Data-Driven Fantasy Football Draft
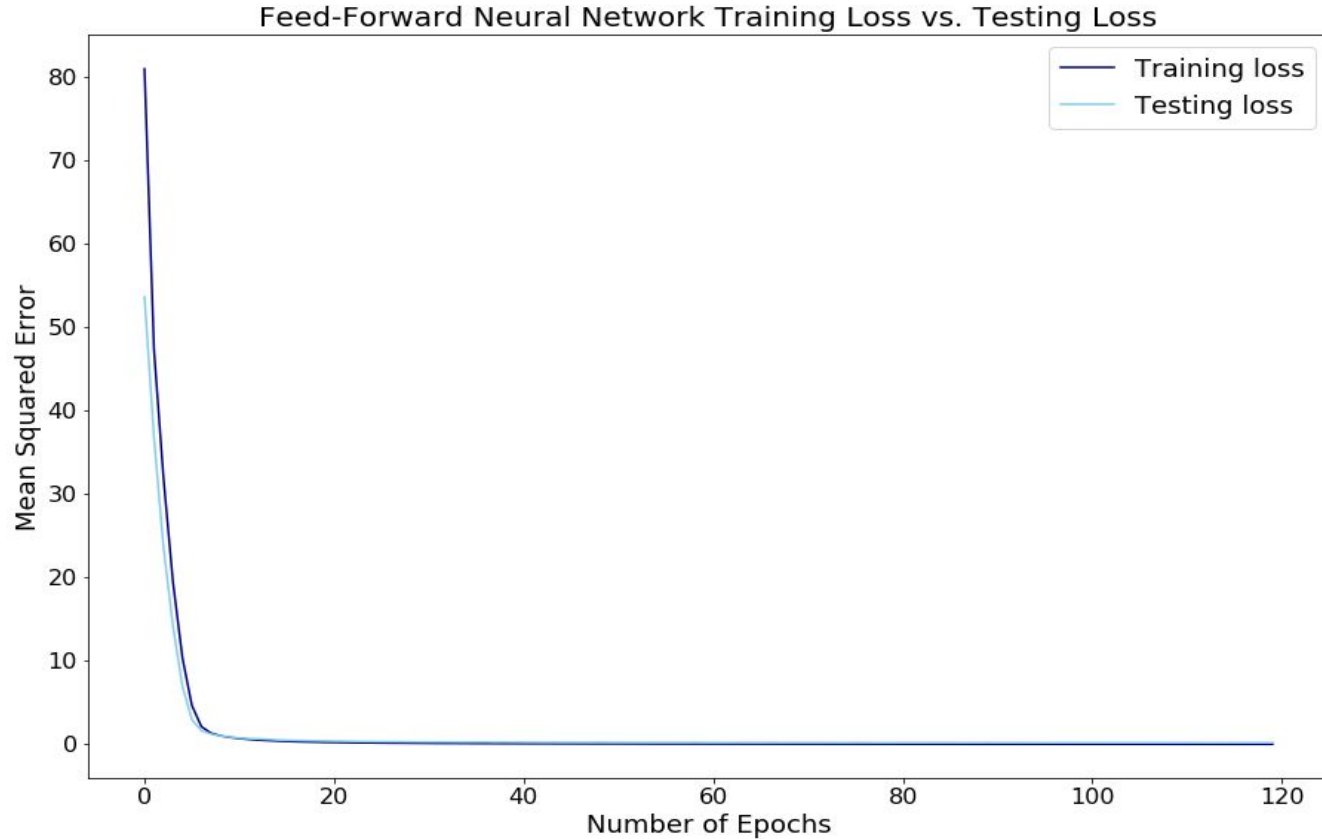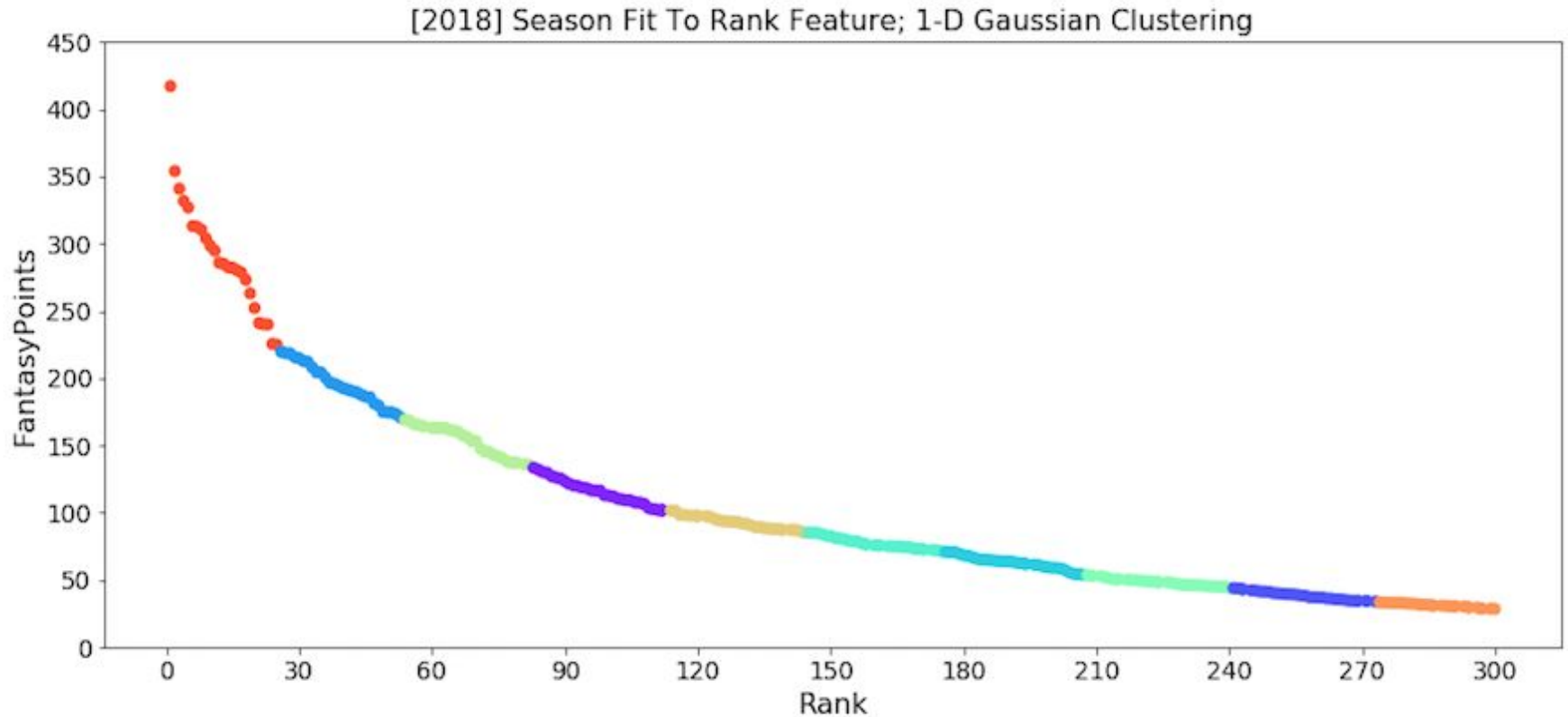
1) Grouping Top Draft Candidates - Clustering (GMM)

2) Predicting Performance - Deep Learning (FFNN)

3) Intuition

4) Results

Predicting Weekly Player Performance
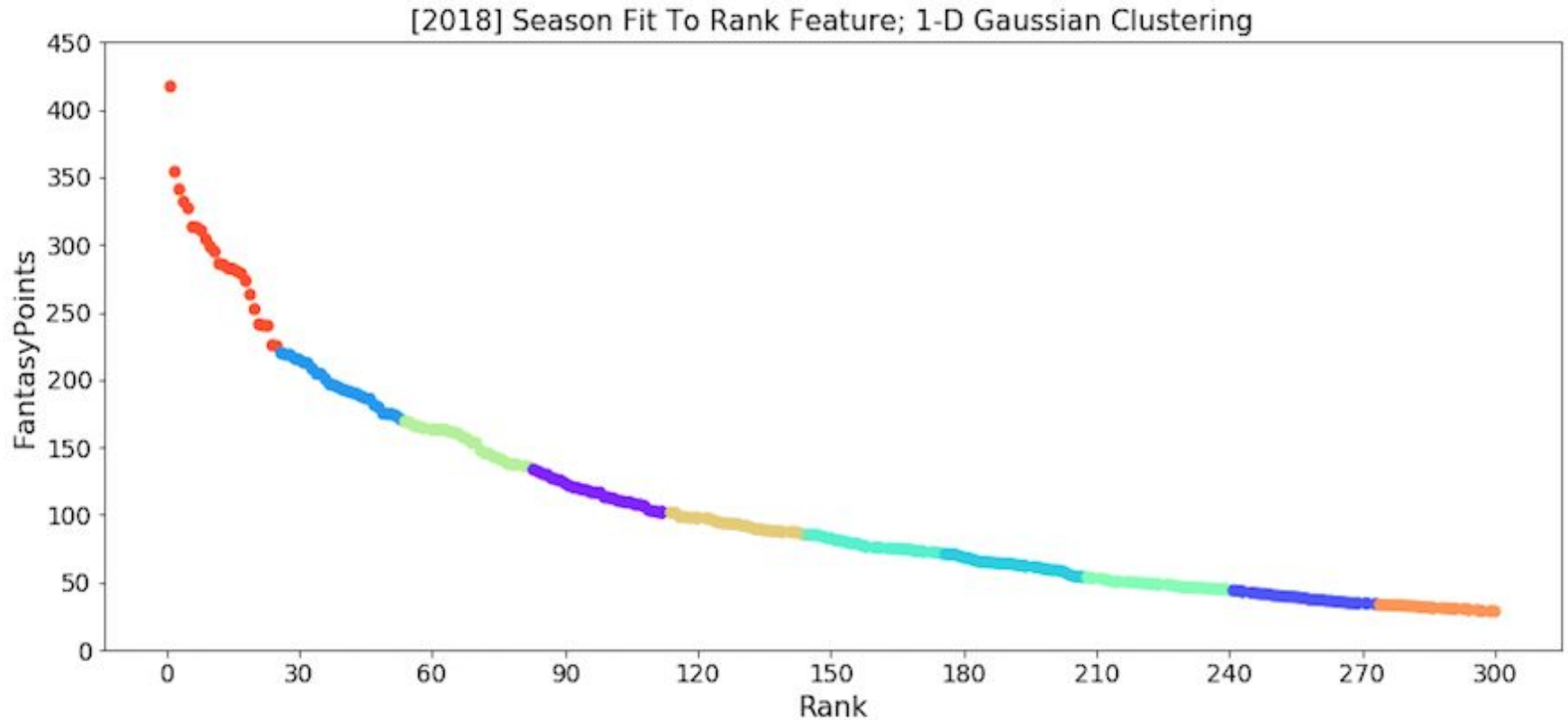
Feed-Forward Neural Network Training Loss vs. Testing Loss

Gaussian Mixture Model Clustering

[2018] Season Fit To Rank Feature; 1-D Gaussian Clustering

Gaussian Mixture Model Clustering

[2018] Season Fit To Rank Feature; 1-D Gaussian Clustering

Gaussian Mixture Model Clustering

[2018] Season Fit To Rank & FantasyPoints; 2-D Gaussian Clustering

Gaussian Mixture Model Clustering

[2018] Season Fit To Rank Feature; 1-D Gaussian Clustering

Gaussian Mixture Model Clustering

[2018] Season Fit To FantasyPointsPerGame Feature; 1-D Gaussian Clustering
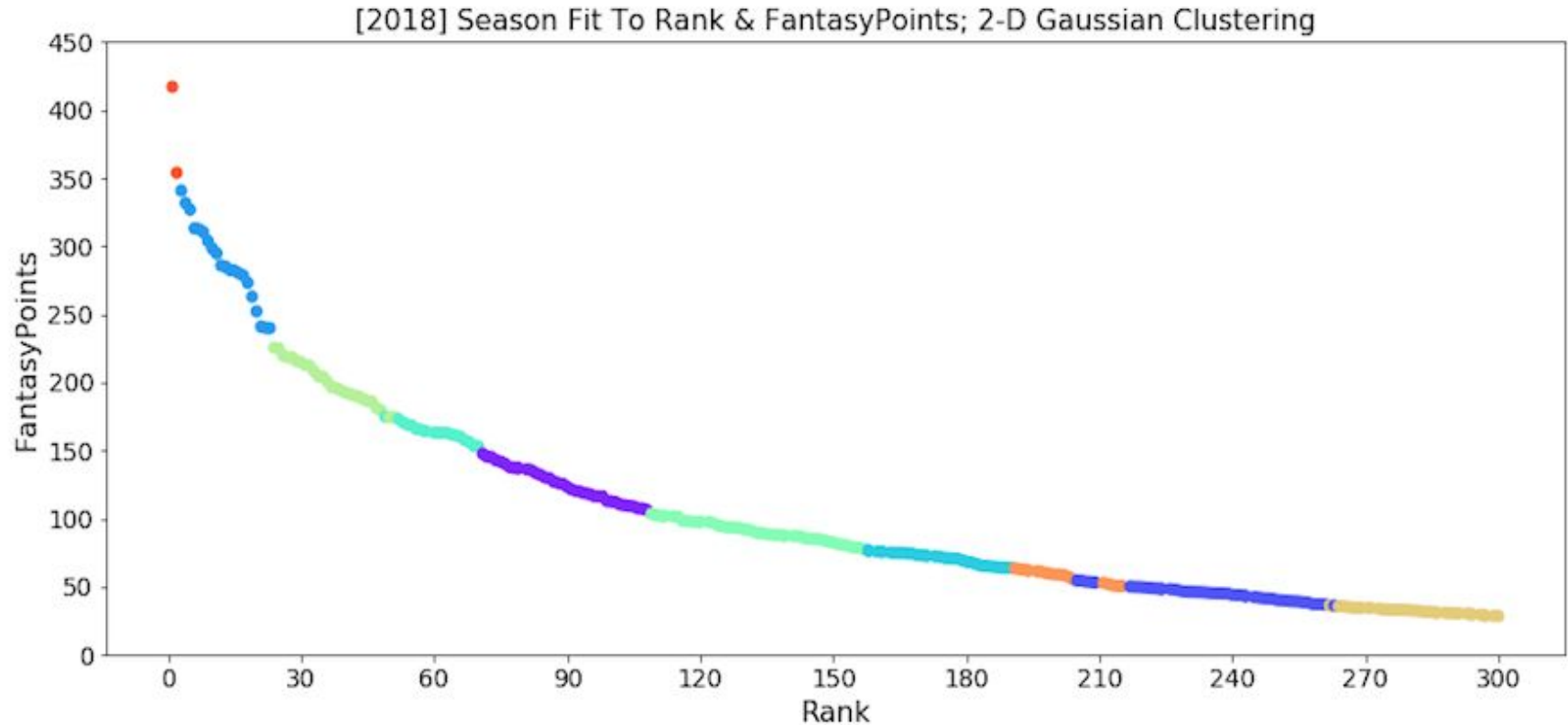
Gaussian Mixture Model Clustering
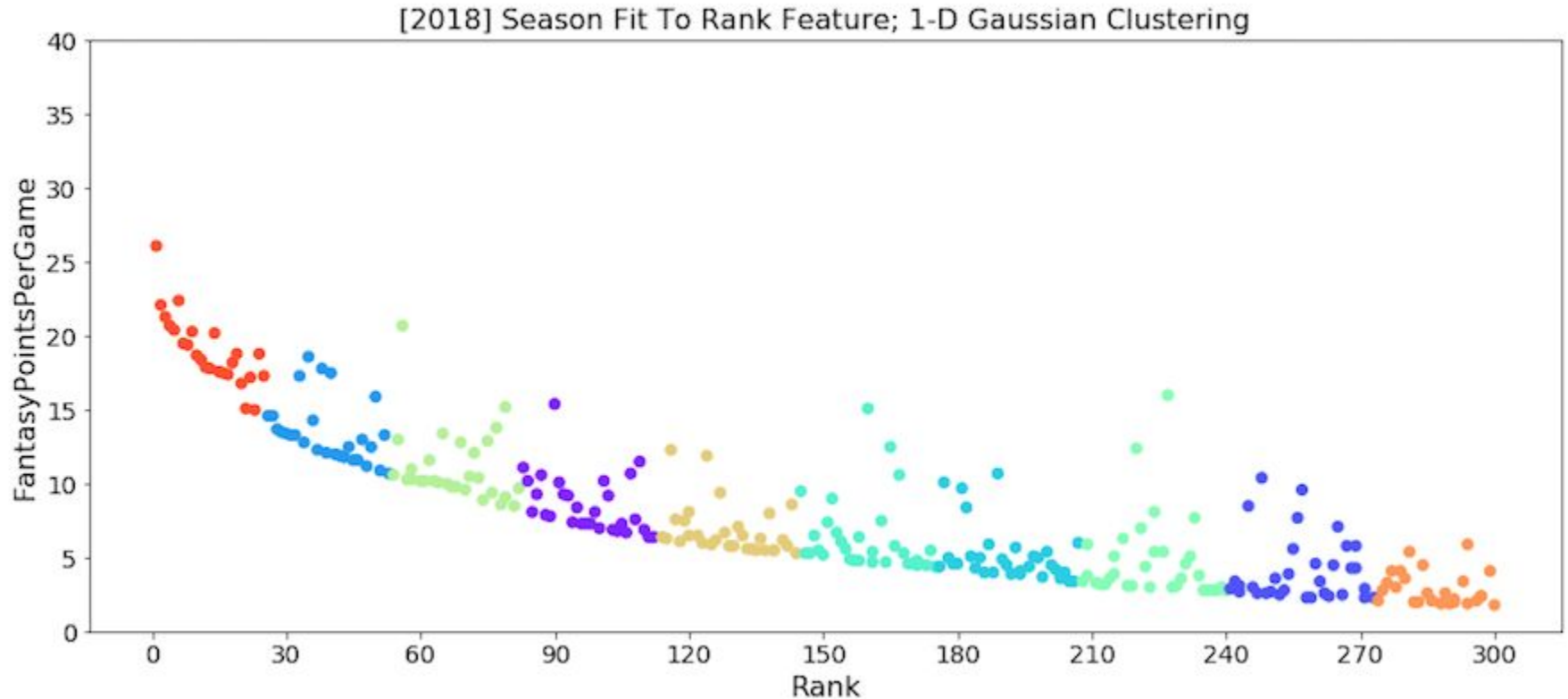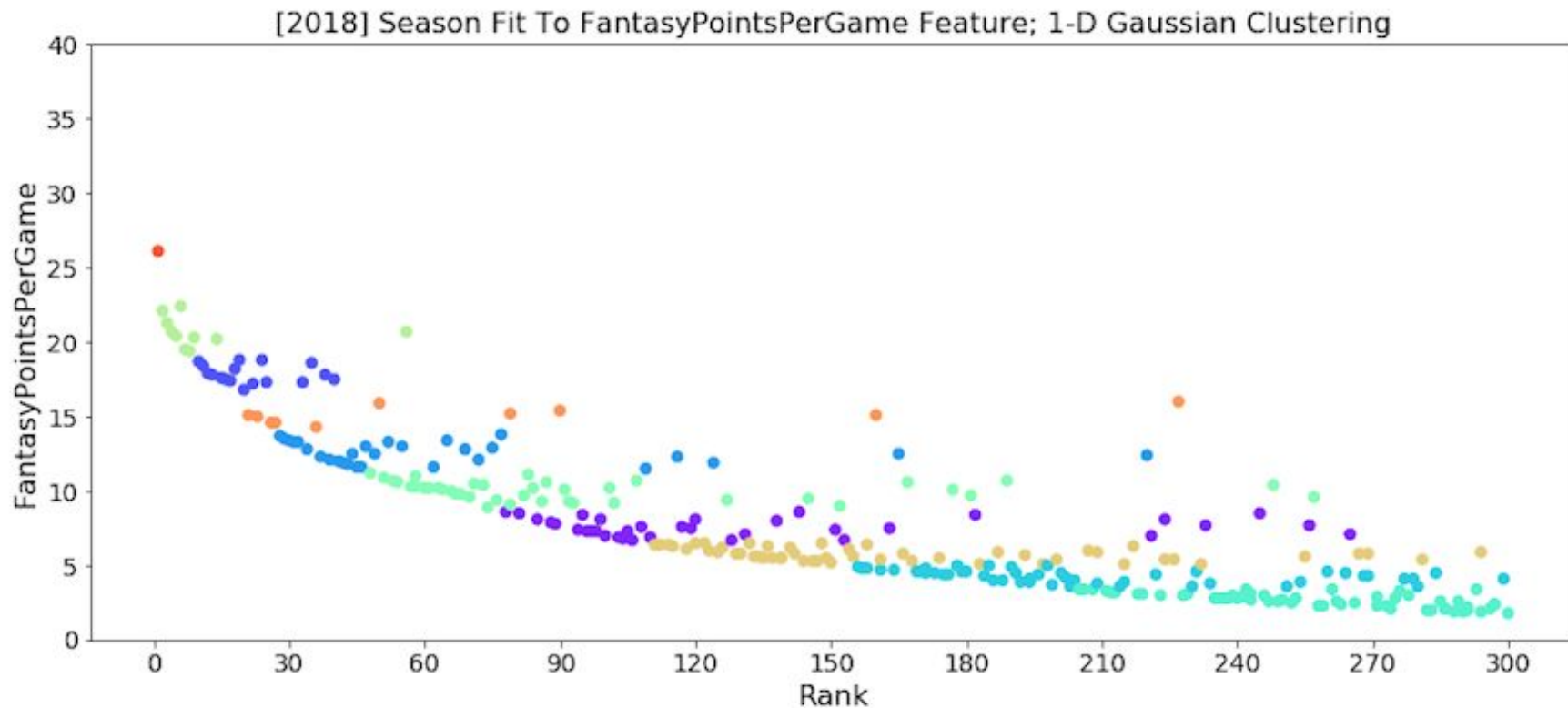
[2018] Season Fit To Rank & FantasyPointsPerGame; 2-D Gaussian Clustering
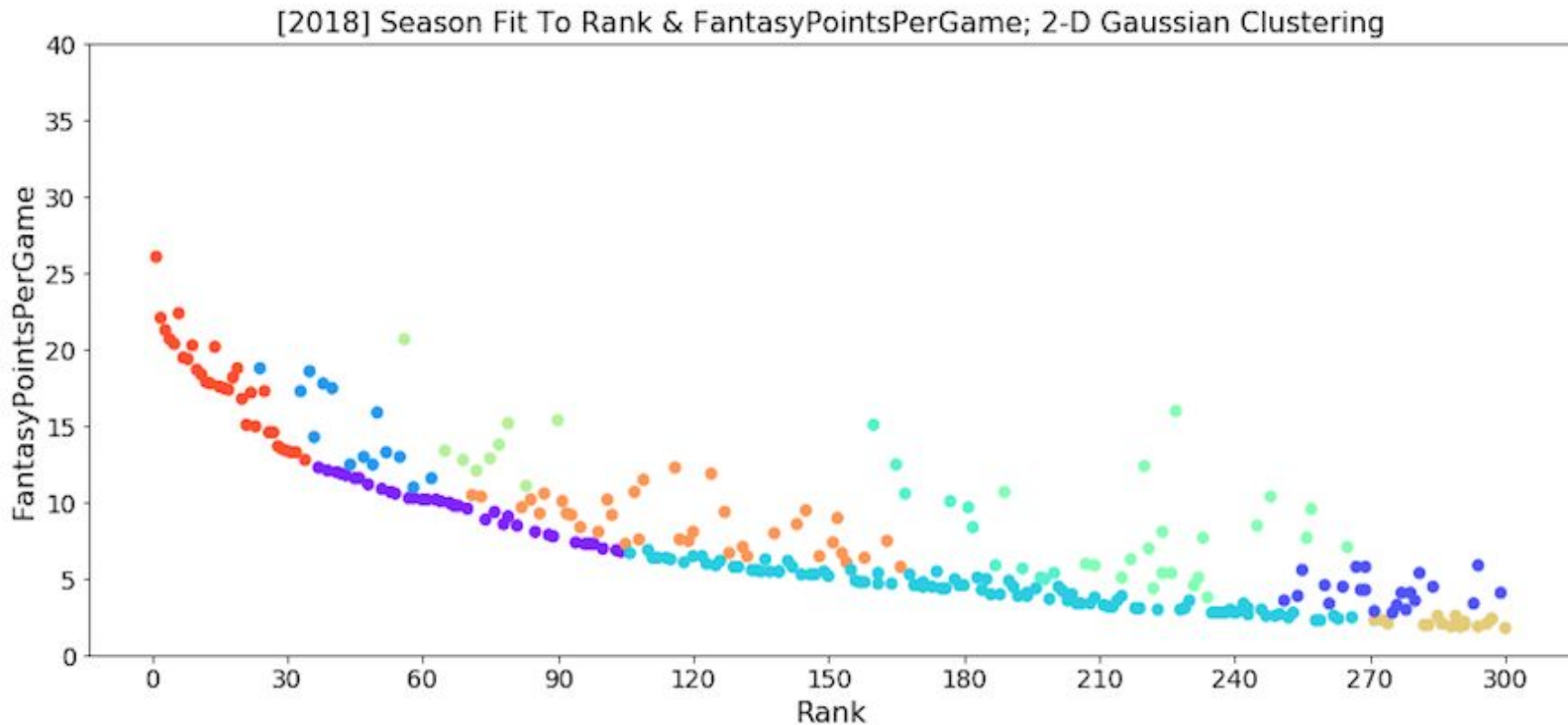
Player Analysis - Top Tier

Name	Position	Played	FantasyPointsPerGame	FantasyPoints
Patrick Mahomes	QB	16	26.1	417.08
Matt Ryan	QB	16	22.1	353.96

Name	Position	Played	FantasyPointsPerGame	FantasyPoints
Ben Roethlisberger	QB	16	21.3	340.86
Deshaun Watson	QB	16	20.7	331.70
Andrew Luck	QB	16	20.4	326.92
Todd Gurley	RB	14	22.4	313.10
Aaron Rodgers	QB	16	19.5	312.58
Jared Goff	QB	16	19.4	310.32
Drew Brees	QB	15	20.3	303.98
Russell Wilson	QB	16	18.7	298.42
Saquon Barkley	RB	16	18.4	294.80
Dak Prescott	QB	16	17.9	285.86
Philip Rivers	QB	16	17.8	285.02
Cam Newton	QB	14	20.2	282.60
Kirk Cousins	QB	16	17.6	282.12
Tom Brady	QB	16	17.5	280.30
Christian McCaffrey	RB	16	17.4	278.50
Alvin Kamara	RB	15	18.2	273.20

Name	Position	Played	FantasyPointsPerGame	FantasyPoints
Mitch Trubisky	QB	14	18.8	263.02
Ezekiel Elliott	RB	15	16.8	252.20
Tyreek Hill	WR	16	15.1	241.00
Baker Mayfield	QB	14	17.2	240.10
Eli Manning	QB	16	15.0	239.96
James Conner	RB	13	17.3	225.00
Antonio Brown	WR	15	14.6	219.70
Davante Adams	WR	15	14.6	218.60
DeAndre Hopkins	WR	16	13.7	218.50
Derek Carr	QB	16	13.5	215.76
Case Keenum	QB	16	13.4	214.90
Julio Jones	WR	16	13.3	212.90
Matthew Stafford	QB	16	13.3	212.18
Mike Evans	WR	16	12.8	204.40

Player Analysis - Consistent Moderate Impact

Name	Position	Played	FantasyPointsPerGame	FantasyPoints
David Johnson	RB	16	12.3	196.60
Adam Thielen	WR	16	12.1	194.30
Travis Kelce	TE	16	12.0	191.60
Michael Thomas	WR	16	11.9	190.50
James White	RB	16	11.8	189.60
Derrick Henry	RB	16	11.6	186.36
JuJu Smith-Schuster	WR	16	11.6	185.90
Robert Woods	WR	16	11.2	179.60
Nick Chubb	RB	16	10.9	174.50

Player Analysis - Low Risk Depth Picks

Name	Position	Played	FantasyPointsPerGame	FantasyPoints
George Kittle	TE	16	10.7	170.70
Adrian Peterson	RB	16	10.6	169.00
Tyler Lockett	WR	16	10.3	165.40
Zach Ertz	TE	16	10.3	164.30
Brandin Cooks	WR	16	10.2	163.20
Keenan Allen	WR	16	10.2	163.10
Tarik Cohen	RB	16	10.2	162.94
Tevin Coleman	RB	16	10.1	161.60
Jordan Howard	RB	16	10.0	160.00
Lamar Jackson	QB	16	9.8	157.54
Eric Ebron	TE	16	9.8	156.20
Kenyan Drake	RB	16	9.6	153.20
Calvin Ridley	WR	16	8.9	142.80
Amari Cooper	WR	15	9.4	140.40
Mike Williams	WR	16	8.6	137.20

Name	Position	Played	FantasyPointsPerGame	FantasyPoints
Kenny Golladay	WR	15	9.1	137.10
Jarvis Landry	WR	16	8.5	136.12
Peyton Barber	RB	16	8.1	130.30
Chris Godwin	WR	16	7.9	126.20
Jared Cook	TE	16	7.8	125.60
Corey Davis	WR	16	7.4	118.60
Larry Fitzgerald	WR	16	7.3	116.68
Sterling Shepard	WR	16	7.3	116.50
Mohamed Sanu	WR	16	7.3	116.40
Adam Humphries	WR	16	7.0	112.70
Latavius Murray	RB	16	6.9	109.90
Zay Jones	WR	16	6.8	109.20

Priority Running Backs & Wide Receivers

Running Backs:
1) Todd Gurley
2) Saquon Barkley
3) Christian McCaffrey
4) Alvin Kamara
5) Ezekiel Elliott
6) James Conner
7) David Johnson
8) James White
9) Derrick Henry
10) Nick Chubb

Wide Receivers:
1) Tyreek Hill
2) Antonio Brown
3) Davante Adams
4) DeAndre Hopkins
5) Julio Jones
6) Mike Evans
7) Adam Thielen
8) Michael Thomas
9) JuJu Smith-Schuster
10) Robert Woods

Priority Quarterbacks & Tight Ends

Quarterbacks:
1) Patrick Mahomes
2) Matt Ryan
3) Ben Roethlisberger
4) Deshaun Watson
5) Andrew Luck
6) Aaron Rodgers
7) Jared Goff
8) Drew Brees
9) Russell Wilson
10) Dak Prescott

Tight Ends:
1) Travis Kelce
2) George Kittle
3) Zach Ertz
4) Eric Ebron
5) Jared Cook

Player Analysis - Strong Inconsistent Impact

Name	Position	Played	FantasyPointsPerGame	FantasyPoints
Melvin Gordon	RB	12	18.8	225.50
Josh Allen	QB	12	17.3	208.06
Kareem Hunt	RB	11	18.6	204.20
Joe Mixon	RB	14	14.3	200.40
Jameis Winston	QB	11	17.8	195.78
Carson Wentz	QB	11	17.5	192.66
Phillip Lindsay	RB	15	12.5	187.80
Chris Carson	RB	14	13.0	181.40
Marcus Mariota	QB	14	12.5	174.92
Andy Dalton	QB	11	15.9	174.54
Blake Bortles	QB	13	13.3	173.22
Sam Darnold	QB	13	13.0	168.40
Stefon Diggs	WR	15	11.0	164.30
T.Y. Hilton	WR	14	11.6	163.00

Name	Position	Played	FantasyPointsPerGame	FantasyPoints
Ryan Fitzpatrick	QB	8	20.7	165.84
Marlon Mack	RB	12	13.4	161.10
Odell Beckham Jr	WR	12	12.8	153.34

Conclusions & Project Expansion

1) GMM Clustering Value

2) Deep Learning Value

3) Next Steps