Simultaneous compression of multiple error-corrected short-read sets for faster data transmission and better de novo assemblies

Tao Tang¹, Gyorgy Hutvagner², Wenjian Wang³, and Jinyan Li^{1,*}

¹Advanced Analytics Institute, University of Technology Sydney, Broadway, NSW 2007, Australia ²School of Biomedical Engineering, University of Technology Sydney, Broadway, NSW 2007, Australia ³School of Computer and Information Technology, Shanxi University, Shanxi Road, Shanxi 030006, China

*Corresponding Author

January 13, 2022

1 Details of datasets

Table S1: Details of dataset-33 (33 files, 102.39GB)

Name	Read number	Retrieved from
SRR017498.fastq	2197691	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR017/SRR017498/SRR017498.fastq.gz
SRR017499.fastq	2185062	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR017/SRR017499/SRR017499.fastq.gz
SRR017500.fastq	2067941	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR017/SRR017500/SRR017500.fastq.gz
SRR017501.fastq	9304954	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR017/SRR017501/SRR017501.fastq.gz
SRR350414.fastq	13873841	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR350/SRR350414/SRR350414.fastq.gz
SRR350416.fastq	13800627	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR350/SRR350416/SRR350416.fastq.gz
SRR350417.fastq	13971754	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR350/SRR350417/SRR350417.fastq.gz
SRR364390.fastq	12429076	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR364/SRR364390/SRR364390.fastq.gz
SRR364391.fastq	13524457	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR364/SRR364391/SRR364391.fastq.gz
SRR364392.fastq	13327151	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR364/SRR364392/SRR364392.fastq.gz
SRR364393.fastq	14013116	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR364/SRR364393/SRR364393.fastq.gz
SRR364394.fastq	13776778	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR364/SRR364394/SRR364394.fastq.gz
SRR391480.fastq	23074156	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR391/SRR391480/SRR391480.fastq.gz
SRR391482.fastq	24012306	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR391/SRR391482/SRR391482.fastq.gz
SRR391483.fastq	27413485	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR391/SRR391483/SRR391483.fastq.gz
SRR391484.fastq	26501216	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR391/SRR391484/SRR391484.fastq.gz
SRR404183.fastq	4259218	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR404/SRR404183/SRR404183.fastq.gz
SRR404184.fastq	7816147	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR404/SRR404184/SRR404184.fastq.gz
SRR404185.fastq	4946871	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR404/SRR404185/SRR404185.fastq.gz
SRR404186.fastq	6803145	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR404/SRR404186/SRR404186.fastq.gz
SRR404187.fastq	17124858	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR404/SRR404187/SRR404187.fastq.gz
SRR404188.fastq	14145375	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR404/SRR404188/SRR404188.fastq.gz
SRR449375.fastq	13031496	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR449/SRR449375/SRR449375.fastq.gz
SRR449376.fastq	13197078	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR449/SRR449376/SRR449376.fastq.gz
SRR449377.fastq	13479636	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR449/SRR449377/SRR449377.fastq.gz
SRR449378.fastq	10366702	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR449/SRR449378/SRR449378.fastq.gz
SRR449379.fastq	13147649	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR449/SRR449379/SRR449379.fastq.gz
SRR513465.fastq	13437700	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR513/SRR513465/SRR513465.fastq.gz
SRR547561.fastq	13242851	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR547/SRR547561/SRR547561.fastq.gz
SRR547562.fastq	12911326	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR547/SRR547562/SRR547562.fastq.gz
SRR547563.fastq	15882034	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR547/SRR547563/SRR547563.fastq.gz

Table S2: Details of dataset-47 (47 files, 208.97GB)

Name	Read number	Retrieved from
ERR532390_1.fastq	17018488	$http://ftp.sra.ebi.ac.uk/vol1/fastq/ERR532/ERR532390/ERR532390_1.fastq.gz$
$ERR532394_1.fastq$	30746428	$http://ftp.sra.ebi.ac.uk/vol1/fastq/ERR532/ERR532390/ERR532390_1.fastq.gz$
$SRR062634_1.fastq$	24476109	$http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR062/SRR062634/SRR062634_1.fastq.gz$
$SRR062635_1.fastq$	24479905	$http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR062/SRR062635/SRR062635_1.fastq.gz$
$SRR062641_1.fastq$	24958448	$http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR062/SRR062641/SRR062641_1.fastq.gz$
$SRR062644_1.fastq$	24051140	$http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR062/SRR062644/SRR062644_1.fastq.gz$
$SRR062646_1.fastq$	24136249	$http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR062/SRR062646/SRR062646_1.fastq.gz$
$SRR062655_1.fastq$	22997965	$http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR062/SRR062655/SRR062655_1.fastq.gz$
${\rm SRR067591.fastq}$	2387280	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR067/SRR067591/SRR067591.fastq.gz
${\rm SRR354180.fastq}$	6152228	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR354/SRR354180/SRR354180.fastq.gz
${\rm SRR354181.fastq}$	4907117	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR354/SRR354181/SRR354181.fastq.gz
${\bf SRR354182.fastq}$	3578549	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR354/SRR354182/SRR354182.fastq.gz
${\bf SRR354183.fastq}$	5575465	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR354/SRR354183/SRR354183.fastq.gz
${\bf SRR361240.fastq}$	4651469	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR361/SRR361240/SRR361240.fastq.gz
${\bf SRR361241.fastq}$	5137558	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR361/SRR361241/SRR361241.fastq.gz
${\bf SRR361242.fastq}$	5385821	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR361/SRR361242/SRR361242.fastq.gz
${\bf SRR361243.fastq}$	5437878	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR361/SRR361243/SRR361243.fastq.gz
${\bf SRR361244.fastq}$	4951700	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR361/SRR361244/SRR361244.fastq.gz
${\bf SRR361245.fastq}$	3998188	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR361/SRR361245/SRR361245.fastq.gz
${\bf SRR387477.fastq}$	3759745	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR387/SRR387477/SRR387477.fastq.gz
${\bf SRR387478.fastq}$	3890863	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR387/SRR387478/SRR387478.fastq.gz
${\bf SRR387479.fastq}$	3050218	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR387/SRR387479/SRR387479.fastq.gz
${\bf SRR387480.fastq}$	4470576	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR387/SRR387480/SRR387480.fastq.gz
${\bf SRR387481.fastq}$	570358	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR387/SRR387481/SRR387481.fastq.gz
${\bf SRR387482.fastq}$	3171526	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR387/SRR387482/SRR387482.fastq.gz
${\bf SRR401414.fastq}$	11745032	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR401/SRR401414/SRR401414.fastq.gz
SRR401415.fastq	20578433	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR401/SRR401415/SRR401415.fastq.gz
${\bf SRR401416.fastq}$	20515752	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR401/SRR401416/SRR401416.fastq.gz
SRR401417.fastq	14646834	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR401/SRR401417/SRR401417.fastq.gz
$SRR445612_1.fastq$	22691950	$http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR445/SRR445612/SRR445612_1.fastq.gz$
$SRR445635_1.fastq$	19586556	$http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR445/SRR445635/SRR445635_1.fastq.gz$
SRR445718.fastq	32943665	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR445/SRR445718/SRR445718.fastq.gz
SRR445719.fastq	30690825	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR445/SRR445719/SRR445719.fastq.gz
SRR445724.fastq	50896528	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR445/SRR445724/SRR445724.fastq.gz
SRR490961.fastq	49127668	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR490/SRR490961/SRR490961.fastq.gz
SRR490962.fastq	45583212	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR490/SRR490962/SRR490962.fastq.gz
${\bf SRR490976.fastq}$	33261944	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR490/SRR490976/SRR490976.fastq.gz
SRR504462.fastq	21246896	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR504/SRR504462/SRR504462.fastq.gz

${\bf SRR504463.fastq}$	26425413	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR504/SRR504463/SRR504463.fastq.gz
${\rm SRR}504464.{\rm fastq}$	26186672	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR504/SRR504464/SRR504464.fastq.gz
${\bf SRR504465.fastq}$	26350142	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR504/SRR504465/SRR504465.fastq.gz
${\rm SRR}504466.{\rm fastq}$	24871839	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR504/SRR504466/SRR504466.fastq.gz
${\rm SRR}504468.{\rm fastq}$	22474516	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR504/SRR504468/SRR504468.fastq.gz
${\bf SRR518633.fastq}$	21896197	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR518/SRR518633/SRR518633.fastq.gz
${\bf SRR518634.fastq}$	24974345	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR518/SRR518634/SRR518634.fastq.gz
${\bf SRR518635.fastq}$	23529206	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR518/SRR518635/SRR518635.fastq.gz
${\bf SRR518636.fastq}$	15501764	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR518/SRR518636/SRR518636.fastq.gz

Table S3: Details of dataset-50 (50 files, 71.04GB)

Name	Read number	Retrieved from
$SRR020684_1.fastq$	10375605	$http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR020/SRR020684/SRR020684_1.fastq.gz$
SRR020687_1.fastq	10394255	$http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR020/SRR020687/SRR020687_1.fastq.gz$
SRR020688_1.fastq	8837322	$http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR020/SRR020688/SRR020688_1.fastq.gz$
SRR020690_1.fastq	9534829	$http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR020/SRR020688/SRR020690_1.fastq.gz$
SRR020692_1.fastq	9260242	$http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR020/SRR020692/SRR020692_1.fastq.gz$
SRR020696_1.fastq	8961001	$http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR020/SRR020696/SRR020696_1.fastq.gz$
SRR020697_1.fastq	9827620	$http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR020/SRR020697/SRR020697_1.fastq.gz$
SRR020698_1.fastq	9658118	$http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR020/SRR020698/SRR020698_1.fastq.gz$
SRR020699_1.fastq	9540494	$http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR020/SRR020699/SRR020699_1.fastq.gz$
SRR033506_1.fastq	9668964	$http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR033/SRR033506/SRR033506_1.fastq.gz$
SRR033508_1.fastq	9800692	$http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR033/SRR033508/SRR033508_1.fastq.gz$
SRR033513_1.fastq	10103429	$http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR033/SRR033513/SRR033513_1.fastq.gz$
SRR033516_1.fastq	10490546	$http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR033/SRR033516/SRR033516_1.fastq.gz$
SRR033540_1.fastq	10022304	$http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR033/SRR033540/SRR033540_1.fastq.gz$
SRR035578.fastq	17211229	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR035/SRR035578/SRR035578.fastq.gz
SRR035580.fastq	18183656	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR035/SRR035580/SRR035580.fastq.gz
SRR035581.fastq	17419085	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR035/SRR035581/SRR035581.fastq.gz
SRR035582.fastq	17661304	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR035/SRR035582/SRR035582.fastq.gz
SRR035583.fastq	17342832	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR035/SRR035583/SRR035583.fastq.gz
SRR035585.fastq	18387207	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR035/SRR035585/SRR035585.fastq.gz
SRR035586.fastq	19275633	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR035/SRR035578/SRR0355786.fastq.gz
SRR042754_1.fastq	12211192	$http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR042/SRR042754/SRR042754_1.fastq.gz$
SRR042756_1.fastq	11931416	$http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR042/SRR042756/SRR042756_1.fastq.gz$
SRR042758_1.fastq	11149360	$http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR042/SRR042758/SRR042758_1.fastq.gz$
SRR042760_1.fastq	11350648	$http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR042/SRR042760/SRR042760_1.fastq.gz$
SRR042762_1.fastq	11648481	$http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR042/SRR042762/SRR042762_1.fastq.gz$
SRR042768_1.fastq	12045980	$http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR042/SRR042768/SRR042768_1.fastq.gz$
SRR306333.fastq	1467267	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR306/SRR306333/SRR306333.fastq.gz
SRR306334.fastq	1324182	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR306/SRR306334/SRR306334.fastq.gz

SRR306335.fastq	1265603	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR306/SRR306335/SRR306335.fastq.gz
SRR306336.fastq	1695994	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR306/SRR306336/SRR306336.fastq.gz
SRR306337.fastq	1506514	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR306/SRR306337/SRR306337.fastq.gz
SRR306338.fastq	1171861	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR306/SRR306333/SRR306338.fastq.gz
SRR306339.fastq	820255	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR306/SRR306339/SRR306339.fastq.gz
SRR306340.fastq	791082	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR306/SRR306340/SRR306334fastq.gz
SRR306341.fastq	1102312	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR306/SRR306341/SRR306341.fastq.gz
SRR306342.fastq	985592	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR306/SRR306342/SRR306342.fastq.gz
SRR404352_1.fastq	9218083	$http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR404/SRR404352/SRR404352_1.fastq.gz$
SRR404353_1.fastq	12132806	$http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR404/SRR404353/SRR404353_1.fastq.gz$
SRR404354_1.fastq	10353791	$http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR404/SRR404354/SRR404354_1.fastq.gz$
SRR404355_1.fastq	13407653	$http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR404/SRR404355/SRR404355_1.fastq.gz$
SRR445237_1.fastq	4165017	$http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR445/SRR445237/SRR445237_1.fastq.gz$
SRR445239_1.fastq	2763227	$http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR445/SRR445239/SRR445239_1.fastq.gz$
SRR447746.fastq	12077910	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR447/SRR447746/SRR447746.fastq.gz
SRR447747.fastq	12077910	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR447/SRR447747/SRR447747.fastq.gz
SRR448375.fastq	8703586	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR448/SRR448375/SRR448375.fastq.gz
SRR448376.fastq	18597630	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR448/SRR448376/SRR448376.fastq.gz
SRR448378.fastq	2151255	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR448/SRR448378/SRR448378.fastq.gz
SRR448379.fastq	18619182	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR448/SRR448379/SRR448379.fastq.gz
SRR448380.fastq	20000000	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR448/SRR448380/SRR448380.fastq.gz

Table S4: Details of dataset-100 (100 files, $197.97\mathrm{GB}$)

Name	Read number	Retrieved from
SRR013495.fastq	3971263	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR013/SRR013495/SRR013495.fastq.gz
SRR013496.fastq	5115896	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR013/SRR013496/SRR013496.fastq.gz
SRR013497.fastq	6504569	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR013/SRR013497/SRR013497.fastq.gz
SRR013499.fastq	5884129	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR013/SRR013499/SRR013499.fastq.gz
SRR013500.fastq	9159886	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR013/SRR013500/SRR013500.fastq.gz
SRR013501.fastq	5684218	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR013/SRR013501/SRR013501.fastq.gz
${\bf SRR013528.fastq}$	4028371	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR013/SRR013528/SRR013528.fastq.gz
${\bf SRR013529.fastq}$	4559407	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR013/SRR013529/SRR013529.fastq.gz
${\bf SRR013531.fastq}$	4781540	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR013/SRR013531/SRR013531.fastq.gz
${\bf SRR013532.fastq}$	6475821	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR013/SRR013532/SRR013532.fastq.gz
${\bf SRR013533.fastq}$	6257147	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR013/SRR013533/SRR013533.fastq.gz
${\bf SRR014480.fastq}$	9548334	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR014/SRR014480/SRR014480.fastq.gz
${\bf SRR014482.fastq}$	6934214	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR014/SRR014482/SRR014482.fastq.gz
SRR014483.fastq	10843095	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR014/SRR014483/SRR014483.fastq.gz
SRR014485.fastq	17748216	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR014/SRR014485/SRR014485.fastq.gz
SRR016657.fastq	5297302	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR016/SRR016657/SRR016657.fastq.gz
${\bf SRR016658.fastq}$	5649145	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR016/SRR016658/SRR016658.fastq.gz

SRR016659.fastq	5858682	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR016/SRR016659/SRR016659.fastq.gz
SRR016660.fastq	5520965	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR016/SRR016660/SRR016660.fastq.gz
SRR020725.fastq	13714225	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR020/SRR020725/SRR020725.fastq.gz
SRR020730.fastq	9860543	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR020/SRR020730/SRR020730.fastq.gz
SRR026735.fastq	32979341	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR020/SRR020735/SRR020735.fastq.gz
SRR026736.fastq	30280269	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR020/SRR020736/SRR020736.fastq.gz
SRR026737.fastq	30140163	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR020/SRR020737/SRR020737.fastq.gz
SRR026739.fastq	40085387	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR020/SRR020739/SRR020739.fastq.gz
SRR026740.fastq	31755713	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR020/SRR020740/SRR020740.fastq.gz
SRR027721.fastq	10653262	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR027/SRR027721/SRR027721.fastq.gz
SRR027729.fastq	8253275	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR027/SRR027729/SRR027729.fastq.gz
SRR028687.fastq	4652065	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR028/SRR028687/SRR028687.fastq.gz
${\rm SRR028688.fastq}$	4560037	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR028/SRR028688/SRR028688.fastq.gz
${\rm SRR}028689. {\rm fastq}$	4455967	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR028/SRR028689/SRR028689.fastq.gz
SRR029570.fastq	8563815	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR029/SRR029570/SRR029570.fastq.gz
SRR029571.fastq	7531808	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR029/SRR029571/SRR029571.fastq.gz
SRR066593.fastq	21006018	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR066/SRR066593/SRR066593.fastq.gz
SRR080711.fastq	14017947	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR080/SRR080711/SRR080711.fastq.gz
SRR080715.fastq	24197156	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR080/SRR080715/SRR080715.fastq.gz
SRR080716.fastq	22894550	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR080/SRR080716/SRR080716.fastq.gz
SRR080717.fastq	20673618	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR080/SRR080717/SRR080717.fastq.gz
SRR080718.fastq	19001046	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR080/SRR080718/SRR080718.fastq.gz
SRR080720.fastq	14795589	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR080/SRR080720/SRR080720.fastq.gz
SRR084762.fastq	25184235	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR084/SRR084762/SRR084762.fastq.gz
SRR084763.fastq	29554060	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR084/SRR084763/SRR084763.fastq.gz
SRR084765.fastq	24060050	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR084/SRR084765/SRR084765.fastq.gz
SRR084766.fastq	29958406	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR084/SRR084766/SRR084766.fastq.gz
SRR084767.fastq	10133748	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR084/SRR084767/SRR084767.fastq.gz
SRR084768.fastq	16672771	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR084/SRR084768/SRR084768.fastq.gz
SRR084769.fastq	40134954	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR084/SRR084769/SRR084769.fastq.gz
SRR084770.fastq	32869693	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR084/SRR084770/SRR084770.fastq.gz
SRR088652.fastq	21660781	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR088/SRR088652/SRR088652.fastq.gz
SRR088653.fastq	7079884	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR088/SRR088653/SRR088653.fastq.gz
SRR088654.fastq	24464213	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR088/SRR088654/SRR088654.fastq.gz
SRR090691.fastq	17476965	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR090/SRR090691/SRR090691.fastq.gz
SRR090692.fastq	14647692	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR090/SRR090692/SRR090692.fastq.gz
SRR090693.fastq	13287496	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR090/SRR090693/SRR090693.fastq.gz
SRR090695.fastq	13870449	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR090/SRR090695/SRR090695.fastq.gz
SRR090697.fastq	10980890	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR090/SRR090697/SRR090697.fastq.gz
SRR094511.fastq	1441633	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR094/SRR094511/SRR094511.fastq.gz
SRR094512.fastq	7657150	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR094/SRR094512/SRR094512.fastq.gz
SRR094513.fastq	7736706	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR094/SRR094513/SRR094513.fastq.gz

SRR094514.fastq	7583385	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR094/SRR094514/SRR094514.fastq.gz
SRR094516.fastq	773118	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR094/SRR094516/SRR094516.fastq.gz
SRR094517.fastq	5752685	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR094/SRR094517/SRR094517.fastq.gz
SRR094525.fastq	7444615	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR094/SRR094525/SRR094525.fastq.gz
SRR095649.fastq	9294528	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR095/SRR095649/SRR095649.fastq.gz
SRR095650.fastq	8779699	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR095/SRR095650/SRR095650.fastq.gz
SRR095652.fastq	20858642	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR095/SRR09552/SRR095652.fastq.gz
SRR095654.fastq	4846577	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR095/SRR09554/SRR095654.fastq.gz
SRR095655.fastq	5403390	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR095/SRR09554/SRR095654.fastq.gz
SRR095656.fastq	18082551	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR095/SRR09556/SRR095656.fastq.gz
SRR095669.fastq	14148223	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR095/SRR09569/SRR095669.fastq.gz
SRR096532.fastq	32542377	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR096/SRR096532/SRR096532.fastq.gz
SRR096533.fastq	28304102	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR096/SRR096533/SRR096533.fastq.gz
SRR096534.fastq	20135423	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR096/SRR096534/SRR096534.fastq.gz
SRR096535.fastq	16893565	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR096/SRR096535/SRR096535.fastq.gz
SRR096536.fastq	26572941	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR096/SRR096536/SRR096536.fastq.gz
SRR096538.fastq	15101283	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR096/SRR096538/SRR096538.fastq.gz
SRR096539.fastq	14559143	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR096/SRR096539/SRR096539.fastq.gz
SRR096540.fastq	13960496	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR096/SRR096540/SRR096540.fastq.gz
SRR097543.fastq	22199559	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR097/SRR097543/SRR097543.fastq.gz
SRR097544.fastq	18732099	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR097/SRR097544/SRR097544.fastq.gz
SRR097545.fastq	30471715	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR097/SRR097545/SRR097545.fastq.gz
SRR097547.fastq	32581224	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR097/SRR097547/SRR097547.fastq.gz
SRR097548.fastq	29890600	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR097/SRR097548/SRR097548.fastq.gz
SRR097549.fastq	6201090	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR097/SRR097549/SRR097549.fastq.gz
SRR097550.fastq	33301051	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR097/SRR097550/SRR097550.fastq.gz
SRR097556.fastq	25748009	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR097/SRR097556/SRR097556.fastq.gz
SRR097557.fastq	7897159	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR097/SRR097557/SRR097557.fastq.gz
SRR097558.fastq	34114251	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR097/SRR097558/SRR097558.fastq.gz
SRR097559.fastq	5145574	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR097/SRR097559/SRR097559.fastq.gz
SRR097560.fastq	18143915	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR097/SRR097560/SRR097560.fastq.gz
SRR097561.fastq	6980830	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR097/SRR097561/SRR097561.fastq.gz
SRR112679.fastq	30758792	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR112/SRR112679/SRR112679.fastq.gz
SRR112681.fastq	28366417	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR112/SRR112681/SRR112681.fastq.gz
SRR112684.fastq	22888982	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR112/SRR112684/SRR112684.fastq.gz
SRR112685.fastq	25292030	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR112/SRR112685/SRR112685.fastq.gz
SRR112687.fastq	25199157	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR112/SRR112687/SRR112687.fastq.gz
SRR121525.fastq	19855297	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR121/SRR121525/SRR121525.fastq.gz
SRR121527.fastq	24432741	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR121/SRR121527/SRR121527.fastq.gz
SRR121528.fastq	30911782	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR121/SRR121528/SRR121528.fastq.gz
SRR121530.fastq	31046209	http://ftp.sra.ebi.ac.uk/vol1/fastq/SRR121/SRR121530/SRR121530.fastq.gz

Pseudo code 2

Algorithm 1 Path graph construction

```
1: procedure Construct(Vertex set V, Distance matrix D)
         n \leftarrow \mathtt{vertex} \ \mathtt{number}
         W \leftarrow \text{Weight Matrix}, W[i][j] = e^{-D[i][j]}
 3:
         w \leftarrow \text{ elements array}, w[i] \leftarrow \text{the id of highest value in the} ith row of W
 4:
 5:
         p \leftarrow \text{vertex array}.
         W[a][b] \leftarrow \texttt{maximum} value in W
 6:
         W[a][b] \leftarrow -1, W[b][a] \leftarrow -1
 7:
         p[1] \leftarrow a, p[2] \leftarrow b
 8:
         for i = 2; i < n \text{ do } i++
 9:
              p[i+1] \leftarrow w[p[i]]
10:
              W[p[i]][p[i+1]] \leftarrow -1
11:
              W[p[i+1]][p[i]] \leftarrow -1
12:
13:
         return p
```

N50 score of files corrected by Karect with different parameter values 3

In the graphs in this section, empty bar indicates that the N50 score of corresponding value was not computed correctly.



sive values of Karect

Figure 1: N50 score of SRR354181 with different aggres-Figure 2: N50 score of SRR354182 with different aggressive values of Karect

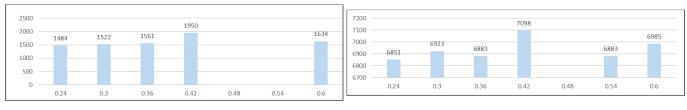
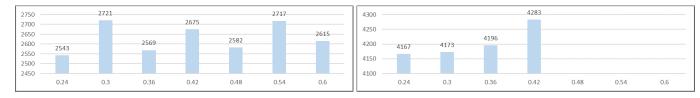


Figure 3: N50 score of **SRR361240** with different **aggres**sive values of Karect

Figure 4: N50 score of SRR361241 with different aggressive values of Karect



sive values of Karect

Figure 5: N50 score of SRR361243 with different aggres- Figure 6: N50 score of SRR361245 with different aggressive values of Karect

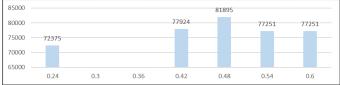
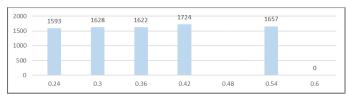
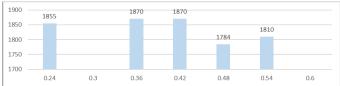




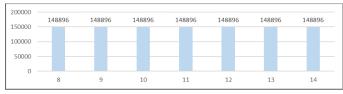
Figure 7: N50 score of SRR387479 with different aggres- Figure 8: N50 score of SRR387480 with different aggressive values of Karect

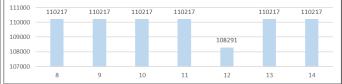




sive values of Karect

Figure 9: N50 score of SRR401414 with different aggres- Figure 10: N50 score of SRR401415 with different aggressive values of Karect





values of Karect

Figure 11: N50 score of SRR354181 with different kmer Figure 12: N50 score of SRR354182 with different kmer values of Karect



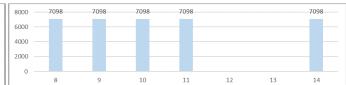
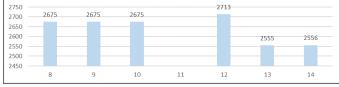
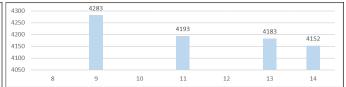


Figure 13: N50 score of SRR361240 with different kmer Figure 14: N50 score of SRR361241 with different kmer values of Karect

values of Karect





values of Karect

Figure 15: N50 score of SRR361243 with different kmer Figure 16: N50 score of SRR361245 with different kmer values of Karect



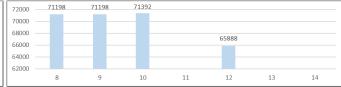
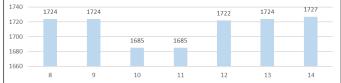


Figure 17: N50 score of SRR387479 with different kmer Figure 18: N50 score of SRR387480 with different kmer values of Karect

values of Karect



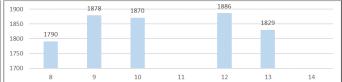
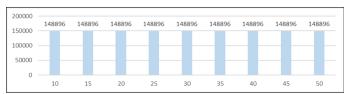
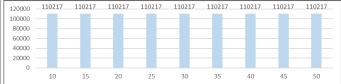


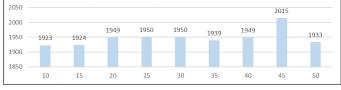
Figure 19: N50 score of SRR401414 with different kmer Figure 20: N50 score of SRR401415 with different kmer values of Karect values of Karect

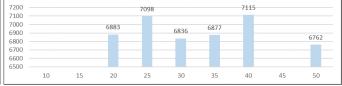




merres values of Karect

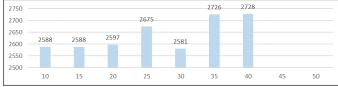
Figure 21: N50 score of SRR354181 with different maxk- Figure 22: N50 score of SRR354182 with different maxkmerres values of Karect

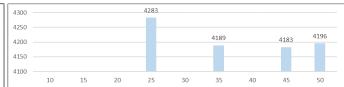




merres values of Karect

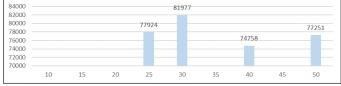
Figure 23: N50 score of SRR361240 with different maxk- Figure 24: N50 score of SRR361241 with different maxkmerres values of Karect

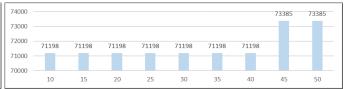




merres values of Karect

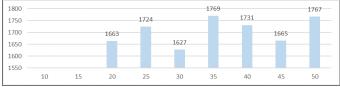
Figure 25: N50 score of SRR361243 with different maxk- Figure 26: N50 score of SRR361245 with different maxkmerres values of Karect

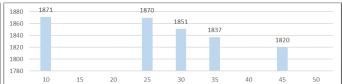




merres values of Karect

Figure 27: N50 score of SRR387479 with different maxk- Figure 28: N50 score of SRR387480 with different maxkmerres values of Karect





merres values of Karect

Figure 29: N50 score of SRR401414 with different maxk- Figure 30: N50 score of SRR401415 with different maxkmerres values of Karect