

# Results

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# Contents

- 2016 Dataset Analysis;
- 2016 and 2018 Dataset Analysis;
- Beam State Analysis.

jaw	height	position	Maximum value	decay_a	decay_b	decay_c	spike	collimator_type	beam_type	beam_state	
0	0	1.093440	13.459630	1.448	1.101109	33.502892	0.346891	0	TCTPV	PROTON	I
1	1	0.804907	17.715508	1.086	0.821299	18.891463	0.264701	0	TCLIB	PROTON	I
2	1	6.123438	7.083522	7.240	7.189065	0.386156	0.931550	0	TCSG	PROTON	I
3	1	11.685360	6.898339	11.946	11.690968	100.599839	0.255032	0	TCTPH	PROTON	I
4	0	4.350154	12.288937	4.706	4.327683	34.544517	0.378317	0	TCSG	PROTON	I
...	...	...	...	...	...	...	...	...	...	...	
1647	1	1646.446172	2.406066	1668.820	1155.805113	0.144723	79.128566	1	TCLA	PROTON	FT
1648	1	15.984110	2.716241	17.738	14.164563	0.401771	1.757956	1	TCLA	PROTON	FT
1649	0	10.288559	2.716241	11.584	7.441587	0.127553	1.848155	1	TCLA	PROTON	FT
1650	1	6.838180	2.749775	8.326	6.030267	0.153555	1.450398	1	TCLA	PROTON	FT
1651	0	3064.583210	2.338998	3104.510	2700.238735	0.198030	112.864074	1	TCLA	PROTON	FT

Figure: Dataset 2016

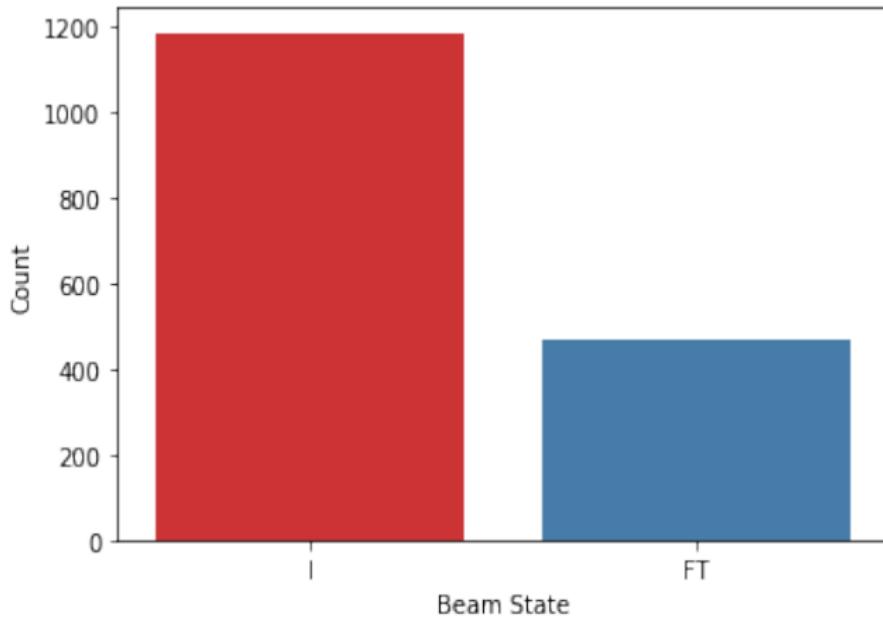


Figure: Number of features at Injection and Flat Top

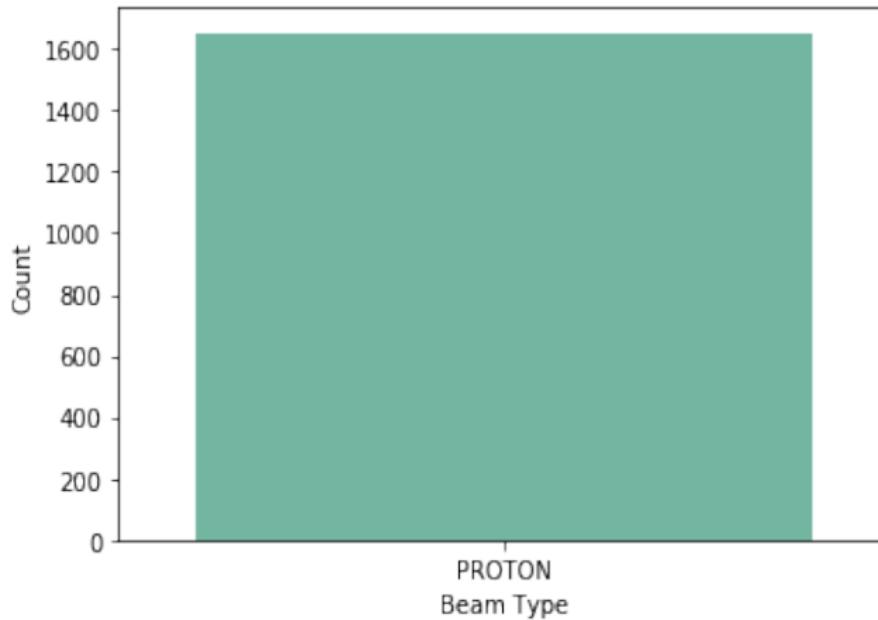


Figure: Number of features divided by beam type

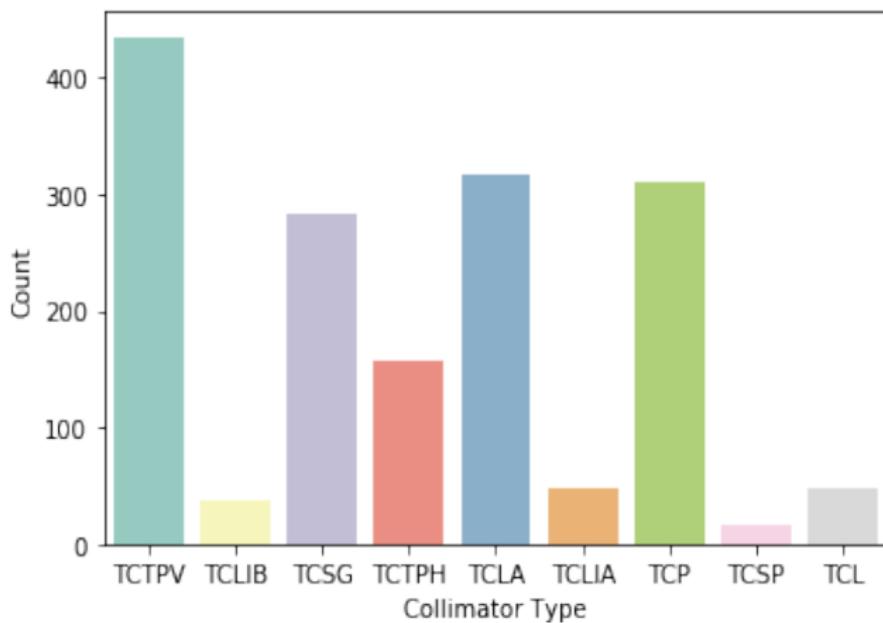


Figure: Number of features divided by collimator type

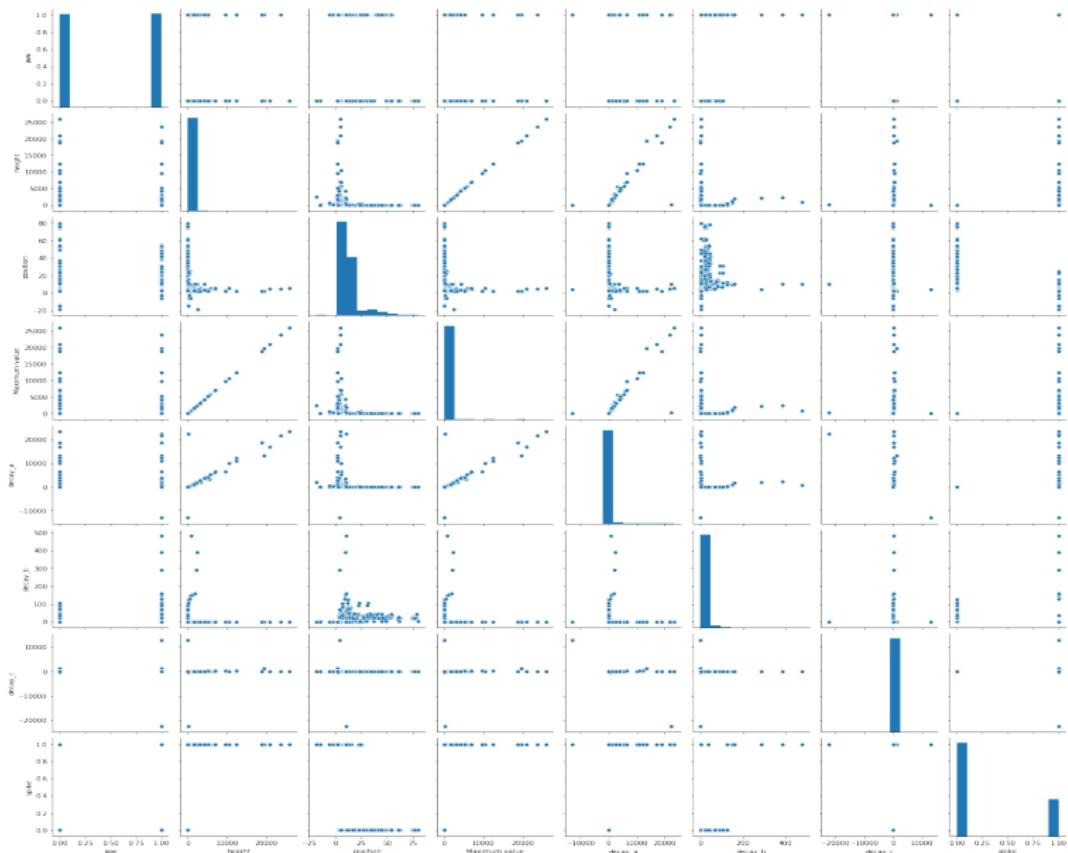


Figure: Pairplot

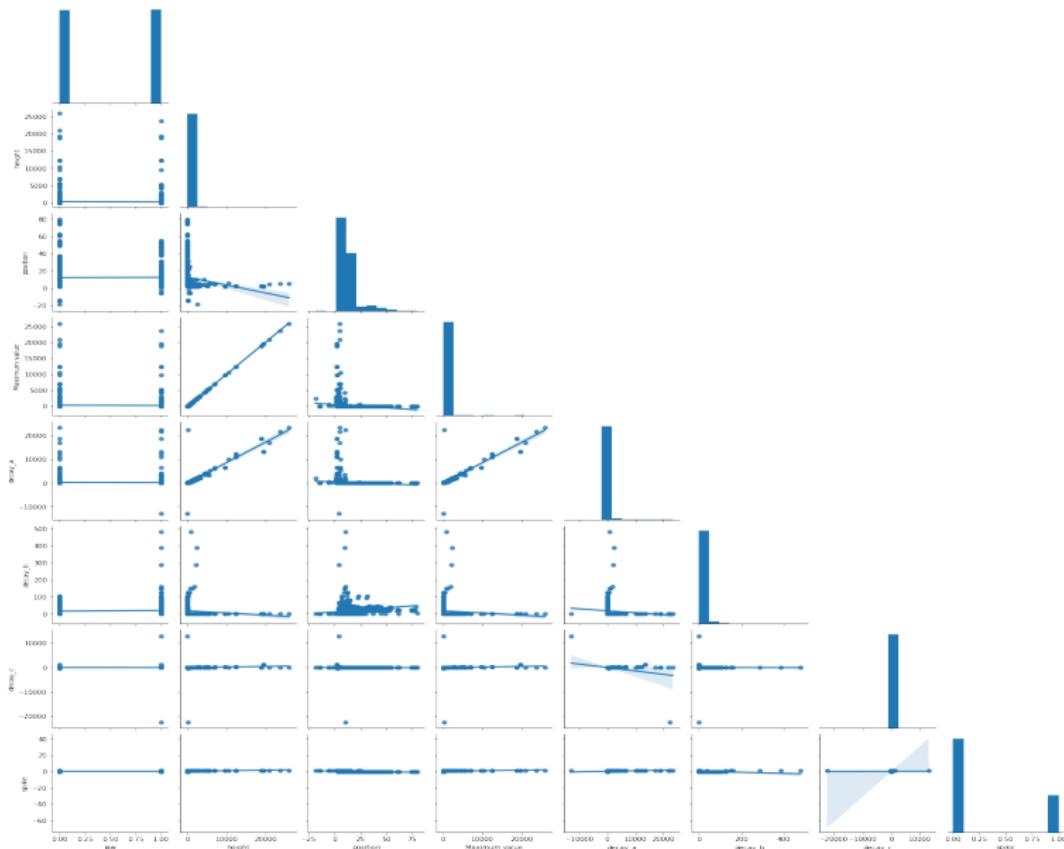


Figure: Pairplot



**Figure:** Correlation heatmap

	jaw	height	position	decay_a	decay_b	decay_c	spike	collimator_type	beam_type	beam_state
0	0	1.093440	13.459630	1.101109	33.502892	0.346891	0	TCTPV	PROTON	I
1	1	0.804907	17.715508	0.821299	18.891463	0.264701	0	TCLIB	PROTON	I
2	1	6.123438	7.083522	7.189065	0.386156	0.931550	0	TCSG	PROTON	I
3	1	11.685360	6.898339	11.690968	100.599839	0.255032	0	TCTPH	PROTON	I
4	0	4.350154	12.288937	4.327683	34.544517	0.378317	0	TCSG	PROTON	I
...	...	...	...	...	...	...	...	...	...	...
10509	1	26.972851	13.343164	25.949200	0.305902	3.644874	1	TCT	PROTON	FT
10510	0	15.465093	15.137477	15.791677	0.628352	1.243694	1	TCT	PROTON	FT
10511	1	15.465093	15.137477	15.791677	0.628352	1.243694	1	TCT	PROTON	FT
10512	0	141.277962	11.376518	136.430710	43.774418	6.016290	1	TCT	PROTON	FT
10513	1	141.277962	11.376518	136.430710	43.774418	6.016290	1	TCT	PROTON	FT

10514 rows × 10 columns

Figure: Dataset 2016

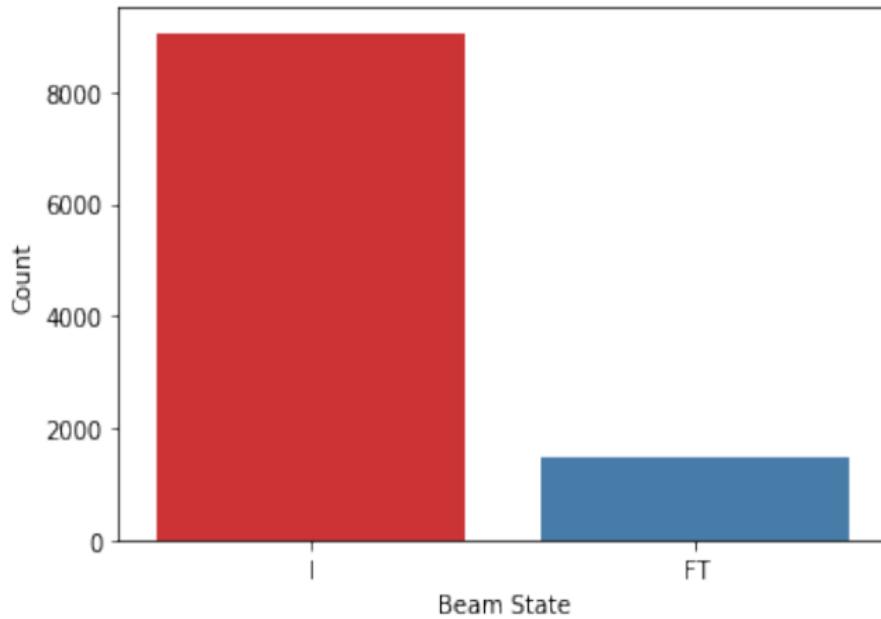


Figure: Number of features at Injection and Flat Top

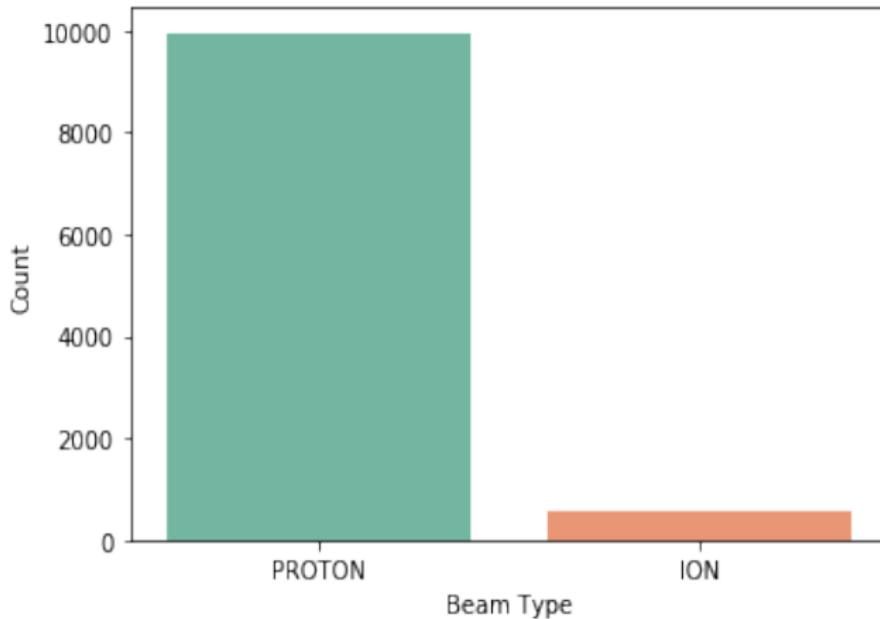


Figure: Number of features divided by beam type

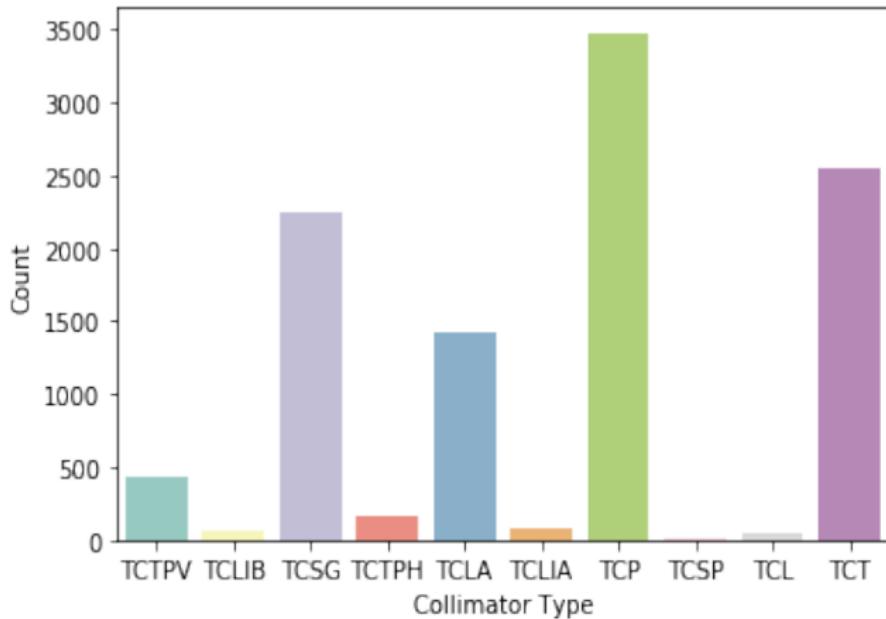


Figure: Number of features divided by collimator type

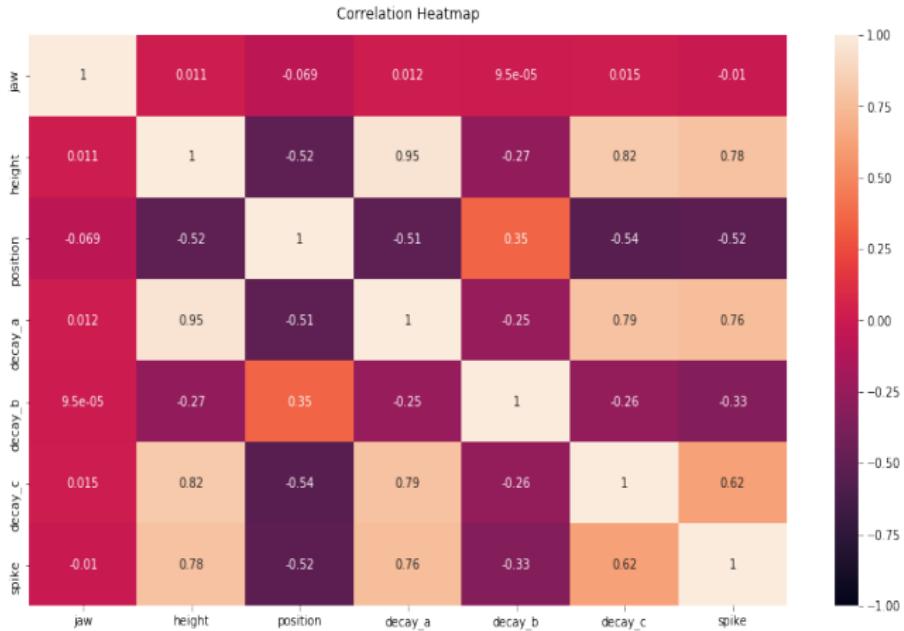


Figure: Correlation heatmap

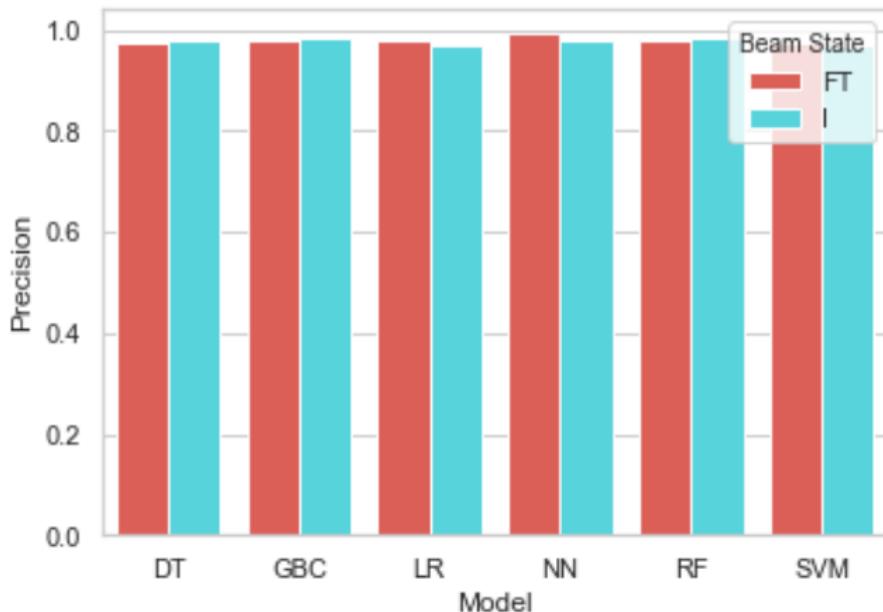


Figure: Precisions for each model