



## Market value prediction of soccer players

# Approach

- Which factors have the most impact on the market value?
- Which players are over-/ or underrated ?

# Data acquisition

transfer  
markt

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30.06.2021

imago

### PLAYER DATA

Name in home country:	Mats Julian Hummels
Date of birth:	Dec 16, 1988
Place of birth:	Bergisch Gladbach
Age:	28
Height:	1,91 m
Shoe size:	12
Nationality:	Germany
Position:	Defence - Centre-Back
Foot:	right
Player's agent:	HMH Sportmanagement
Current club:	Bayern Munich
In the team since:	Jul 1, 2016
Contract until:	30.06.2021
Date of last contract extension:	May 23, 2016
Outfitter:	adidas
Shoe model:	ACE LEATHER TURBOCHARGE since Mar 31, 2017
Social media:	

**Pronunciation**

**Detailed position**  
Main position : Centre-Back

**Market value development**  
Current market value: 38,00 Mill. €  
Last change: Feb 7, 2017  
Highest market value: 38,00 Mill. € Jun 1, 2016

- Transfermarkt.com
- Top 5 soccer countries in Europe
- First two divisions of each country
- About 5000 players



# Feature selection

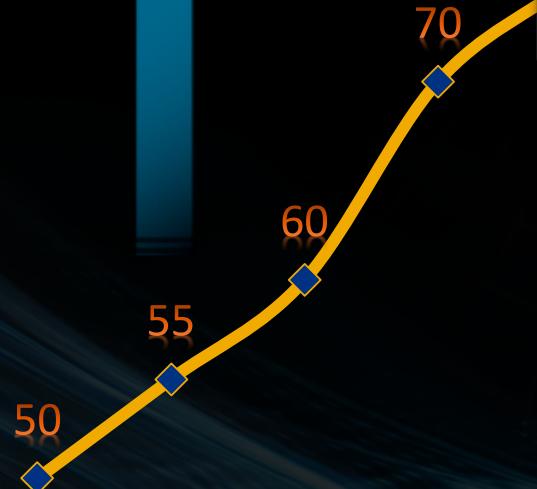
<u>General information</u>	<u>Performance (16/17)</u>	<u>Other</u>
Name	Games	In team since
Age	Goals	Expiry of contract
Height	Assists	Agency
Nationality	Played minutes	Outfitter
Current club	World cup winner	Foot (right/left/both)
Position	Champions league winner	Total transfer proceeds



14 features  
45-50% R-squared

# Model building

Linear models

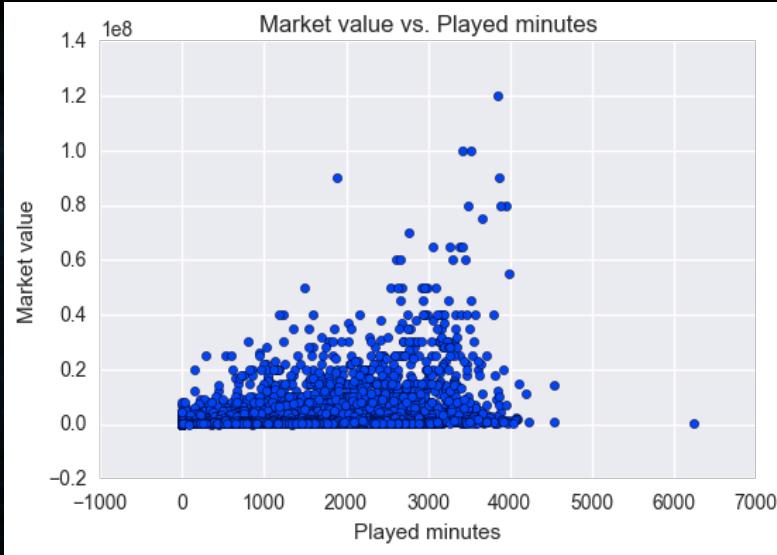
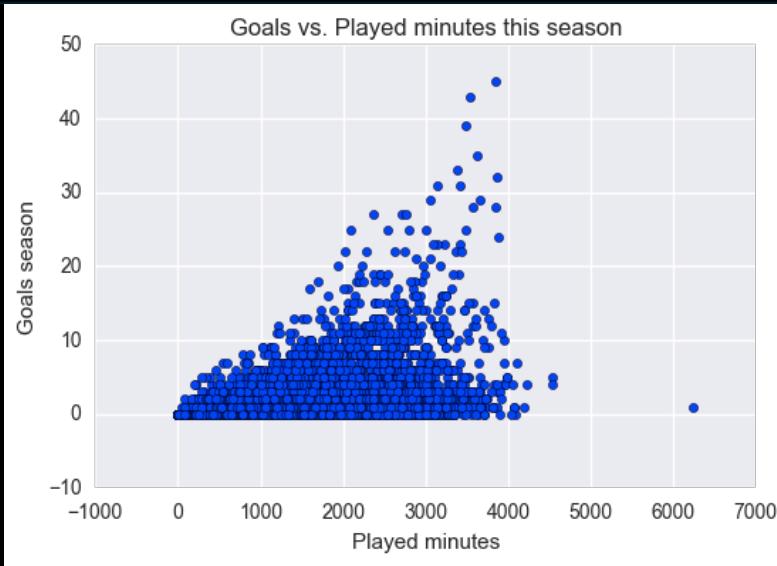


- Linear Regression
- Ridge
- Lasso
- ElasticNet

Which additional features make sense?



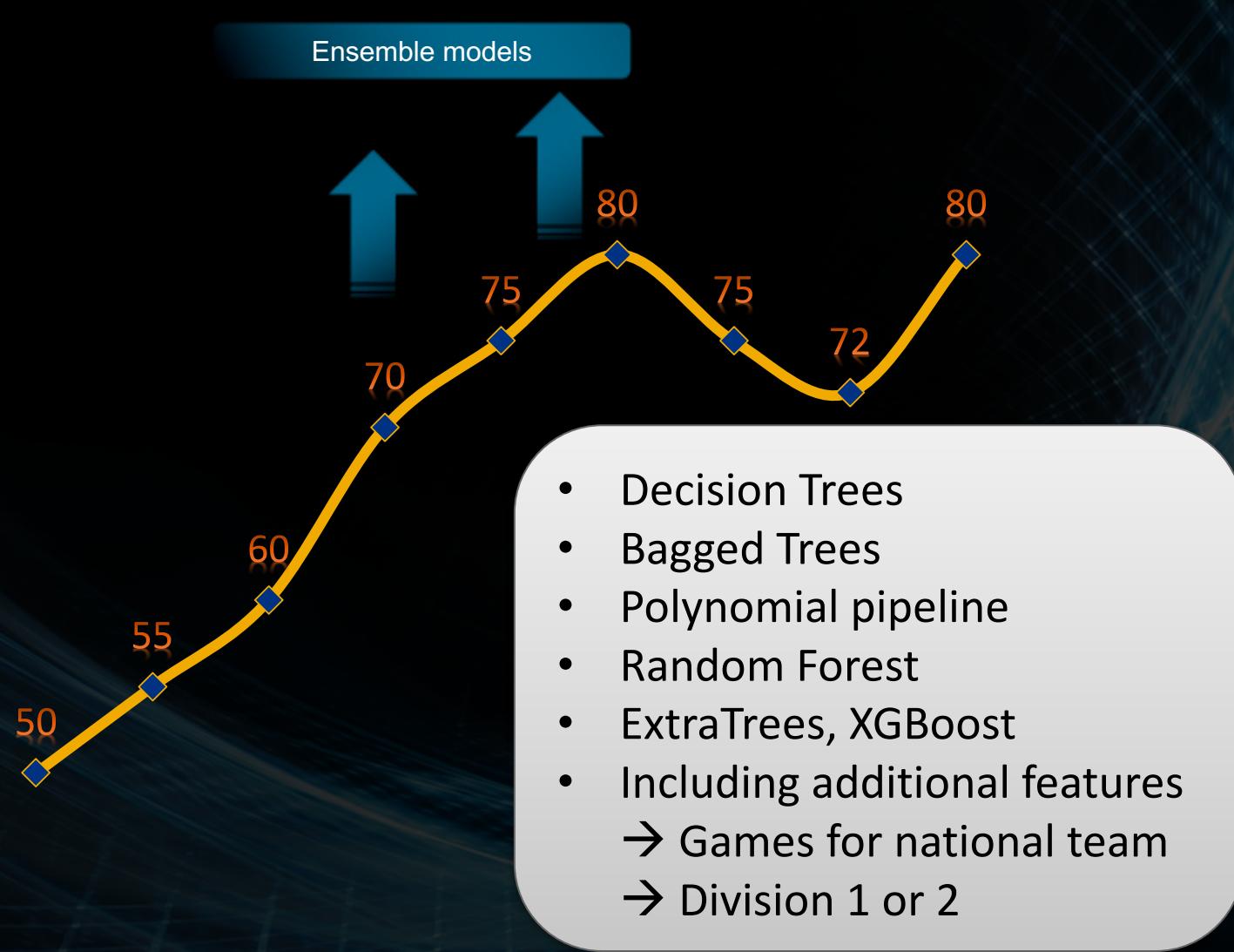
# Feature correlation



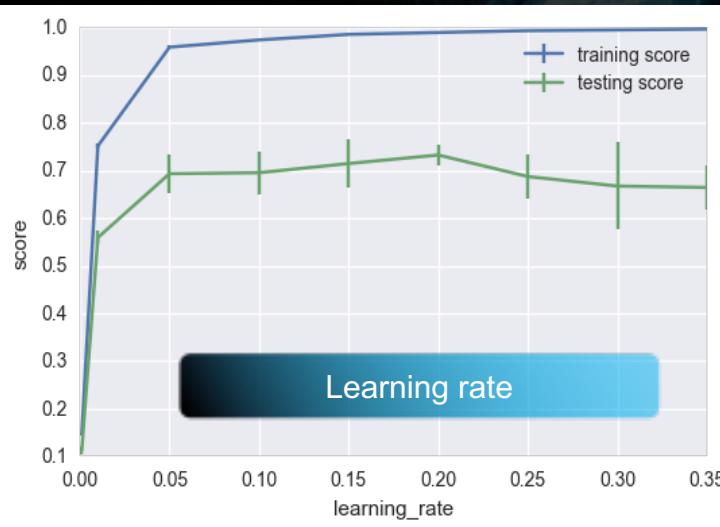
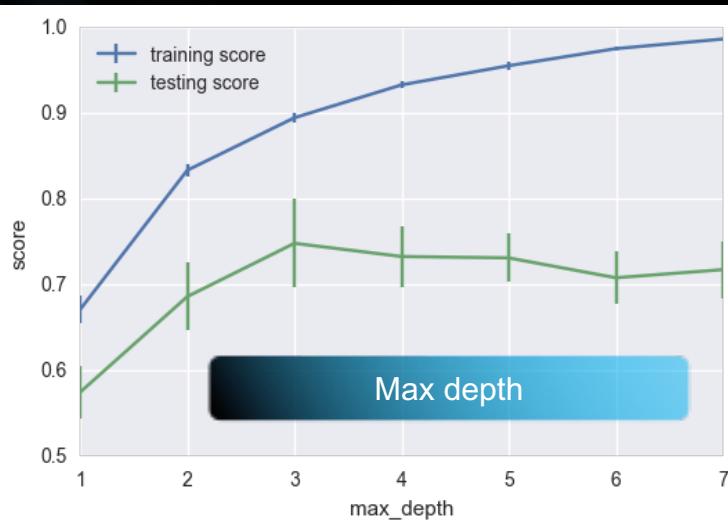
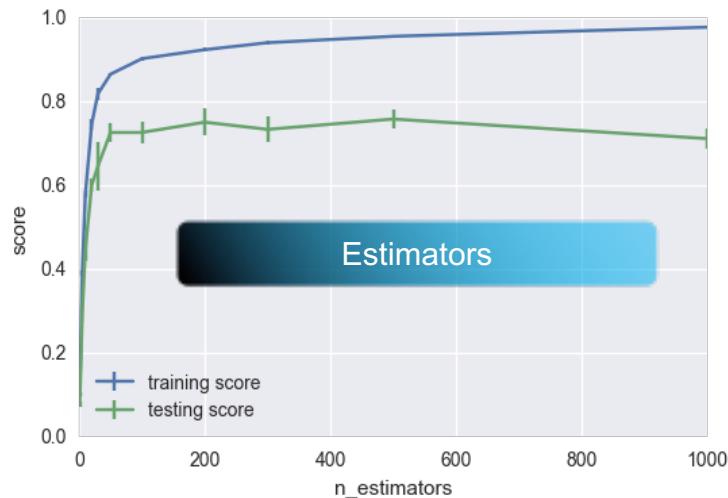
- Relation between variables “Goals scored“ and “Played minutes“
- Increase the importance of scored goals
- Goals \* minutes

→ Increase of R-squared

# Model building



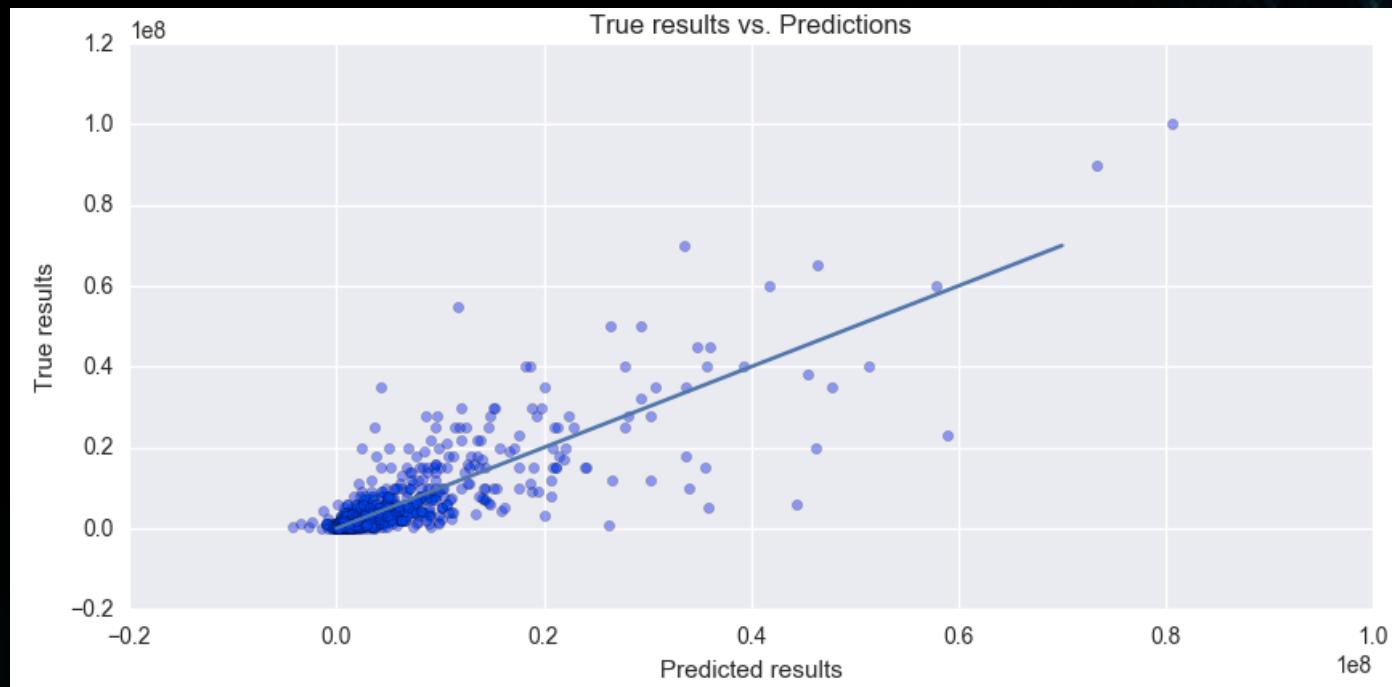
# Model tuning



# Model building



# Prediction results & feature importance



Total transfer proceeds	33%	Days in team	5.8%
Goals * played mins	18.7%	Age	5%
Games for national team	12%	Plays in division 1	4.8%
Assists per season	10.7%	Champions League winner	1.5%
Contract expiry	8%		

# Prediction results



Name	Current market value	Predictions
Robert Lewandowski	80.0	48.9
Thomas Müller	60.0	42.8
Thiago	40.0	22.1
Jérôme Boateng	40.0	32.6
David Alaba	40.0	34.8
Mats Hummels	38.0	20.8
Arturo Vidal	37.0	23.2
Renato Sanches	30.0	24.1
Douglas Costa	30.0	23.5
Joshua Kimmich	25.0	10.9
Javi Martínez	25.0	26.0
Kingsley Coman	20.0	5.9
Juan Bernat	16.0	8.2
Philipp Lahm	11.0	21.4
Arjen Robben	10.0	24.2
Franck Ribéry	8.0	14.0
Rafinha	5.0	4.4
Xabi Alonso	3.5	-6.4
Niklas Dorsch	0.2	0.7
Fabian Benko	0.2	0.2

# Improvements

Include other features such as:

- number of injuries
- In-game stats like pass precision, successful tackles, etc.
- popularity / social media presence
- Add performance history of each player

Use a different kind of data set:

- All first division leagues in Europe (exclude second division)
- Look at players by position seperately

# Thank You.

A silhouette of two men in suits shaking hands is positioned in front of a dynamic, glowing blue grid background. The grid consists of numerous intersecting lines that create a sense of depth and motion, resembling a digital or network environment.

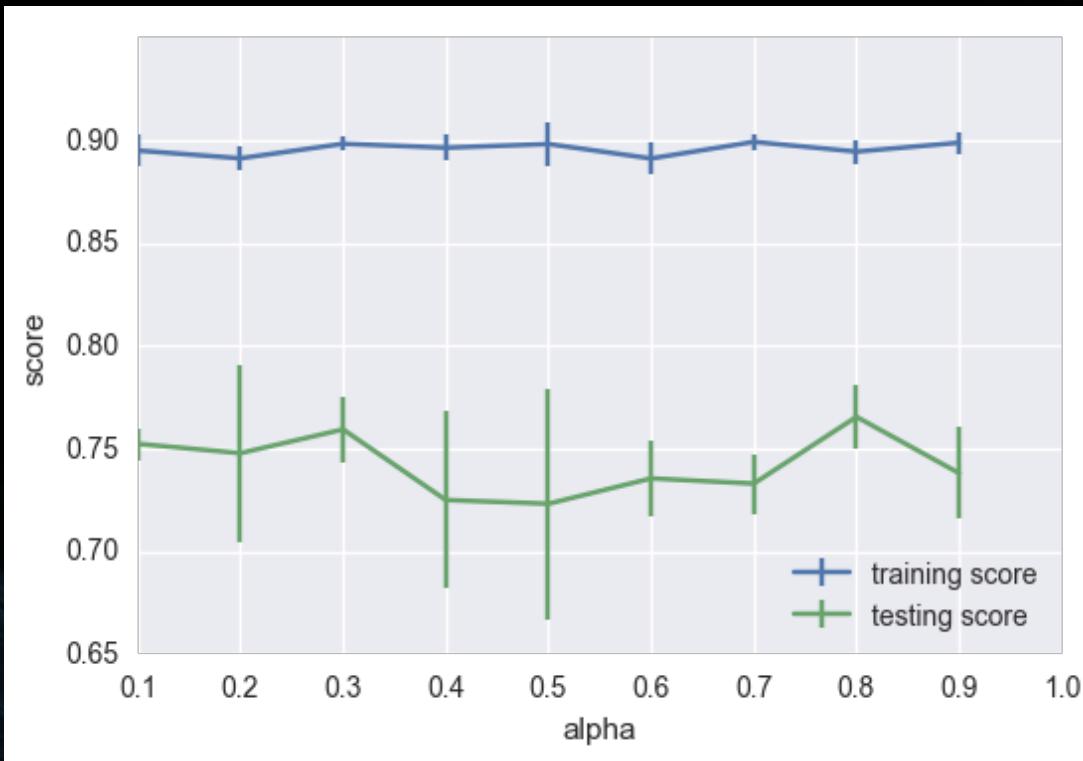
Florian Philippi  
[florian@philippi.info](mailto:florian@philippi.info)

# Sources

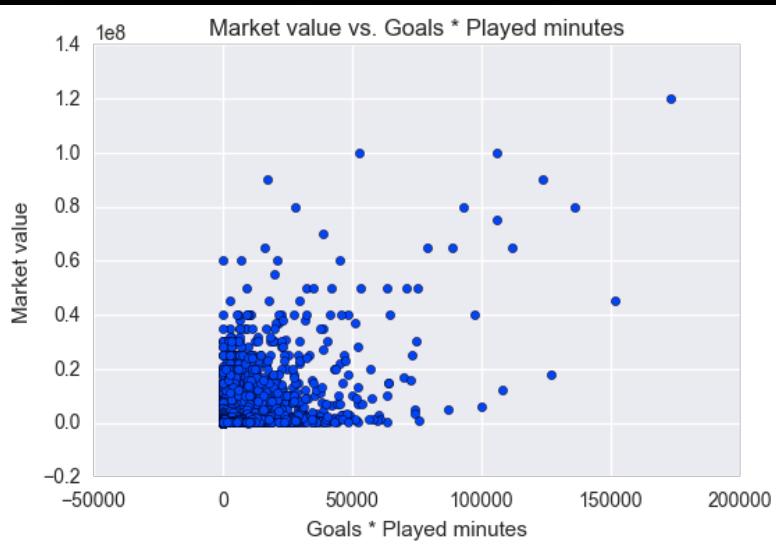
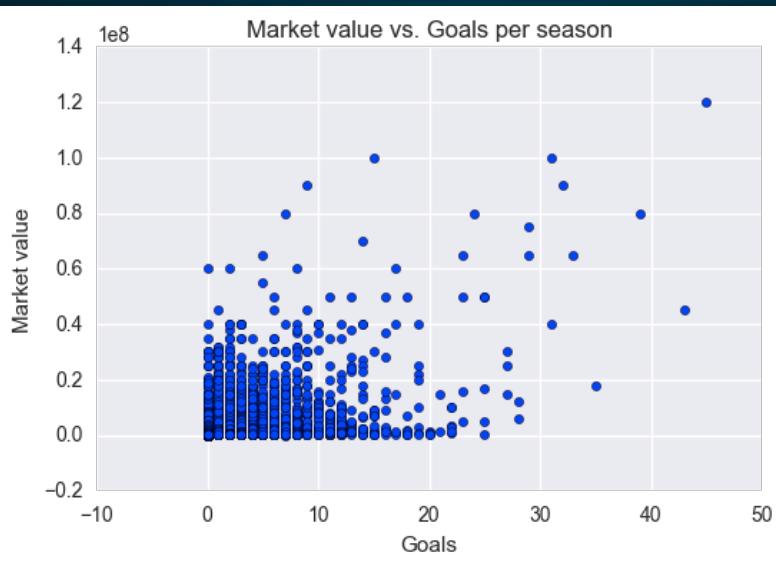
- Transfermarkt.com



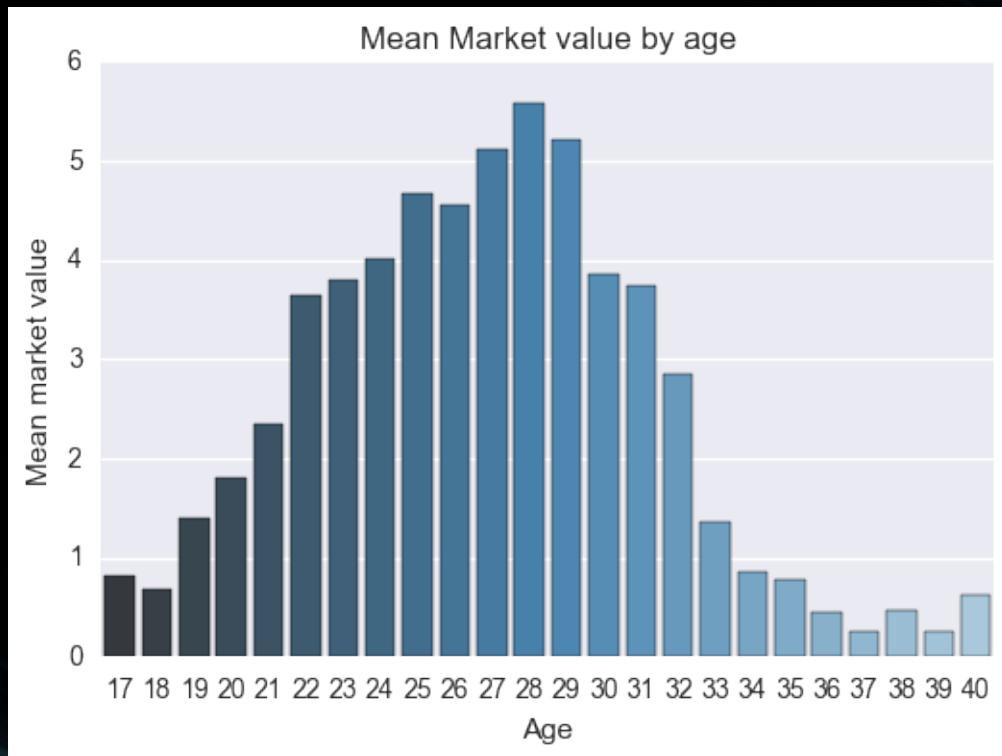
# alpha



- 1
- 2
- 3
- i



- 1
- 2
- 3
- i



LR, Lasso, Ridge, EN      ~50-60%

Decision Tree      45-50%

Bagged Tree      66-71%

Polynomial RF model      70-77%

Random Forest      70-77%

ExtraTrees      73-79%

Gradient Boosting      77-80%

