

User Study Results for “Chopper: Partitioning Models into 3D-Printable Parts”

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Table 1: Kitten example. For each partition, we show two views, number of parts, time and objective functions evaluated by Chopper.

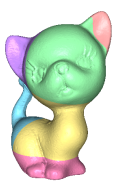
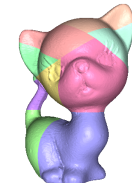
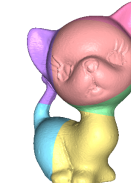
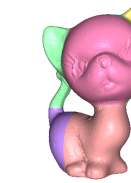
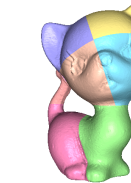
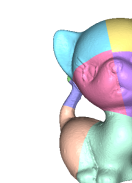
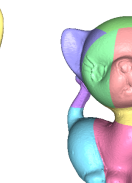

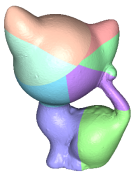

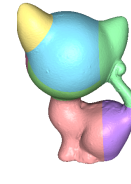
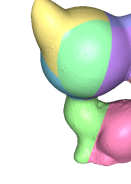
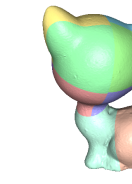
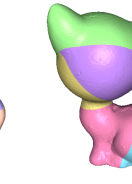
	Chopper	User #1	User #2	User #3	User #4	User #5	User #6
Front							
Back							
Parts	6	10	6	7	9	10	8
Time	206.856s	936.102s	575.718s	638.327s	764.009s	422.452s	456.562s
f_{part}	0.500000	0.833333	0.500000	0.583333	0.750000	0.833333	0.666667
f_{seam}	0.314750	0.429158	0.287526	0.309901	0.363933	0.404187	0.361444
f_{util}	0.868264	0.942853	0.897442	0.967662	0.989062	0.928448	0.939025
$f_{symmetry}$	0.034242	0.051911	0.069636	0.067770	0.064255	0.060559	0.058580
f	0.583449	0.936369	0.591034	0.679649	0.851910	0.935314	0.764407

Table 2: Armadillo example. For each partition, we show two views, number of parts, time and objective functions evaluated by Chopper.




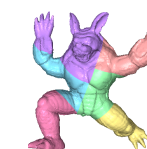

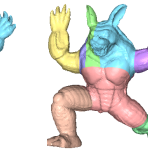




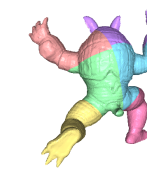
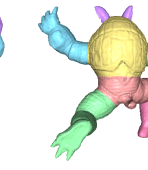
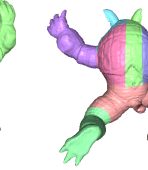

	Chopper	User #1	User #2	User #3	User #4	User #5	User #6
Front							
Back							
Parts	5	8	8	6	7	9	7
Time	139.250s	503.864s	727.952s	346.083s	267.168s	539.723s	252.481s
f_{part}	0.277778	0.444444	0.444444	0.333333	0.388889	0.500000	0.388889
f_{seam}	0.103110	0.166174	0.127435	0.138175	0.104584	0.168727	0.129199
f_{util}	0.958366	0.953756	0.968819	0.930445	0.953323	0.954794	0.956523
$f_{symmetry}$	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
f	0.336007	0.508750	0.505629	0.393673	0.447013	0.564612	0.449635

Table 3: Chair example. For each partition, we show two views, number of parts, time and objective functions evaluated by Chopper.















	Chopper	User #1	User #2	User #3	User #4	User #5	User #6
Front							
Back							
Parts	12	13	13	13	12	15	12
Time	1217.935s	650.106s	763.25s	491.812s	515.565s	875.347s	438.795s
f_{part}	0.666667	0.722222	0.722222	0.722222	0.666667	0.833333	0.666667
f_{seam}	0.148730	0.205621	0.193675	0.171684	0.205221	0.241216	0.189110
f_{util}	0.995049	0.988460	0.991129	0.988064	0.984767	0.987245	0.990608
$f_{symmetry}$	0.000052	0.014788	0.026664	0.025685	0.018421	0.017742	0.015000
f	0.731305	0.795904	0.797812	0.795215	0.741032	0.911253	0.738858

Table 4: Fertility example. For each partition, we show two views, number of parts, time and objective functions evaluated by Chopper.














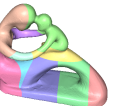




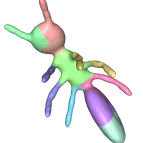

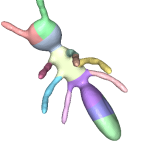

	Chopper	User #1	User #2	User #3	User #4	User #5	User #6
Front							
Top							
Parts	6	9	7	8	8	8	10
Time	302.239s	405.222s	519.57s	292.37s	319.539s	150.753s	552.038s
f_{part}	0.500000	0.750000	0.583333	0.666667	0.666667	0.666667	0.833333
f_{seam}	0.238688	0.337370	0.235454	0.329656	0.309340	0.270146	0.418265
f_{util}	0.907917	0.936256	0.927812	0.925565	0.945920	0.922951	0.991293
$f_{symmetry}$	0.009297	0.013334	0.012032	0.009794	0.008362	0.010403	0.031835
f	0.571589	0.833883	0.656277	0.748359	0.746987	0.742429	0.932683

Table 5: Ant example. For each partition, we show two views, number of parts, time and objective functions evaluated by Chopper.

	Chopper	User #1	User #2	User #5
Top				
Down				
Parts	11	16	14	14
Time	352.164s	692.699s	870.283s	442.332s
f_{part}	0.367	0.533333	0.500000	0.433333
f_{seam}	0.094	0.121388	0.097256	0.106654
f_{util}	0.968	0.988076	0.989577	0.983517
$f_{symmetry}$	0.015	0.016318	0.012856	0.024852
f	0.428216	0.598955	0.562418	0.499388