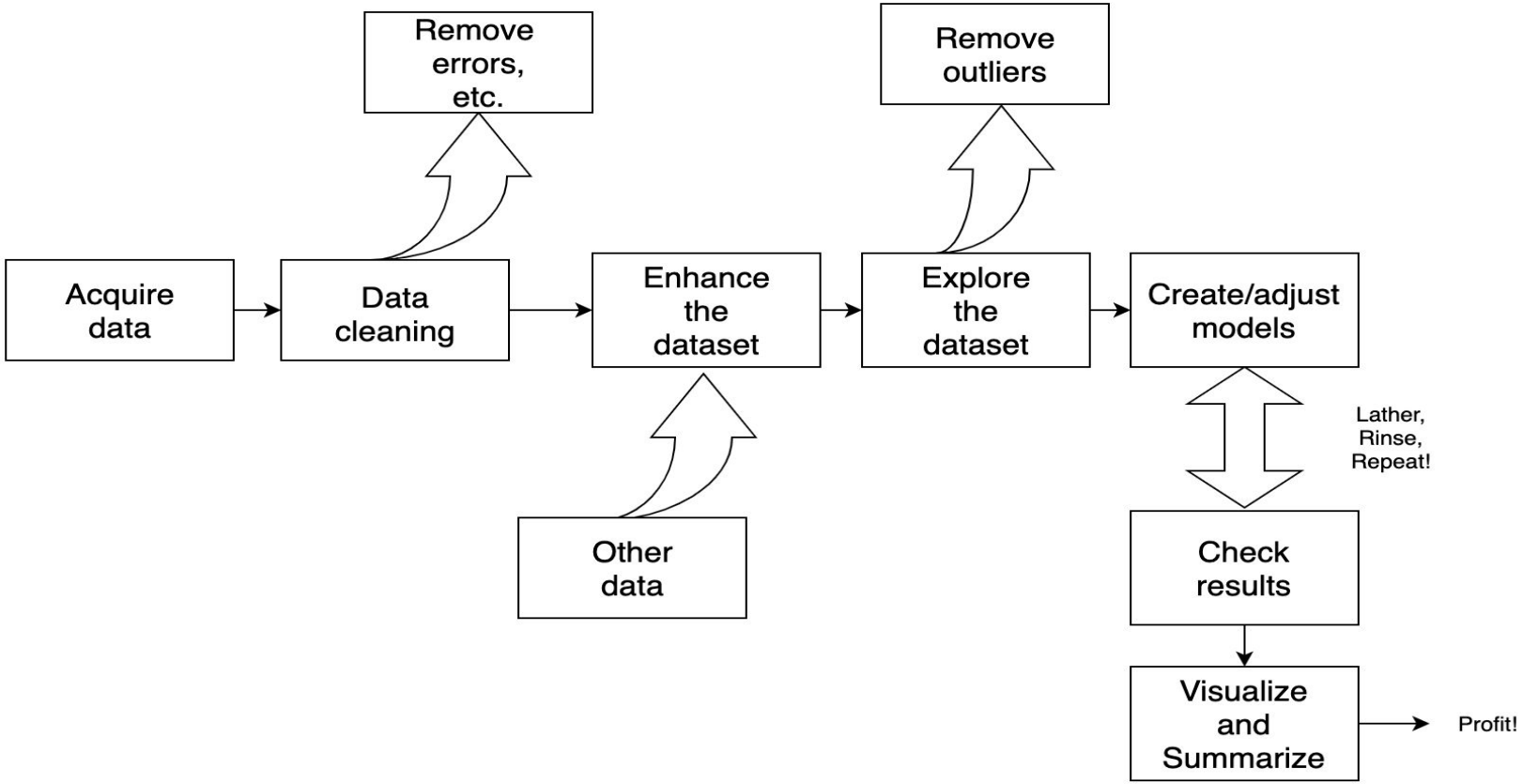
Executive Summary

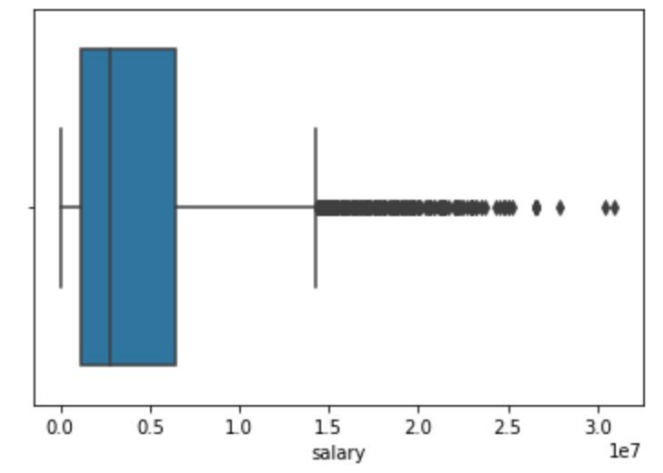
- A neural network model was successfully trained and scored reasonably well against historical data
- This can be used to predict a player's salary as a starting point for negotiations
- Since this is a statistical model, it does not deliver 100% accuracy
    - For example, players earn more as they become higher profile but there is no stat to track "superstar" status
- The variables that have the highest correlation to salary are points per game, points, field goals and winshares

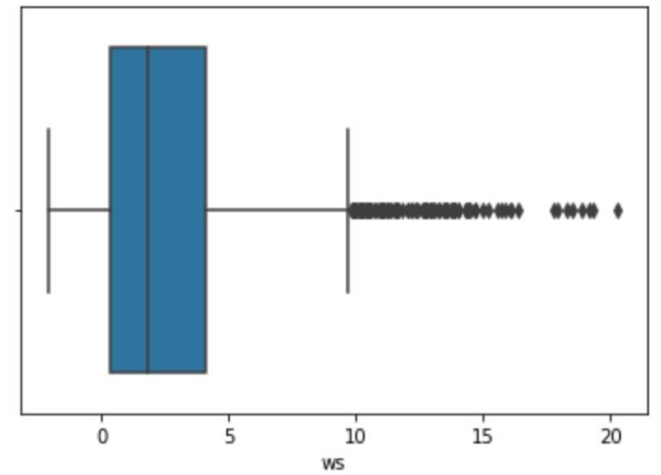
Methodology



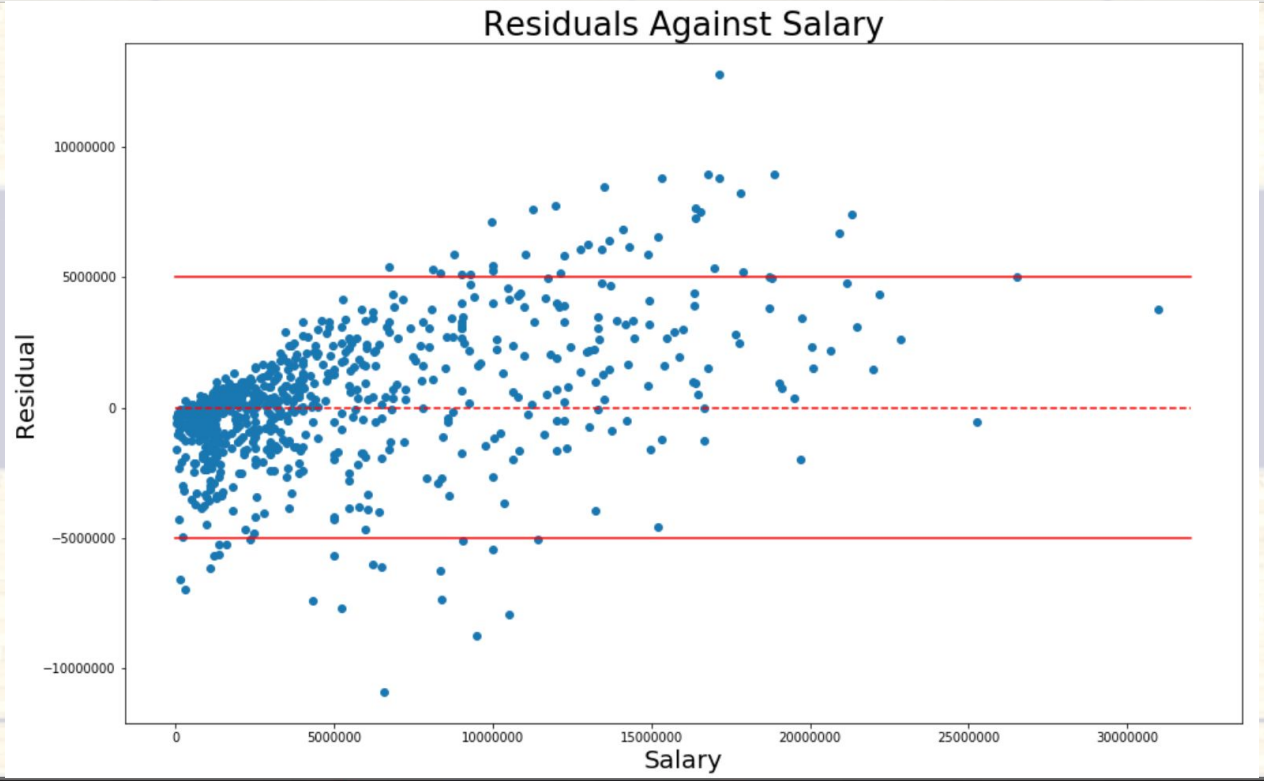
Findings

- The average salary is approx. $4.65M
- The expected variation from average is approx. $5M
- There are few players that have exceptionally high salary and winshares





Findings


Residuals Against Salary
Residual
Salary
10000000
5000000
0
−5000000
−10000000
0
5000000
10000000
15000000
20000000
25000000
30000000

Demo

- Caveat: the demo is a simplified model built with only 9 inputs. The original model has 77!
- The NBA is a superstar driven league
  - There are fewer of them so they don't influence the model as much
  - A premium that is not tied to production is often paid to retain a superstar's services
- Predictions are productivity based

Next Steps and Recommendations

- A model has been successfully trained that can provide a good starting point for negotiations

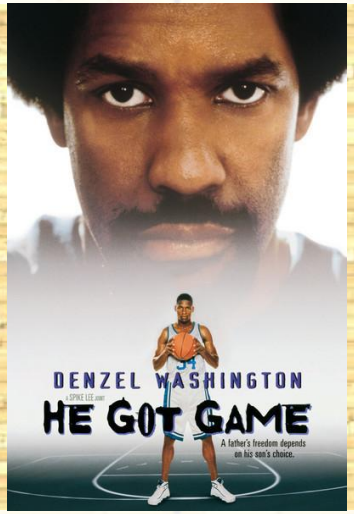
Next Steps:

- Add more data
- Consider changing to salary bands and remodel as a classifier
- Add a “superstar” tag or maybe an all-star team qualified tag

Other considerations:

- Use for fantasy sports where drafting is auction based instead of selection
- Can conceptually be used for other sports

Thank you!



Questions?

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