

Supplementary of Quality over Quantity: A Data-Centric Survey of Annotation Errors in Object Detection Datasets

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1. FSOD

Table 1. Manual error analysis of the 450 random images from FSOD. 100 images contain various types of errors.

#	Error Type	Detected Images	Files Names
1	Inconsistent Annotations	21	n01321123_12812, n01532829_1210, n01532829_1286, n01532829_1403, n01532829_1441, n01532829_15113, n01532829_15980, n01532829_1668, n01532829_2263, n01532829_259, n01532829_2658, n01532829_2786, n01532829_3126, n01532829_3248, n01532829_3251, n01532829_3806, n01532829_4123, n01532829_4826, n01532829_5165, n01595624_7174, n01614925_17113
2	Localization Error	31	n00480993_11496, n01321123_1114, n01321112_11800, n01321123_12474, n01321123_12827, n01321123_4813, n01514668_14705, n01514668_20621, n01514859_02241, n01531178_18112, n01531178_17589, n01530575_3200, n01530575_7077, n01530575_7456, n01530575_9023, n01530575_9331, n02732072_13625, n01532829_10275, n01532829_110, n01594372_7828, n01594372_784, n01595624_10633, n01595624_11171, n01595624_3277, n01595624_5808, n01595624_6573, n01595624_7534, n01614925_13530, n01614925_3662, n01616318_1713, n01616318_6274
3	Incorrect Labels	41	n01321112_11800, n01321123_12466, n01321123_12474, n01321123_12658, n01321123_12812, n01321123_12827, n01321123_4813, n01514668_14705, n01514668_20621, n01514859_02241, n01514859_12538, n01531178_18112, n01531178_17589, n01530575_3200, n01530575_7077, n01530575_7456, n01530575_9023, n01530575_9331, n01514859_9154, n01532829_11111, n01532829_15026, n01532829_1552, n01532829_16689, n01532829_17010, n01532829_17826, n01532829_2826, n01532829_3146, n01532829_3182, n01532829_3268, n01532829_3548, n01532829_4038, n01532829_4056, n01532829_447, n01595624_11171, n01595624_1778, n01595624_3333, n01595624_7119, n01595624_7174, n01595624_878, n01616318_3964, n01616318_4969
4	Duplicate Annotations	7	n01532829_1121, n01532829_1348, n01532829_2800, n01532829_3281, n01532829_403, n01532829_4319, n01532829_4536

2. Object365

Table 2. Manual error analysis of the Object365 Dataset of 1000 random sample images, with 140 images exhibiting various types of error.

#	Error Type	Detected Images	Files Names
1	Inconsistent Annotations	45	00000010, 00000082, 00000085, 00000286, 00000747, 00000404, 00000417, 00000427, 00000468, 00000469, 00000568, 00000572, 00000574, 00000584, 00000678, 00000636, 00000666, 00000727, 00000778, 00000788, 00000794, 00000798, 00000819, 00000845, 00000747867, 00000916, 00000935, 00000939, 00000953, 00001254, 00014530, 00016527, 00017565, 00016896, 00016614, 00016324, 00017101, 00017864, 00017944, 00018434, 00018536, 00018545, 00018594, 00018764, 00019231
2	Localization Error	13	00000048, 00000142, 00000175, 00000190, 00000800, 00002700, 00003878, 00008797, 00014978, 00016274, 00016896, 00017940, 00018212.
3	Incorrect Labels	41	00000005, 00000013, 00000053, 00000059, 00000126, 00000152, 00000173, 00000189, 00000208, 00000269, 00000286, 00000171, 00000374, 00000405, 00000405, 00000457, 00000463, 00000508, 00000606, 00000611, 00000674, 00000689, 00000702, 00000736, 00000778, 00000868, 00000916, 00000939, 00000955, 00000971, 00000984, 00000992, 00001290, 00001392, 00002571, 00004128, 00005974, 00006335, 00016360, 00016971, 00017036
4	Duplicate Annotations	41	00000018, 00000073, 00000109, 00000135, 00000142, 00000168, 00000270, 00000272, 00000286, 00000421, 00000429, 00000430, 00000432, 00000451, 00000488, 00000496, 00000505, 00000511, 00000526, 00000537, 00000618, 00000628, 00000636, 00000645, 00000660, 00000685, 00000686, 00000695, 00000701, 00000708, 00000772, 00000799, 00000813, 00000822, 00000832, 00000886, 00000946, 00010639, 00017332, 00017585, 00019123

3. LVIS

Table 3. Manual error analysis was conducted on 25,000 randomly sampled images from the LVIS dataset, where 112 images were found to contain various types of errors. The IDs listed below are shown in short form; the actual IDs are 12 digits long with leading zeros (e.g., 11615 is actually 000000011615).

#	Error Type	Detected Images	Files Names
1	Inconsistent Annotations	8	11615, 14439, 24712, 27517, 27921, 29160, 47010, 47571
2	Localization Error	24	14473, 19924, 24636, 24716, 24924, 24971, 25147, 25665, 25885, 26165, 28402, 49060, 50828, 82085, 87144, 101762, 123131, 151857, 188465, 236784, 303908, 440617, 532129, 579818
3	Incorrect Labels	37	78, 6497, 16502, 18837, 24980, 25143, 25433, 25548, 26068, 26907, 27298, 27530, 27826, 105923, 124636, 130599, 166563, 176606, 205542, 306437, 325031, 409542, 427055, 479126, 514376, 24629, 24671, 26725, 27285, 27348, 27424, 27510, 27862, 27974, 27977, 28547, 28917
4	Duplicate Annotations	1	25121
5	Debatable Examples	40	1353, 2431, 5992, 8761, 9851, 14888, 17923, 18833, 22589, 23937, 24674, 24723, 24971, 25060, 25886, 26304, 26953, 28429, 41635, 119677, 178618, 185599, 190648, 193162, 238039, 263966, 376365, 422670, 433915, 437392, 450100, 494634, 529528, 532855, 538236, 540466, 542423, 546826, 546826, 565597, 571598
6	Contradictory	2	5785, 35963

4. DOTA

Table 4. Manual error analysis on the DOTA dataset of 1869 images, where there are different errors in 51 images.

#	Error Type	Detected Images	Files Names
1	Inconsistent Annotations	17	P2144, P2365, P2374, P2375, P2570, P0025, P0098, P0946, P0962, P0963, P1055, P1382, P2007, P2662, P2673, P2701, P2750
2	Localization Error	6	P0047, P0130, P0445, P0466, P2150, P2380
3	Incorrect Labels	20	P0141, P0215, P0421, P0517, P0660, P0770, P1119, P1132, P1139, P1170, P1311, P1399, P1812, P2244, P2335, P2466, P0023, P0169, P1388, P1809
4	Duplicate Annotations	6	P0053, P0582, P2240, P2362, P2368, P2377
5	Debatable Examples	2	P1758, P2086

5. Pascal VOC

Table 5. Manual error analysis of more than 8000 images from the Pascal VOC dataset, where 46 images contain various types of errors.

#	Error Type	Detected Images	Files Names
1	Inconsistent Annotations	12	2007_000629, 2007_000727, 2007_003711, 2007_004769, 2007_005248, 2008_000283, 2008_002401, 2009_000054, 2009_000132, 2011_000541, 2011_000557, 2010_001270
2	Localization Error	12	2007_000629, 2007_005248, 2008_004981, 2008_006483, 2008_008773, 2010_002652, 2010_003088, 2010_003546, 2007_001698, 2007_002234, 2009_004539, 2010_004560
3	Incorrect Labels	10	2008_005817, 2008_004981, 2010_000124, 2010_002278, 2010_003337, 2007_007878, 2008_002515, 2009_004507, 2010_004559, 2010_004573
4	Duplicate Annotations	5	2009_000463, 2010_002838, 2007_008670, 2011_000232, 2011_001252
5	Debatable Examples	7	2008_006353, 2008_004981, 2010_001796, 2010_001803, 2010_001907, 2008_000641, 2011_001097

6. Open Image Dataset

Table 6. Manual error analysis of the Open Images dataset. Over 10,400 images were analyzed, and 240 were found to contain various errors.

#	Error Type	Detected Images	Files Names
1	Inconsistent Annotations	8	000fc60c70354ccb, 0b5cde64f4b0b523, 0cc3638b79519c33, 0f06151b7cf29421, 000be25feabe7766, 0af82fb3d4790523, 0c2e0a469eb55491, 0c2e1ba5bfc8e962
2	Localization Error	14	0b5cde64f4b0b523, 0ba668c7e9c1c6d6, 0baed008d0e538b7, 0bb74b3639ef364d, 0bb85cf46ebd1ad8, 0bb11950e57ef164, 0bbd9d724dbc7a7d, 0bce4d136a7e7f57, 0bce7cfa3a7a27fe, 0bd2afeae1bb2968, 0bd306d3bf3deeb3, 0be52947810cea57, 0bfde743b0958b32, 0c02c70c3d8d70e5

3	Incorrect Labels	87	000c58b435106e75, 000be25feabe7766, 000d9afabe6ed2f7, 000e09cfd21a1534, 0b91087bca2aadb, 0ba8126e57778146, 0ba49196c700e5e6, 0ba61742bf7e9c89, 0ba83294e04ca995, 0ba375818afc529a, 0ba845087f2e9528, ba915873a8ee1d7, 0baa9ca659ca2b48, 0baa0485d8194db8, 0bab630bfba395de, 0baf60da21346ed9, 0bb2e5a8c798b316, 0bb2e28ecfe6febb, 0bb2f009a7adff18, 0bb4c43a2690b863, 00b3242009873ff3, 00bc1cad009ca1b0, 00be249ef299ab12, 00c145da5480c374, 00dcf5e86997c158, 00dcf5fbf02233be, 00ddfb38f49c18bf, 00e03e1fe10f93d9, 0ac3bcc996963840, 0ac3bcc996963840, 0afcbb433812e838, 0b1a61552ba6a101, 0b1be6ae2a672ad5, 0f06151b7cf29421, 0b68566445314107, 0ba2da0cb8b04b42, 0ba3eaf52ffe664f, 0ba4aae2824d498c, 0ba8a43c71892148, 0ba13cc47daa0595, 0ba014d62f1c2a37, 0ba64ea3d06cbbec4, 0ba241dc431ad016, 0ba965e5ce57bb7a, 0bb4ee783f887d15, 0bb5dcfd58f6cf8a, 0bb06f57fd52a4f0, 0bb7f0cc6f06fe52, 0bb8bd126fca88bf, 0bb74cfad2ce4163a, 0bb75c6bbe599fb3, 0bb096c9a1a762b4, 0bb228e566becabc, 0bbb774491ef5f1b, 0bbbc82d91c4d2ce, 0bbc20d709ecc3b4, 0bbe01e8e55f1af3, 0bbf5bbf011d1aff, 0bbf6467f1352b60, 0bc4c6599c86082c, 0bc33af547fd936, 0bc9003a517fae78, 0bca3a5c35bc5470, 0bcf2b8cb7b31655, 0bd0d4f73920dfe8, 0bd164322fee0cff, 0bda81fd75eda783, 0bdcfaf053615c34f, 0bdd047fe763dd7b, 0bde48d8d271f3c7, 0bdfc944b80b5270, 0be3d2cac5806ac8, 0be4ae96e17910a5, 0be5a9ad7a52d58c, 0be7e1e222ecf8a6, 0be18daf8c297b2b, 0be22ee1e0d4939c, 0be38de2810d9998, 0be96ae31074bf6f, 0be239e0aee69809, 0be95413cb733f4b, 0bebb7b722b3f787, 0bec35720ab6b20e, 0bf5f574d88e9762, 0bf9c11e4a398a57, 0bf7702a4c75191e, 0bf942823c943469
4	Duplicate Annotations	4	000fc60c70354ccb, 2c0e54cb2cdad01d, 0be5517644ba2aed, 000a3c4064d9caa4
5	Group Error	33	0000b4b26ef88376, 000c2167f3d9b1a4, 000d09af0367c9e9, 000d9c59687b509b, 00c80bf081fa0be6, 00d9e7d0ea472984, 00dd8db7c96692f1, 00e6da6411e1e8ce, 0aae6c12baa99f77, 0aae31dc80fb228c, 0aaede8abca5f2e6, 0ab79922d0e2b7a3, 0abdadd3aaf619c9, 0b0c30d3dcb29939, 0bcc6e08041a8317, 0bdd01af13c161cb, 0bdd32adcae3f88, 0be3cf559daae42e, 000d82dcefa776a4, 00a75c9413948f9b, 00a206106cdf7cd3, 00b914da2885aae3, 00be85e821ec46bc, 0be7a3cfbc1ee9a1, 0be1244e8e82557c, 0bebbe759613cddd, 0bec1734e4cdf977, 0bef0f5fe9230a8d, 0bf73d9291da79f3, 0bf83c089c2ab8e4, 0bf472fb6cdb01c9, 0bf8957f05c3bac5, 0bf31515c40358c3
6	Debatable Examples	3	0bf97561af301cc4, 0afaddab2cdada24, 0bf29fc428dd3ca9
7	Multiple Labels Error	91	00deafca766e433f, 00e10a8786353120, 0ba2da0cb8b04b42, 0ba2dabad8733438, 0ba56564ff796ed0, 0ba61742bf7e9c89, 0ba778afe35cde1c, 0ba7a1c3804e23ee, 0ba7b2cb2879540d, 0ba7b9a9b55f513a, 0ba929546cfec59e, 0baaaf1c6fe8fd4c, 0baac8a9eafe26a7, 0bab9f56cca4a72d, 0babd5d012e12750, 0bac1083008ade94, 0badef6182d13b22, 0bae73a9561e08c2, 0baf720ad765bb34, 0bb096c9a1a762b4, 0bb1b54426f815b0, 0bb1e137dabfbb76, 0bb282ac2d0f81e5, 0bb31a2908e86228, 0c0cd4d73b4c5f9d, 0c0e7942832d495a, 0c2a2d95057d06a2, 0c2ac1c54dfd3466, 0c2ca56f0ae14399, 0c2e3983a56577d3, 0c2eb37222a78797, 0c3ed4cd4d6bf07a, 0c5c1d2f647fe1f6, 0c5fc786c29ff362, 0bb4c01cc617bd7, 0bb63bb4b3164bc1, 0bb68e7ce5e72700, 0bb81addd025d8fe, 0bb096c9a1a762b4, 0bb282ac2d0f81e5, 0bb948e87c4abe7e, 0bbb495243fa8935, 0bbbc8044362f65d, 0bbbc5a6b676df024, 0bbbc8d5300280c86, 0bbce3d0731b8f00, 0bbe4b2e1667ea3c, 0bbe74f67b452ab6, 0bbe8bb88a6e0509, 0bbf5ad4ddcf3914, 0bbf5bbf011d1aff, 0bbfffd2d0a4a719d, 0bc064beab07d0be, 0bc17d42b4df7dcc, 0bc33af547fd936b, 0bc54be8c4250b60, 0bc67885e2c932c7, 0bc79b683bdc5036, 0bc7e3a8deb915ea, 0bc9003a517fae78, 0bc96786d389adbd, 0bcea6f51fb81e38, 0bceab119fbc157, 0bcf03a7224cb041, 0bcf8ad31cb54c85, 0bcfd3520c92a518, 0bd04031de55a834, 0bd091fa8d548a4a, 0bd1be2f5ca4bce, 0bd1c581274eb1ca, 0bd2be8fec9f3e12, 0bd3730ebc5214f1, 0bd38e0a8bdfb861, 0bd39fabdcce8671, 0bd6aa29c85f9231, 0bd6bbf257a5b146, 0bd755fe0e83f11a, 0bd822a3267d8fcd, 0bd867f6eb95a55a, 0bd8e038c5d63098, 0bda465f69a6ec15, 0bdde2f91df4c85a, 0bdfd58cbb47a053, 0be119ce5c7f1179, 0be3fdbd43a4f17e, 0bead17806acccbf, 0bebd1f75cb3fa73, 0bee5bef43ba94ab, 0bf31e980c9aeced, 0bf61e7db95d4c26, 0bf690ea33fd8ebb