Buckets.

NBA Shot Visualization

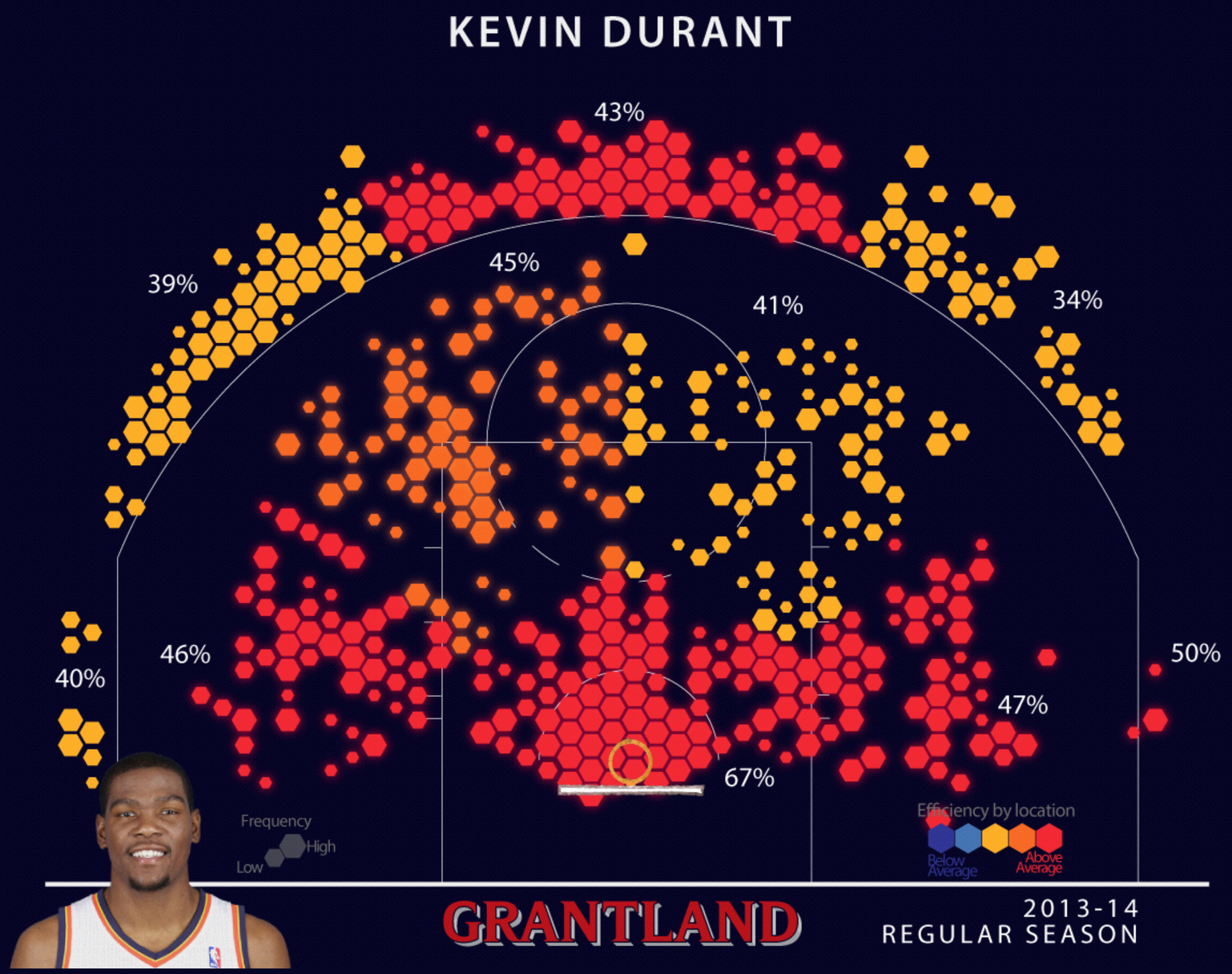
Peter Beshai

CPSC 547 Project
Dec. 12, 2014

LAL 15
WSH 18
CSN
4:10 1st :20
@ GDFACTORYCLIPS

LOS ANGELES LAKERS (5-14)

			FIELD GOALS				REBOUNDS									
	POS	MIN	FGM-A	3PM-A	FTM-A	+/-	OFF	DEF	TOT	AST	PF	ST	TO	BS	BA	PTS
W. Johnson	F	27:57	2-6	2-5	0-0	-30	0	3	3	1	0	1	0	1	0	6
C. Boozer	F	25:34	5-9	0-0	0-0	-20	2	6	8	0	3	1	2	0	1	10
J. Hill	C	23:21	3-6	0-0	2-2	-18	1	5	6	0	0	0	0	0	0	8
K. Bryant	G	34:11	8-22	2-6	11-14	-30	0	4	4	3	4	1	4	0	1	29
J. Lin	G	21:23	0-10	0-6	0-0	-18	2	2	4	5	2	0	4	1	1	0
E. Davis		22:26	1-2	0-0	2-3	+4	3	5	8	0	5	1	0	1	0	4
R. Price		26:37	4-4	3-3	0-0	+2	0	2	2	4	3	2	2	0	0	11
N. Young		24:29	7-14	5-8	2-2	+7	0	2	2	0	2	1	1	1	0	21
R. Sacre		20:13	3-9	0-0	0-0	+9	1	4	5	3	1	0	0	2	0	6
W. Ellington		13:49	0-3	0-1	0-0	+14	0	1	1	0	0	1	0	0	0	0
J. Clarkson	DNP - COACH'S DECISION															
X. Henry	NWT - RUPTURED LEFT ACHILLES TENDON															
R. Kelly	NWT - TORN RIGHT HAMSTRING															
Total		**240**	**33-85**	**12-29**	**17-21**		**9**	**34**	**43**	**16**	**20**	**8**	**13**	**6**	**3**	**95**
			38.8%	41.4%	81.0%		**TEAM REBS:** 6						**TOTAL TO:** 13			



Kirk Goldsberry at Grantland

Shot Types | Quarter: | Players: Durant, Kevin

Zone | Location

Range | Season: 2013-2014

Game Date >=

Game Time >=

Shot Clock >=

Defender Distance >=

Dribbles >=

Touch Time >=

Shot Distance >=

Team Shooting

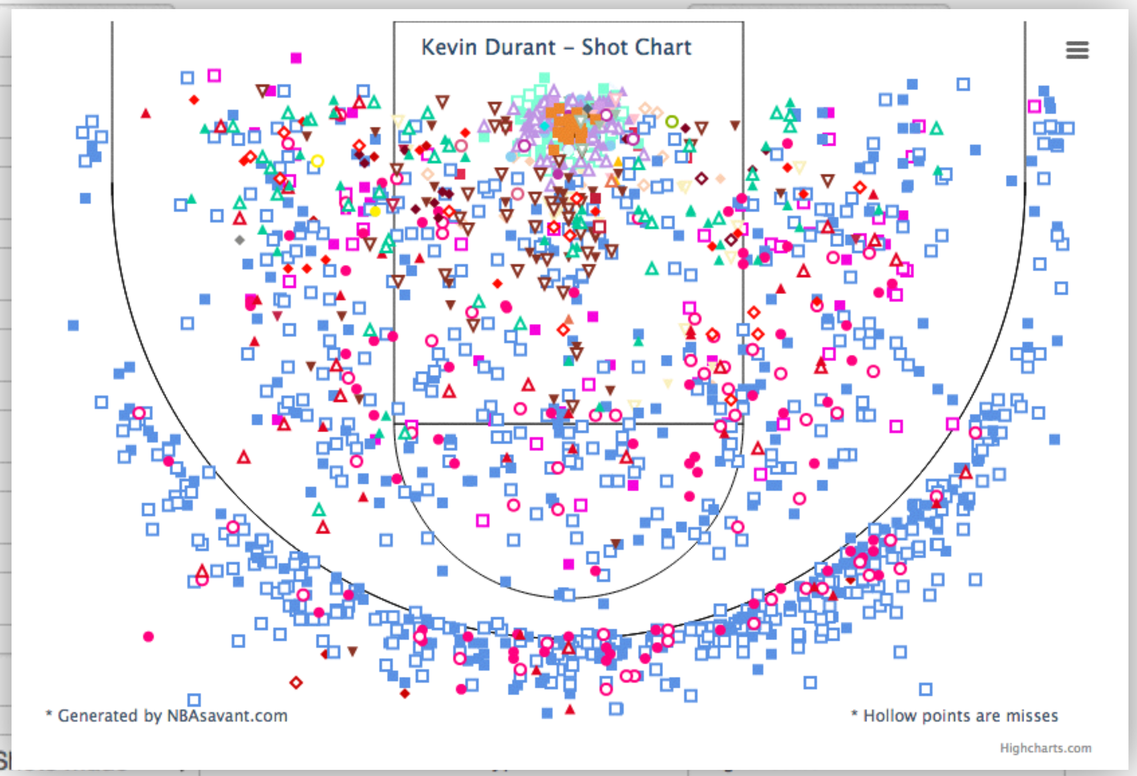
Player Position

Order By: Desc

Shot Made | Minimum Shots: None

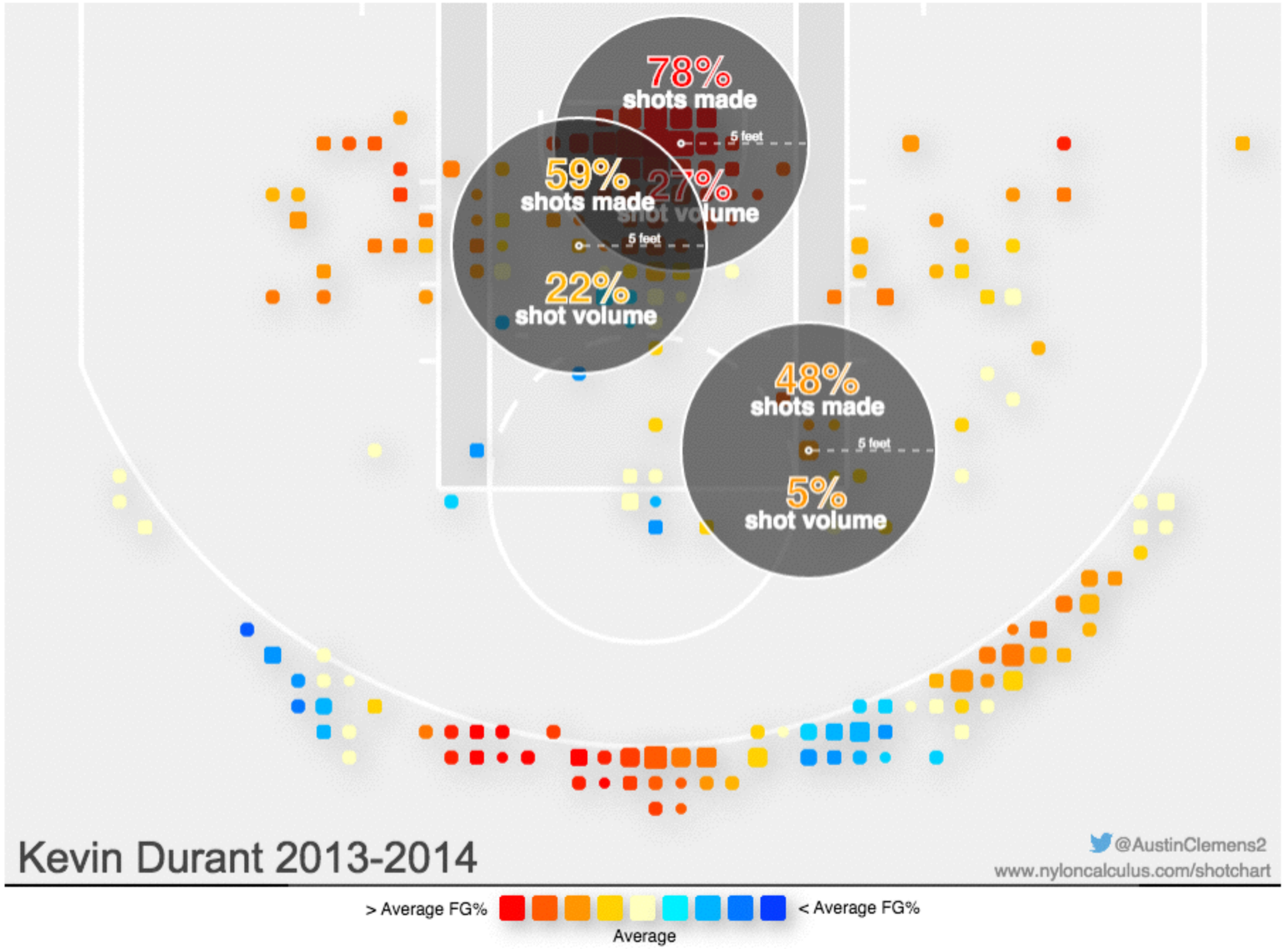
Shot Blocked? | Shot Assisted?

Search Shots | Clear Search



2013-14 | Kevin Durant | Field Goal % | Run it! | Save as PNG

Click a box on the shotchart for more information



NylonCalculus.com

Improvements

Player selection

Clarity of visualization

Filtering shot charts

New Features

New visualizations

Player comparison

League trends

DATA

Shots

SEASON
SHOT_TYPE
SHOT_DISTANCE
LOC_X
LOC_Y
SHOT_MADE_FLAG

Season	Count
2011	161,205
2012	201,579
2013	204,126
2014	49,742

Players

FIRST_NAME
LAST_NAME
JERSEY
POSITION

Count
773

Teams

TEAM_NAME
TEAM_ABBREVIATION
TEAM_CITY

Count
30

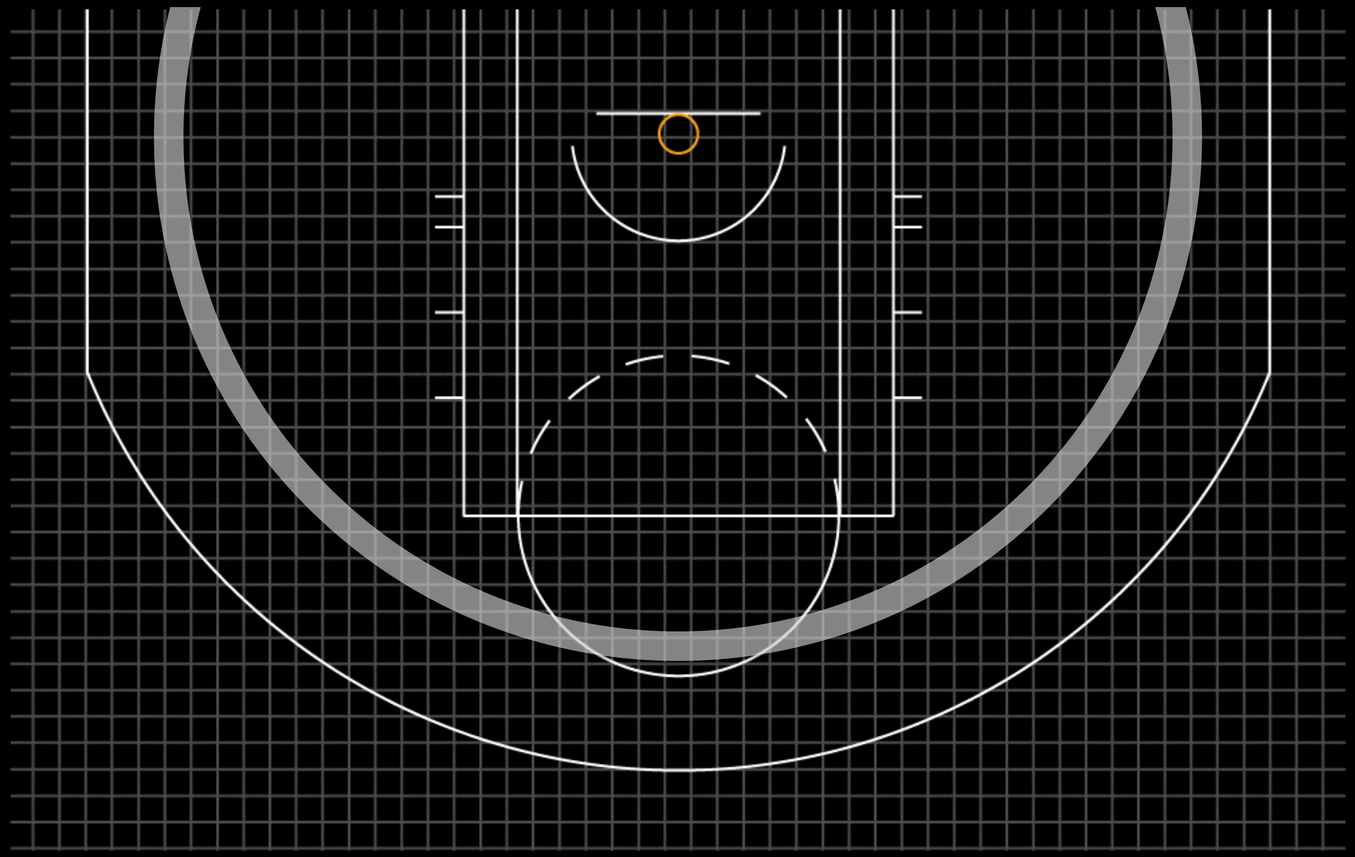
Games

SEASON
HOME_TEAM
AWAY_TEAM

Season	Count
2011	990
2012	1230
2013	1230
2014	307

425 shots per player in 2013

DATA DERIVATION



Field Goal % Average, Weighted

1’ x 1’ Grid Distance from basket

TASKS

Enjoy basketball stats and visualizations

Share basketball visualizations

Buckets.

Players | Compare | League

Last Data Update: December 08, 2014

Change Player

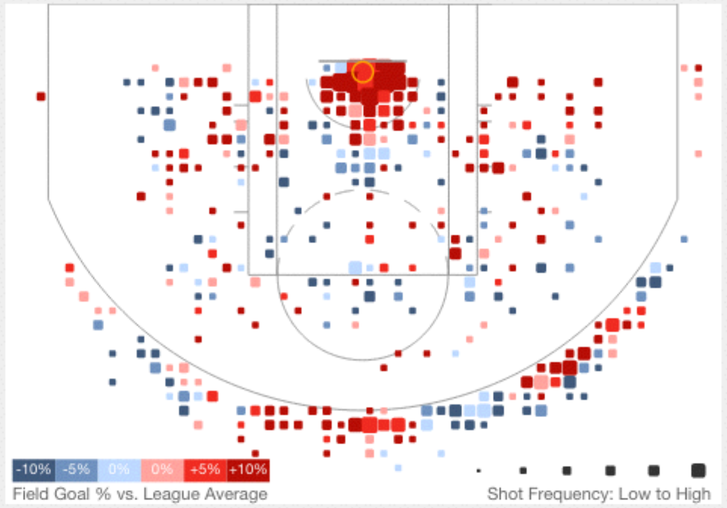
Kevin Durant

2013-14

#35 Forward

Oklahoma City Thunder

PTS	**32.0**	#1
MIN	**38:32**	#3
GAMES	**81**	#38
FG%	**50.3%**	#73
FGM	**849**	#1
FGA	**1,688**	#1
3FG%	**39.1%**	#54
3FGM	**192**	#6
3FGA	**491**	#10



Export as PNG

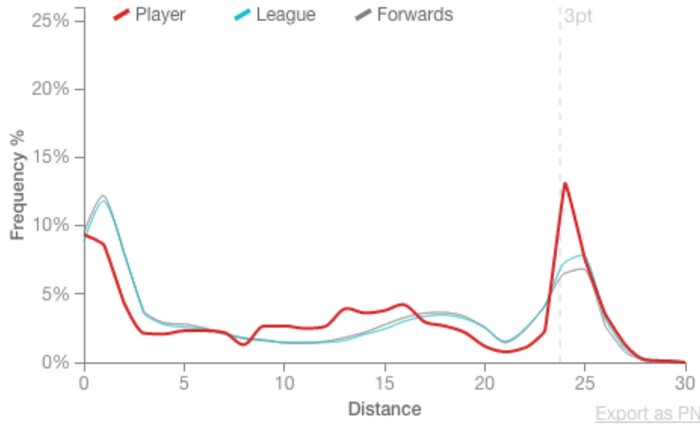
Encode Shot Frequency | Show Legend | Smooth Data

Number of

Field Goal

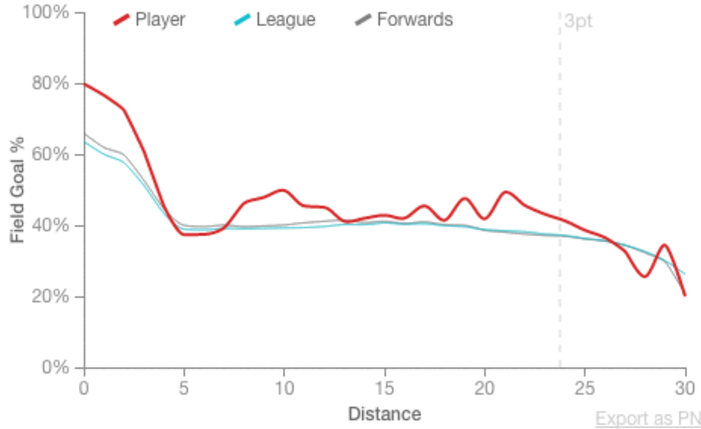
All | None | Home | Away | Wins

Shot Frequency % by Distance



Export as PNG

Field Goal % by Distance



Export as PNG

Shot Frequency: Left Side vs. Right Side

Field Goal %: Left Side vs. Right Side

Export as PNG

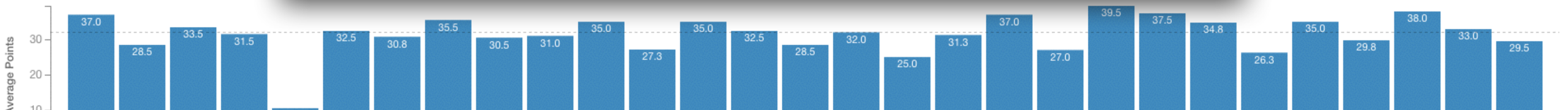
Player View

Discover shot distributions

Compare shot distribution against league, position

Compare shooting stats against each team

Points Per Game by Opponent Team



Bockets. Players Compare League Last Data Update: December 08, 2014

Add Player Show Filters

Compare View

Compare player shot distributions

Change Player

Kevin Durant
#35 Forward
Oklahoma City Thunder

GAMES	81	#38	YEAR	2013-14	
PTS	32.0	#1	MIN	38:32	#3
FG%	50.3%	#73	3FG%	39.1%	#54
FGM	849	#1	3FGM	192	#6
FGA	1,688	#1	3FGA	491	#10

Change Player

Carmelo Anthony
#7 Forward
New York Knicks

GAMES	77	#103	YEAR	2013-14	
PTS	27.4	#2	MIN	38:43	#1
FG%	45.2%	#178	3FG%	40.2%	#31
FGM	743	#3	3FGM	167	#16
FGA	1,643	#2	3FGA	415	#18

Change Player

LeBron James
#23 Forward
Miami Heat

GAMES	77	#112	YEAR	2013-14	
PTS	27.1	#3	MIN	37:41	#6
FG%	56.7%	#17	3FG%	37.9%	#76
FGM	767	#2	3FGM	116	#47
FGA	1,353	#10	3FGA	306	#49

Change Player

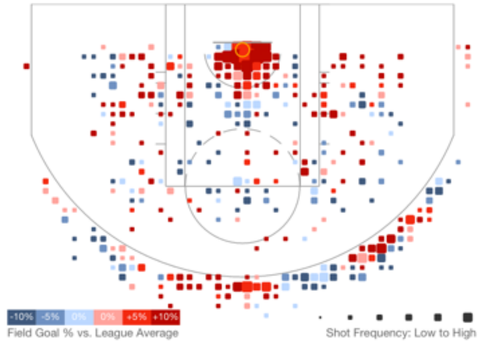
Kevin Love
#0 Forward-Center
Minnesota Timberwolves

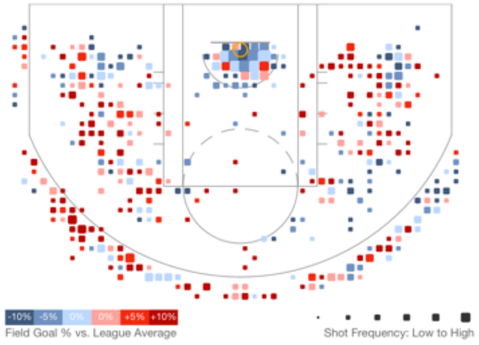
GAMES	77	#111	YEAR	2013-14	
PTS	26.1	#4	MIN	36:19	#12
FG%	45.7%	#160	3FG%	37.6%	#84
FGM	650	#8	3FGM	190	#8
FGA	1,421	#4	3FGA	505	#6

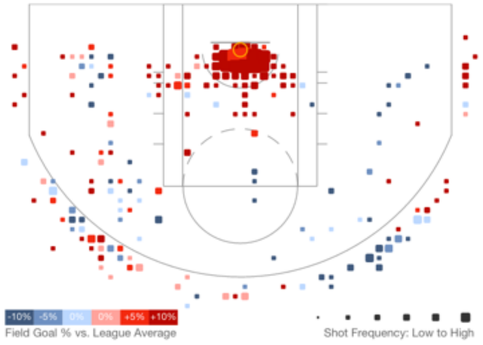
Change Player

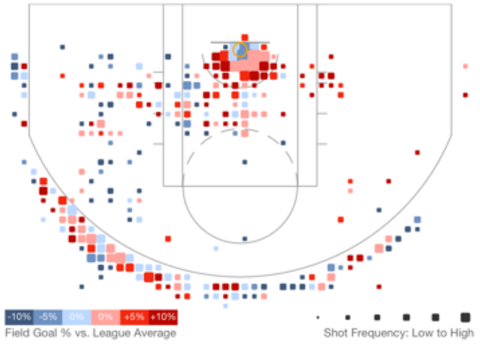
James Harden
#13 Guard
Houston Rockets

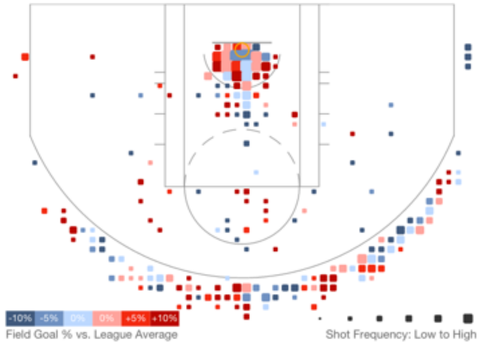
GAMES	73	#143	YEAR	2013-14	
PTS	25.4	#5	MIN	38:03	#5
FG%	45.6%	#170	3FG%	36.6%	#103
FGM	549	#20	3FGM	177	#15
FGA	1,205	#19	3FGA	483	#11



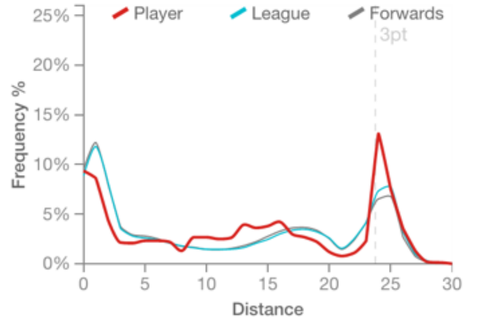


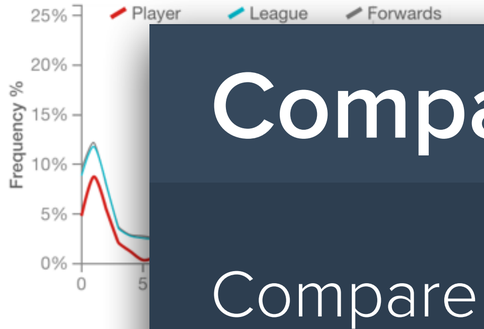


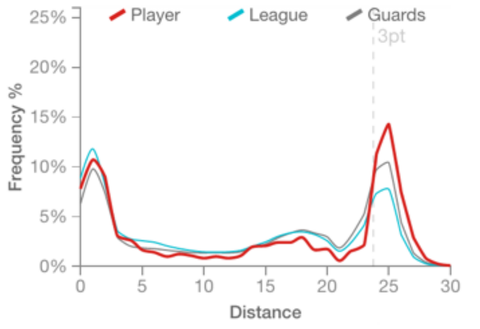




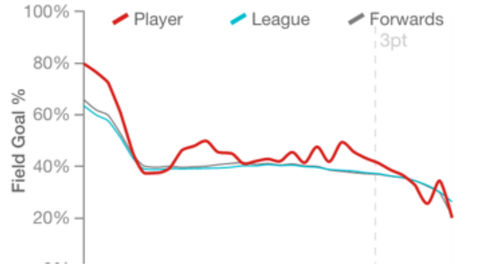
Shot Frequency % by Distance

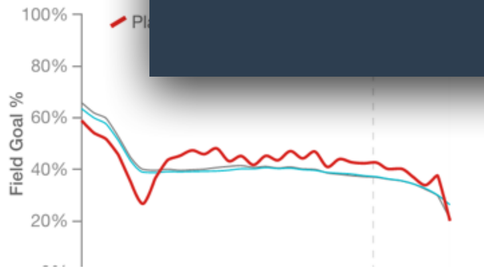


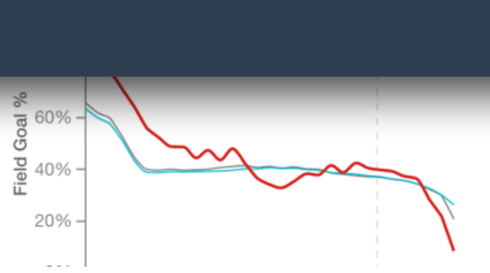


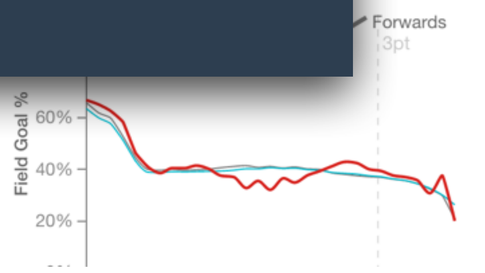


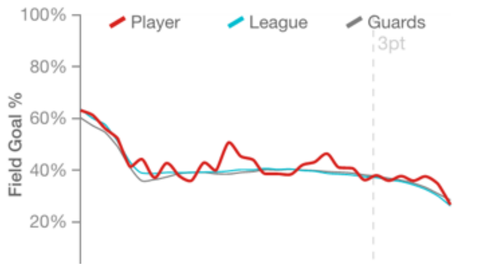
Field Goal % by Distance











League Filters

Encode Shot Frequency Show Legend

Field Goal % Points Per Shot

Number of Shots 100 1500+

Field Goal % 0% 100%

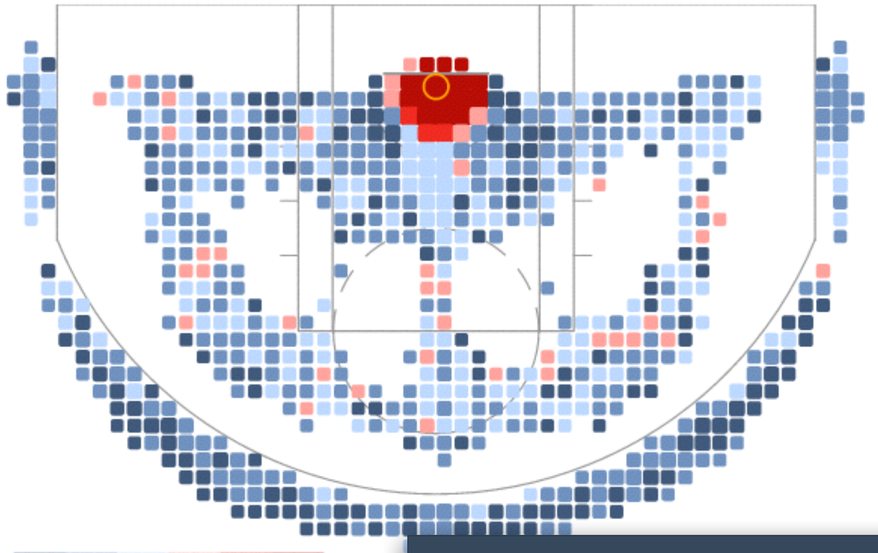
Position Filters

Encode Shot Frequency Show Legend

Number of Shots 50 500+

Field Goal % 0% 100%

League Average Shot Chart



-10% -5% 0% 0% +5% +10%

Field Goal % vs. Overall League Average

League shot chart computed against overall league average for all shot locations.

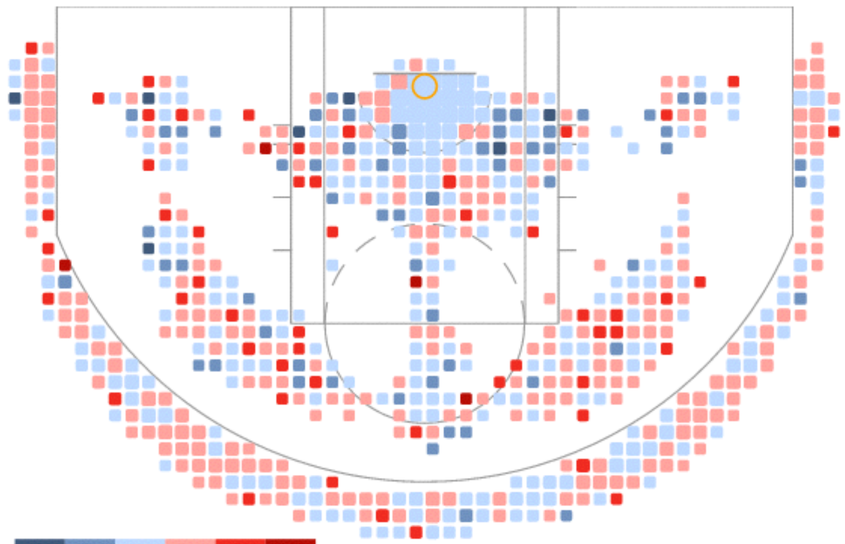
Position and team shot charts computed against league average for each shot location.

League View

Discover shot distributions of league, position, team

Compare team shot distributions

Guards Shot Chart

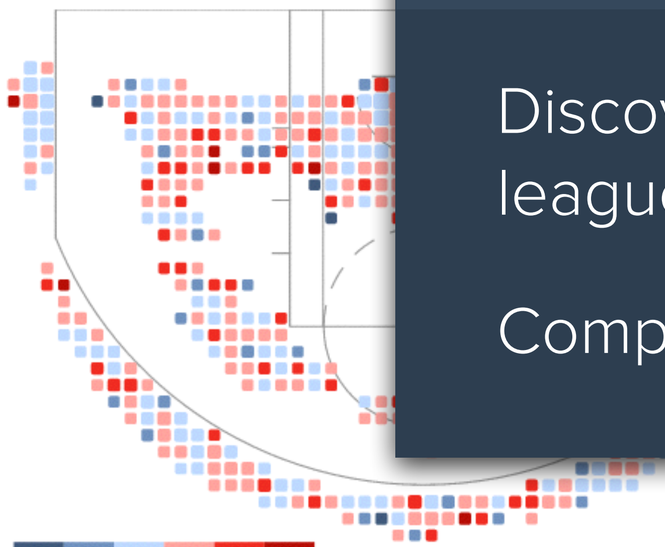


-10% -5% 0% 0% +5% +10%

Field Goal % vs. League Average

Shot Frequency: Low to High

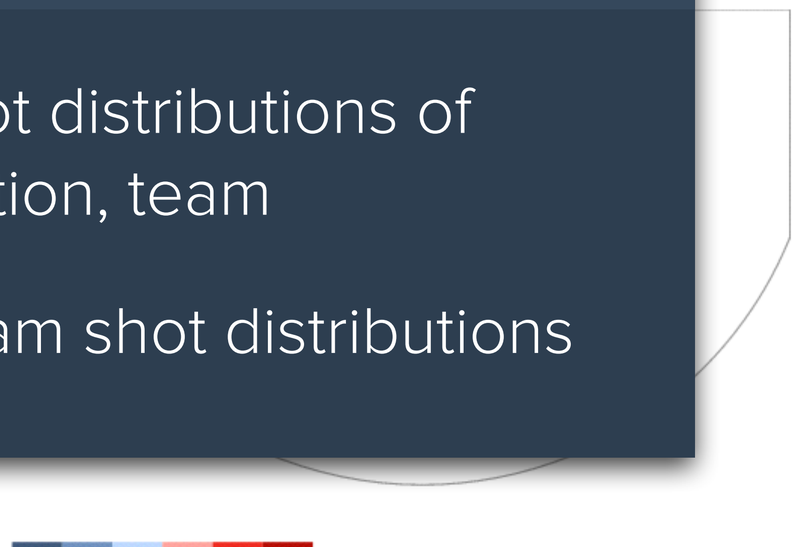
Forwar



-10% -5% 0% 0% +5% +10%

Field Goal % vs. League Average

Shot Frequency: Low to High



-10% -5% 0% 0% +5% +10%

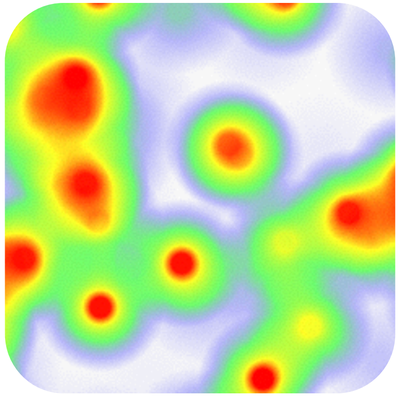
Field Goal % vs. League Average

Shot Frequency: Low to High

TOOLS

D3: Data-Driven Documents

AngularJS



Heatmap.js

Demo

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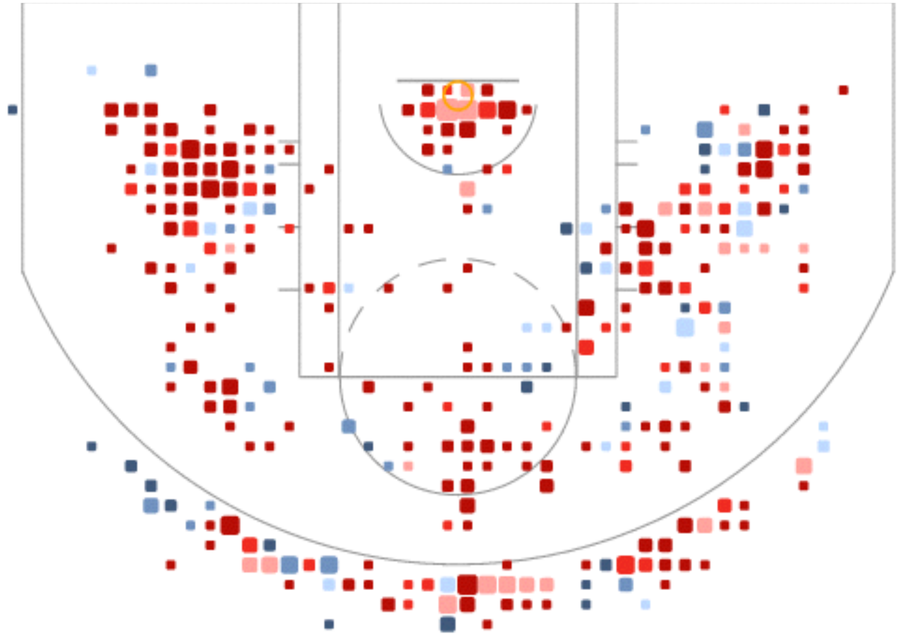
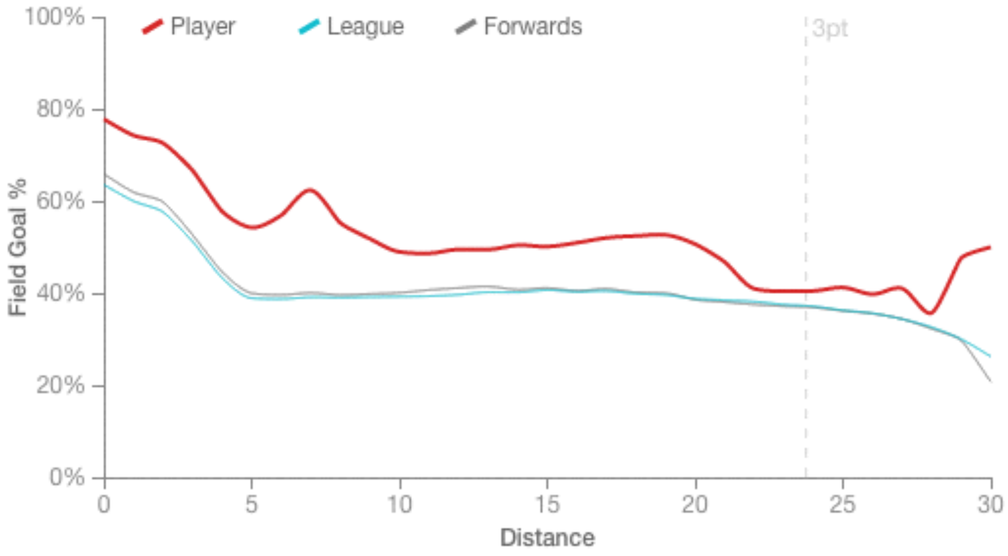
Discover and compare shot distributions

Player View, Compare View, League View

Focus on fan enjoyment, casual analysts





Buckets.

Thanks!

pbeshai@cs.ubc.ca

Major NAGL
@_drrs

so peterbeshai.com/buckets by @pbesh is the coolest and if playing with it doesn't bring you joy I can't help you.

[–] ripcity **TrustMeImARealDoctor** **3 points** 4 days ago

seriously this is incredible. I don't have enough time in my life to explore everything on here.

[–] **duddles** **1 point** 4 days ago

Awesome - I'd give you an A+

E sick!
December 5 at 10:09am · Like

M Wow, this looks amazing! And the graphs are very interesting to see.
December 5 at 10:09am · Like

R Great! Should get lots of buzz
December 5 at 10:18am · Like

A Peter! This is wonderful!!!
December 5 at 11:10am · Like