

# Predicting NHL Player Injuries

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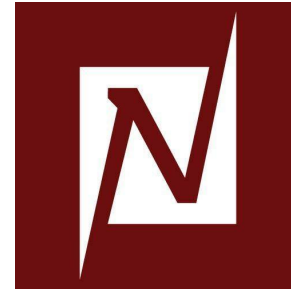
# Why Build a Model to Predict Injuries?

- Many statistical analyses of the NHL already exist
- Few statistics track player injuries
- Opportunity to challenge conventional wisdom
- Figure out if Russian players are indestructible

# Data Collection



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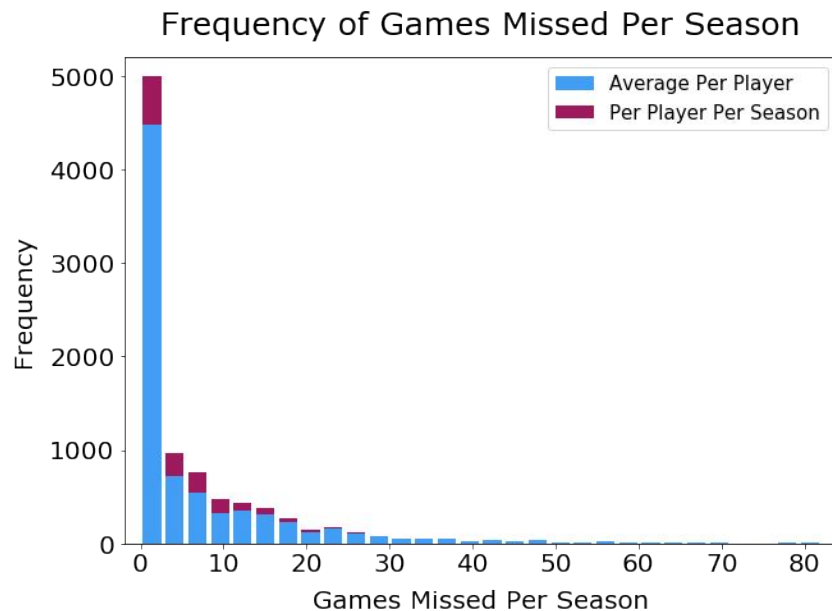
Injury data scraped from  
TSN.ca using Selenium  
and BeautifulSoup

Counting statistics and  
biometric data from  
NaturalStatTrick.com

# Selecting Predictors

- Height
- Weight
- Position
- Penalties Drawn
- Hits Delivered
- Hits Taken
- Shots Blocked
- Age
- Major Penalties
- Russian-ness

# Exploratory Data Analysis



# Building the Model

## Data

7,851 Player  
Seasons

## Models

Linear Regression  
Lasso with  
Polynomial Features  
Random Forest

## Response

Games Missed Per  
Player Per Season

# Model Results

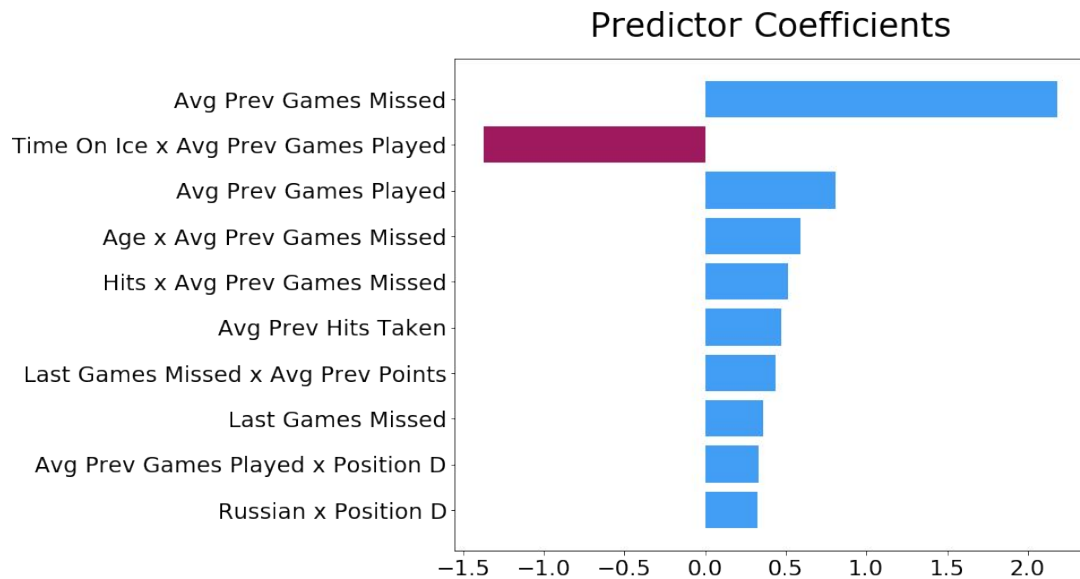
Lasso  $R^2$  = **0.0750**

Mean Absolute Error = **7.583**

Random Forest  $R^2$  = **0.0923**

Mean Games Missed = **6.892**

# Inference





# Future Work

- Search for more and better NHL injury data
- Attempt to incorporate minor league injury data
- Examine new NHL player tracking data
- Give up and try to predict a less random response

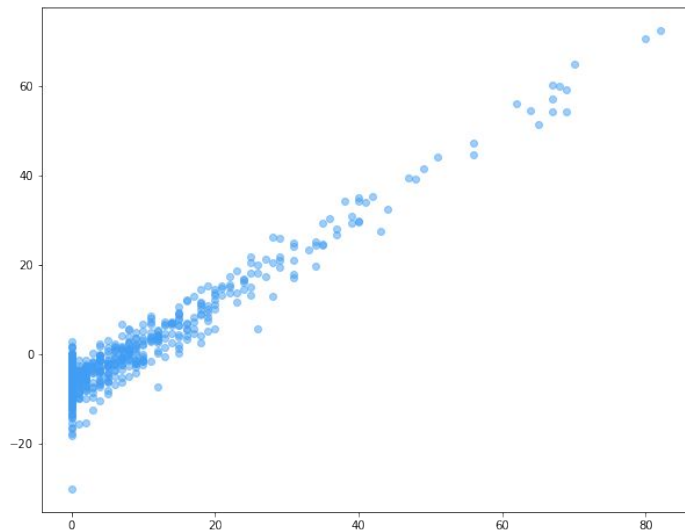


**Thanks for Listening!**

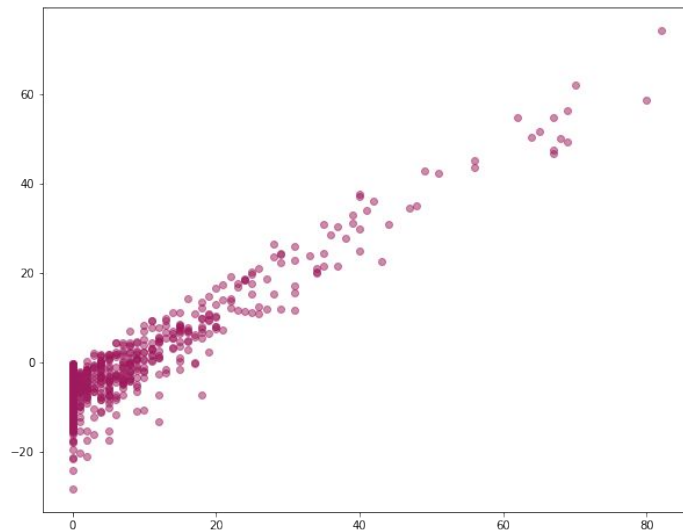
# Appendix

# Residuals







Linear Model Residuals



Random Forest Model Residuals



# Scraping Player Profiles

TEAM	NAME
 OTT	J. Beaudin, C
 WPG	N. Beaulieu, D
	G. Beaupre, D
 NYI	A. Beauvillier, LW
	F. Beauvillier, C
 MIN	C. Beck, LW
	T. Beck, LW
	S. Begin, C
	A. Belanger, G
	E. Belanger, D
 NYR	M. Beleskey, LW
	B. Bell, D
	M. Bell, LW
 VGK	P. Bellemare, C
	B. Bellemore, D

Player Links

TRANSACTIONS / INJURIES / SUSPENSIONS	
Dec 11, 2018	Shoulder surgery, injured reserve.
Mar 18, 2018	Missed 54 games (broken arm).
Oct 04, 2018	Assigned to the Colorado Eagles (AHL).
Oct 02, 2018	Lower body injury, injured reserve.
Mar 18, 2018	Missed 54 games (broken arm).
Mar 17, 2018	Recalled from his conditioning assignment with the San Antonio Rampage (AHL).
Mar 11, 2018	Assigned to the San Antonio Rampage (AHL) for conditioning purposes.
Nov 17, 2017	Broken arm, injured reserve.
Nov 14, 2017	Recalled from the San Antonio Rampage (AHL).
Nov 06, 2017	Assigned to the San Antonio Rampage (AHL).
Nov 05, 2017	Acquired from the Nashville Predators.
Oct 03, 2017	Assigned to the Milwaukee Admirals (AHL).

Player Profile