

A EXTRA MATERIAL FOR SECTION 4 (DATASET AND PERFORMANCE METRICS)

Table 9: List of filtered and merged classes, with their number of associated scientific papers

Document class	Number of papers
other	31759
revtex4	17266
amsart/amsproc	15271
ieeeconf/ieeetran	9473
elsarticle	3903
svproc/svmult/llnccs	3183
mn2e/mnras	3031
aastex6/aastex61/aastex62	2282
acmart	2035
aa	1541
svjour/svjour3	1434
iopart/jpconf	1228
emulateapj	1030
pos	559
scrartcl	484
aastex	445
report/wlscirep	394
iau/jfm	332
imsart	330
lipics	320
achemso	306
spie	284
ws	249
siamart171218	220
eptcs	183
mdpi	178
siamltex	175
webofc	174
sig	146
bmvc2k	134
cms	129
book	122
sigma	113
Total	98 713

B EXTRA MATERIAL FOR SECTION 5 (EXPERIMENTS FOR HAND-CODED FEATURES)

Table 10: Performance by class for the random forest classifier model, on test set

Document class	Precision	Recall	F ₁ -Score
aa	77%	83%	80%
aastex	51%	52%	51%
aastex6/aastex61/aastex62	57%	58%	57%
achemso	58%	65%	61%
acmart	90%	95%	93%
amsart/amsproc	19%	28%	23%
bmvc2k	98%	97%	97%
book	0%	0%	0%
cms	94%	100%	97%
elsarticle	40%	52%	45%
emulateapj	55%	63%	59%
eptcs	89%	88%	88%
iau/jfm	96%	86%	90%
ieeeconf/ieeetran	53%	84%	65%
imsart	43%	31%	36%
iopart/jpconf	59%	66%	62%
lipics	86%	86%	86%
llnccs/svmult/svproc	63%	73%	68%
mdpi	87%	100%	93%
mn2e/mnras	62%	95%	65%
other	24%	3%	6%
pos	84%	87%	85%
report/wlscirep	58%	47%	52%
revtex4	68%	60%	64%
scrartcl	40%	44%	42%
siamart171218	58%	63%	60%
siamltex	56%	43%	49%
sig	81%	26%	39%
sigma	94%	100%	97%
spie	84%	80%	82%
svjour/svjour3	62%	64%	63%
webofc	89%	93%	91%
ws	54%	65%	59%
<i>Dummy (Mean)</i>	<i>0%</i>	<i>3%</i>	<i>0%</i>
Mean	64%	66%	64%

C EXTRA MATERIAL FOR SECTION 6 (EXPERIMENTS USING CNN MODELS)

Table 11: Performance by class for our CNN architecture, on test set

Document class	Precision	Recall	F ₁ -Score
aa	99.86%	99.57%	99.71%
aastex	97.86%	94.17%	95.98%
aastex6/aastex61/aastex62	90.93%	98.92%	94.76%
achemso	95.09%	100.00%	97.48%
acmart	96.21%	98.87%	97.52%
amsart/amsproc	88.34%	97.25%	92.58%
bmvc2k	99.48%	100.00%	99.74%
book	56.84%	21.39%	31.09%
cms	100.00%	100.00%	100.00%
elsarticle	97.55%	96.52%	97.03%
emulateapj	98.73%	97.56%	98.14%
eptcs	97.50%	100.00%	98.73%
iau/jfm	96.35%	100.00%	98.14%
ieeeconf/ieeetran	90.26%	98.18%	94.05%
imsart	95.21%	92.55%	93.86%
iopart/jpconf	94.81%	99.68%	97.18%
lipics	99.41%	94.37%	96.83%
llncs/svmult/svproc	93.89%	98.39%	96.09%
mdpi	99.73%	96.89%	98.29%
mn2e/mnras	99.03%	99.40%	99.21%
other	69.17%	65.00%	67.02%
pos	99.94%	98.38%	99.15%
report/wlscirep	52.09%	77.69%	62.37%
revtex4	87.08%	98.27%	92.34%
scrartcl	90.35%	84.22%	87.17%
siamart171218	89.91%	91.71%	90.80%
siamltex	90.61%	84.11%	87.24%
sig	99.48%	93.99%	96.65%
sigma	98.64%	100.00%	99.32%
spie	99.44%	96.48%	97.94%
svjour/svjour3	94.97%	96.94%	95.95%
webofc	99.92%	96.88%	98.38%
ws	99.31%	91.67%	95.34%
<i>Dummy (Mean)</i>	<i>0.09%</i>	<i>3.03%</i>	<i>0.18%</i>
Mean	92.67%	92.70%	92.31%

Table 12: Performance by class for the ResNet50V2 architecture, on test set

Document class	Precision	Recall	F ₁ -Score
aa	99.46%	99.57%	99.51%
aastex	96.27%	92.07%	94.12%
aastex6/aastex61/aastex62	96.74%	96.82%	96.78%
achemso	99.70%	96.94%	98.30%
acmart	96.86%	98.10%	97.47%
amsart/amsproc	79.88%	98.32%	88.14%
bmvc2k	100.00%	100.00%	100.00%
book	69.20%	26.08%	37.88%
cms	100.00%	100.00%	100.00%
elsarticle	97.21%	98.02%	97.61%
emulateapj	95.91%	99.35%	97.60%
eptcs	99.98%	97.25%	98.60%
iau/jfm	99.72%	100.00%	99.86%
ieeconf/ieeetran	93.63%	97.19%	95.37%
imsart	99.81%	82.53%	90.35%
iopart/jpconf	97.81%	98.70%	98.25%
lipics	99.77%	94.37%	97.00%
llncls/svmult/svproc	97.94%	93.35%	95.59%
mdpi	99.94%	96.89%	98.39%
mn2e/mnras	99.35%	99.72%	99.54%
other	45.41%	79.70%	57.86%
pos	99.98%	98.49%	99.23%
report/wlscirep	59.22%	76.81%	66.88%
revtex4	83.05%	98.79%	90.24%
scrartcl	99.42%	63.75%	77.69%
siamart171218	92.57%	89.43%	90.97%
siamltex	95.48%	90.17%	92.75%
sig	99.31%	93.99%	96.58%
sigma	99.98%	100.00%	99.99%
spie	99.94%	100.00%	99.97%
svjour/svjour3	95.39%	97.28%	96.33%
webofc	99.97%	100.00%	99.98%
ws	99.67%	93.43%	96.45%
<i>Dummy (Mean)</i>	<i>0.09%</i>	<i>3.03%</i>	<i>0.18%</i>
Mean	93.59%	92.34%	92.28%

Table 13: Performance by class for the NasNetMobile architecture, on test set

Document class	Precision	Recall	F ₁ -Score
aa	99.67%	98.93%	99.30%
aastex	99.42%	89.77%	94.35%
aastex6/aastex61/aastex62	94.83%	95.83%	95.33%
achemso	99.96%	81.85%	90.01%
acmart	96.74%	93.91%	95.30%
amsart/amsproc	88.67%	97.14%	92.71%
bmvc2k	100.00%	100.00%	100.00%
book	69.01%	17.48%	27.90%
cms	100.00%	100.00%	100.00%
elsarticle	98.75%	91.73%	95.11%
emulateapj	99.74%	94.95%	97.28%
eptcs	100.00%	97.25%	98.61%
iau/jfm	99.82%	96.65%	98.21%
ieeeconf/ieeetran	94.13%	94.93%	94.53%
imsart	99.87%	72.22%	83.83%
iopart/jpconf	98.44%	99.54%	98.99%
lipics	99.77%	94.37%	97.00%
llncls/svmult/svproc	95.42%	96.89%	96.15%
mdpi	99.45%	94.23%	96.77%
mn2e/mnras	99.32%	99.32%	99.32%
other	37.29%	77.06%	50.26%
pos	99.94%	96.72%	98.30%
report/wlscirep	55.64%	84.40%	67.07%
revtex4	89.70%	94.91%	92.23%
scrartcl	82.34%	82.96%	82.65%
siamart171218	93.36%	87.82%	90.51%
siamltex	95.67%	90.85%	93.20%
sig	97.61%	93.99%	95.76%
sigma	99.98%	100.00%	99.99%
spie	99.89%	100.00%	99.95%
svjour/svjour3	93.61%	97.40%	95.47%
webofc	98.88%	100.00%	99.44%
ws	99.69%	95.64%	97.63%
<i>Dummy (Mean)</i>	<i>0.09%</i>	<i>3.03%</i>	<i>0.18%</i>
Mean	93.23%	91.17%	91.31%

Table 14: Performance by class for the EfficientNetV2B0 architecture, on test set

Document class	Precision	Recall	F ₁ -Score
aa	99.75%	99.57%	99.66%
aastex	99.26%	93.94%	96.53%
aastex6/aastex61/aastex62	88.37%	98.79%	93.29%
achemso	96.52%	100.00%	98.23%
acmart	92.57%	99.24%	95.79%
amsart/amsproc	92.14%	98.76%	95.34%
bmvc2k	100.00%	100.00%	100.00%
book	68.63%	47.66%	56.25%
cms	99.80%	100.00%	99.90%
elsarticle	98.36%	95.50%	96.91%
emulateapj	99.09%	98.10%	98.59%
eptcs	93.52%	97.25%	95.35%
iau/jfm	99.55%	100.00%	99.78%
ieeeconf/ieeetran	88.58%	98.44%	93.25%
imsart	95.15%	94.31%	94.73%
iopart/jpconf	99.58%	98.28%	98.93%
lipics	99.71%	94.37%	96.97%
llncs/svmult/svproc	95.96%	98.13%	97.03%
mdpi	99.79%	96.89%	98.32%
mn2e/mnras	99.28%	99.85%	99.56%
other	67.00%	74.29%	70.46%
pos	99.94%	97.76%	98.84%
report/wlscirep	61.48%	68.84%	64.95%
revtex4	88.29%	98.21%	92.98%
scrartcl	92.93%	80.65%	86.35%
siamart171218	92.80%	84.93%	88.69%
siamltex	85.79%	93.80%	89.62%
sig	99.43%	93.99%	96.63%
sigma	99.94%	100.00%	99.97%
spie	98.62%	98.22%	98.42%
svjour/svjour3	98.53%	97.59%	98.06%
webofc	99.63%	100.00%	99.81%
ws	99.91%	88.85%	94.06%
<i>Dummy (Mean)</i>	<i>0.09%</i>	<i>3.03%</i>	<i>0.18%</i>
Mean	93.63%	93.52%	93.43%

Table 15: Performance by class for the classifier without heterogeneous classes, on test set

Document class	Precision	Recall	F ₁ -Score
aa	99.95%	99.20%	99.58%
aastex	95.35%	94.18%	94.76%
aastex6/aastex61/aastex62	94.09%	98.25%	96.13%
achemso	99.88%	96.96%	98.40%
acmart	88.76%	99.00%	93.60%
amsart/amsproc	86.93%	97.70%	92.00%
bmvc2k	100.00%	96.68%	98.31%
cms	100.00%	100.00%	100.00%
elsarticle	99.18%	97.91%	98.54%
emulateapj	99.66%	98.43%	99.04%
eptcs	96.83%	100.00%	98.39%
iau/jfm	95.89%	100.00%	97.90%
ieeeconf/ieeetran	94.04%	98.32%	96.13%
imsart	95.65%	94.83%	95.24%
iopart/jpconf	99.46%	99.48%	99.47%
lipics	99.62%	94.36%	96.92%
llncs/svmult/svproc	96.03%	98.21%	97.11%
mdpi	99.99%	97.02%	98.48%
mn2e/mnras	99.43%	99.80%	99.62%
pos	100.00%	99.01%	99.50%
wlscirep	100.00%	97.40%	98.68%
revtex4	97.32%	96.77%	97.05%
scrartcl	89.64%	90.35%	89.99%
siamart171218	84.03%	100.00%	91.32%
siamltex	99.15%	77.51%	87.00%
sig	99.79%	87.95%	93.50%
sigma	100.00%	100.00%	100.00%
spie	99.25%	100.00%	99.62%
svjour/svjour3	98.28%	95.69%	96.96%
webofc	98.23%	100.00%	99.10%
ws	98.85%	93.73%	96.22%
<i>Dummy (Mean)</i>	<i>0.10%</i>	<i>3.23%</i>	<i>0.20%</i>
Mean	96.94%	96.73%	96.83%