
Training a Faster R-CNN Object Detector for the following object classes:

* violin
* bow_hand
* bow_end
* voluta
* barbada
* puente

Step 1 of 4: Training a Region Proposal Network (RPN).

Warning: Invalid bounding boxes from 4 out of 124 training images were removed. The following rows in trainingData have invalid bounding box data:

Invalid Rows

3
37
41
86

Bounding boxes must be fully contained within their associated image and must have positive width and height.

Training on single CPU.

Epoch	Iteration	Time Elapsed (hh:mm:ss)	Mini-batch Loss	Mini-batch Accuracy	Mini-batch RMSE	Base Learning Rate
1	1	00:00:08	0.7938	64.06%	0.98	0.0010
1	50	00:05:42	0.1575	98.44%	0.67	0.0010
1	100	00:11:29	0.1031	98.44%	0.60	0.0010
2	150	00:17:16	0.2074	97.66%	0.67	0.0010
2	200	00:22:52	0.0735	98.44%	0.52	0.0010
3	250	00:28:41	0.0674	98.44%	0.33	0.0010
3	300	00:34:19	0.0862	97.64%	0.31	0.0010
3	350	00:39:56	0.0607	98.43%	0.26	0.0010
4	400	00:45:41	0.0569	99.21%	0.38	0.0010
4	450	00:51:21	0.0234	100.00%	0.23	0.0010
5	500	00:57:06	0.0361	99.22%	0.33	0.0010
5	550	01:02:38	0.0430	99.22%	0.32	0.0010
5	600	01:08:12	0.0354	100.00%	0.29	0.0010

Step 2 of 4: Training a Fast R-CNN Network using the RPN from step 1.

--> Extracting region proposals from 120 training images...done.

Training on single CPU.

Epoch	Iteration	Time Elapsed (hh:mm:ss)	Mini-batch Loss	Mini-batch Accuracy	Mini-batch RMSE	Base Learning Rate
1	1	00:00:18	2.3181	10.16%	0.42	0.0010
1	50	00:14:36	0.4036	96.09%	0.43	0.0010
1	100	00:29:11	0.2225	95.31%	0.33	0.0010
2	150	00:44:09	0.3621	92.97%	0.39	0.0010
2	200	00:58:41	0.1735	97.66%	0.33	0.0010
3	250	01:13:36	0.1518	97.66%	0.24	0.0010
3	300	01:28:00	0.0987	100.00%	0.32	0.0010
3	350	01:42:45	0.1950	99.22%	0.32	0.0010
4	400	01:57:41	0.1112	100.00%	0.24	0.0010
4	450	02:12:14	0.1840	97.66%	0.29	0.0010
5	500	02:27:11	0.0948	99.22%	0.25	0.0010
5	550	02:41:39	0.1372	99.22%	0.25	0.0010
5	600	02:56:20	0.1355	97.66%	0.27	0.0010

Step 3 of 4: Re-training RPN using weight sharing with Fast R-CNN.

Training on single CPU.

Epoch	Iteration	Time Elapsed (hh:mm:ss)	Mini-batch Loss	Mini-batch Accuracy	Mini-batch RMSE	Base Learning Rate
1	1	00:00:02	0.2555	95.31%	0.68	0.0010
1	50	00:02:10	0.0703	99.22%	0.46	0.0010
1	100	00:04:20	0.1200	98.43%	0.71	0.0010
2	150	00:06:41	0.0336	100.00%	0.29	0.0010
2	200	00:08:51	0.0366	99.22%	0.34	0.0010
3	250	00:11:12	0.0875	96.09%	0.36	0.0010
3	300	00:13:22	0.0491	100.00%	0.63	0.0010
3	350	00:15:31	0.0391	100.00%	0.39	0.0010
4	400	00:17:53	0.0319	99.22%	0.33	0.0010
4	450	00:20:02	0.0842	97.64%	0.35	0.0010
5	500	00:22:24	0.0326	100.00%	0.38	0.0010
5	550	00:24:34	0.0688	97.66%	0.32	0.0010
5	600	00:26:43	0.0561	98.44%	0.36	0.0010

Step 4 of 4: Re-training Fast R-CNN using updated RPN.

--> Extracting region proposals from 120 training images...done.

Training on single CPU.

Epoch	Iteration	Time Elapsed (hh:mm:ss)	Mini-batch Loss	Mini-batch Accuracy	Mini-batch RMSE	Base Learning Rate
1	1	00:00:12	0.0772	98.44%	0.23	0.0010
1	50	00:10:41	0.1170	99.22%	0.23	0.0010
1	100	00:21:21	0.1753	98.44%	0.37	0.0010
2	150	00:32:11	0.0950	99.22%	0.28	0.0010
2	200	00:42:52	0.1929	98.44%	0.28	0.0010
3	250	00:53:42	0.0493	99.22%	0.19	0.0010
3	300	01:04:22	0.0795	99.22%	0.23	0.0010
3	350	01:15:05	0.1086	100.00%	0.27	0.0010
4	400	01:25:57	0.1067	99.22%	0.26	0.0010
4	450	01:36:38	0.1037	100.00%	0.30	0.0010
5	500	01:47:30	0.0592	99.22%	0.18	0.0010
5	550	01:58:10	0.1166	96.88%	0.22	0.0010
5	600	02:08:50	0.0719	99.22%	0.18	0.0010

Detector training complete (with warnings):

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