Supplementary Information (ESM_1)

Forecasts that change the future: a closed timelike curve model on quantum hardware

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S1 Records of the experiment

The plan, the script, the specification and the compiled circuits were published on Zenodo at `https://doi.org/10.5281/zenodo.24297205`. The record's metadata gives its creation as 03:19:43 UTC on 17 November 2026, and until version 2.0.0 was added it gave the last update in the same second. Table S1 gives the checksums shown on the record, which match the files used for the jobs. Version 2.0.0 of the record, at `https://doi.org/10.5281/zenodo.24352180`, adds the counts, IBM's job records, the analysis outputs and the code. It carries the same four files with the same checksums.

Table S2 gives the two jobs with the time the script recorded at submission, on the author's computer, and three times from IBM's record of the job: its creation and the beginning and end of its execution. The execution times are those of the first and last execution in the timing record that IBM returns with the results. IBM created the first job 174 seconds after the record was created. The script enforced the interval of 24 hours between sessions on its own clock, by which the sessions were 24 hours and 27 seconds apart. By IBM's creation times they were 23 hours, 59 minutes and 7 seconds apart, and by its times for the beginning of execution 24 hours and 7 seconds apart. The SHA-256 hash of the specification is `25c6fab13b3709326e99e405afa1a7674d1a3e4a55eba693136b66998bec2664`. Each job's local record holds it, and IBM's records do not.

One job was submitted in each session. Neither failed and neither was resubmitted. Each sent the 18 lodged circuits as 38 groups of parameter sets, with every execution at 64 shots, as two Pauli-twirling randomisations of 32 shots. When the jobs were submitted, IBM reported readout errors of 0.017, 0.013 and 0.015 for qubits 58, 51 and 52 and two-qubit gate errors of 0.0019 and 0.0035 for the couplers between qubits 51 and 58 and between 51 and 52. The script read these figures from the properties that IBM reports for the processor and recorded no calibration time for them. The figures recorded at the two sessions are identical in every digit, which indicates that IBM had not refreshed them between the sessions, so they give no separate reading of the processor on the second day.

Table S1 Files of the plan record, with the MD5 checksums shown by Zenodo

File	MD5
Confirmatory experiment plan.docx	`0ebb68ef5a85ac0ed6cb92bd23a7d6fc`
forecast_loop.py	`71fdb1d03a1df156a8d9fe9c76369d82`
specification.json	`cab75ea50fa14d2864a9d9ce92b6e1af`
circuits.qpy	`83330c99dfc9052a17ee8680f8c937cd`

Table S2 Jobs of the hardware experiment on ibm_kingston in November 2026, with times in UTC. The script clock is the time recorded on the author's computer at submission. IBM's record gives the creation of each job and the beginning and end of its execution. Each job had 331,776 benchmark shots, 61,440 calibration shots and 12,288 witness shots

			Script	IBM's record		
Session	Date	IBM job identifier	clock	Created	Began	Ended
1	17 Nov	`dbtsgvc9po4c73ce7u70`	03:20:53	03:22:37	03:23:30	03:25:43
2	18 Nov	`dbuhji782tmc73dtdg9g`	03:21:20	03:21:44	03:23:37	03:25:49

S2 Compiled circuits

Table S3 gives the compiled benchmark circuits. The unlinked arm runs the compiled circuits of the primary arm. The plan refers to the loop circuit of Fig. 1b of the draft of this article that was current when the plan was lodged, which drew the controlled gate for $b = 1$ with its control on F. Fig. 1b of the main text draws the primary arm as compiled, with the control on R, as the plan specifies for that arm.

Table S3 Compiled benchmark circuits. Physical qubits are those of F, O and R

Arm	Outcome function	Two-qubit gates	Depth	Qubits F, O, R
Primary and unlinked	$b = 0$	2	11	58, 52, 51
Primary and unlinked	$b = 1$	3	15	58, 52, 51
One pair	$b = 0$	1	10	58, 52, 51
One pair	$b = 1$	1	11	58, 51, 52
Original	$b = 0$	5	21	58, 52, 51
Original	$b = 1$	7	29	58, 51, 52

S3 Results by arm and setting

Tables S4 to S7 give every arm at every setting, pooled over the two sessions. The tests of the main text apply to Table S4 only.

Table S4 Primary arm, two sessions pooled. Each interval is given below its estimate: 90% for the two differences, 95% for the loop weight

Setting	Acceptance	Acceptance minus error-free	Loop weight of the recession forecast	Filter weight	Loop minus filter, Δ
$\alpha = -1$	0.3726	-0.0024 -0.0098 to 0.0047	0.5406 0.5248 to 0.5550	0.5450	-0.0044 -0.0179 to 0.0087
$\alpha = -0.5$	0.2875	-0.0042 -0.0114 to 0.0024	0.4535 0.4371 to 0.4686	0.4667	-0.0132 -0.0277 to -0.0002
$\alpha = 0$	0.2477	-0.0023 -0.0092 to 0.0045	0.2459 0.2300 to 0.2615	0.2311	0.0149 0.0005 to 0.0287
$\alpha = 0.5$	0.1881	0.0006 -0.0055 to 0.0067	0.1338 0.1177 to 0.1507	0.1215	0.0124 -0.0029 to 0.0273
$\alpha = 1$	0.1749	0.0030 -0.0028 to 0.0087	0.0155 0.0024 to 0.0287	0.0085	0.0070 -0.0059 to 0.0191
Floor	0.1540	0.0029 -0.0008 to 0.0069	0.0270 0.0150 to 0.0390	0.0144	0.0127 0.0014 to 0.0238

Table S5 Unlinked arm, two sessions pooled. Each interval is given below its estimate: 90% for the two differences, 95% for the loop weight

Setting	Acceptance	Acceptance minus error-free	Loop weight of the recession forecast	Filter weight	Loop minus filter, Δ
$\alpha = -1$	0.3635	-0.0115 -0.0190 to -0.0042	0.5313 0.5165 to 0.5465	0.5424	-0.0110 -0.0242 to 0.0025
$\alpha = -0.5$	0.2984	0.0067 -0.0005 to 0.0140	0.4581 0.4410 to 0.4742	0.4668	-0.0087 -0.0231 to 0.0055
$\alpha = 0$	0.2531	0.0031 -0.0037 to 0.0103	0.2298 0.2141 to 0.2450	0.2288	0.0010 -0.0134 to 0.0149
$\alpha = 0.5$	0.1894	0.0019 -0.0042 to 0.0078	0.1339 0.1179 to 0.1507	0.1185	0.0154 0.0002 to 0.0304
$\alpha = 1$	0.1763	0.0044 -0.0014 to 0.0102	0.0211 0.0080 to 0.0332	0.0080	0.0131 0.0010 to 0.0245
Floor	0.1547	0.0037 -0.0002 to 0.0078	0.0206 0.0092 to 0.0316	0.0118	0.0088 -0.0020 to 0.0194

Table S6 One-pair arm, two sessions pooled. Each interval is given below its estimate: 90% for the two differences, 95% for the loop weight

Setting	Acceptance	Acceptance minus error-free	Loop weight of the recession forecast	Filter weight	Loop minus filter, Δ
$\alpha = -1$	0.3733	-0.0017 -0.0089 to 0.0054	0.5334 0.5181 to 0.5482	0.5420	-0.0086 -0.0214 to 0.0037
$\alpha = -0.5$	0.2874	-0.0043 -0.0113 to 0.0024	0.4501 0.4335 to 0.4658	0.4638	-0.0137 -0.0277 to 0.0003
$\alpha = 0$	0.2387	-0.0113 -0.0179 to -0.0048	0.2267 0.2109 to 0.2422	0.2299	-0.0032 -0.0165 to 0.0101
$\alpha = 0.5$	0.1915	0.0040 -0.0020 to 0.0104	0.1209 0.1053 to 0.1364	0.1076	0.0133 -0.0007 to 0.0276
$\alpha = 1$	0.1715	-0.0004 -0.0061 to 0.0056	0.0153 0.0031 to 0.0275	0.0033	0.0120 0.0000 to 0.0240
Floor	0.1530	0.0020 -0.0022 to 0.0059	0.0114 0.0003 to 0.0225	-0.0017	0.0130 0.0016 to 0.0243

Table S7 Original arm, two sessions pooled. Each interval is given below its estimate: 90% for the two differences, 95% for the loop weight

Setting	Acceptance	Acceptance minus error-free	Loop weight of the recession forecast	Filter weight	Loop minus filter, Δ
$\alpha = -1$	0.3614	-0.0136 -0.0206 to -0.0064	0.5315 0.5176 to 0.5466	0.5441	-0.0126 -0.0251 to 0.0003
$\alpha = -0.5$	0.2852	-0.0064 -0.0130 to 0.0004	0.4522 0.4364 to 0.4690	0.4633	-0.0111 -0.0249 to 0.0037
$\alpha = 0$	0.2450	-0.0050 -0.0115 to 0.0019	0.2386 0.2220 to 0.2546	0.2351	0.0035 -0.0119 to 0.0181
$\alpha = 0.5$	0.1876	0.0001 -0.0059 to 0.0061	0.1460 0.1295 to 0.1631	0.1320	0.0140 -0.0016 to 0.0301
$\alpha = 1$	0.1753	0.0035 -0.0023 to 0.0096	0.0424 0.0270 to 0.0577	0.0319	0.0105 -0.0038 to 0.0247
Floor	0.1555	0.0044 -0.0012 to 0.0102	0.0616 0.0444 to 0.0786	0.0302	0.0314 0.0157 to 0.0471

S4 Results by session

Table S8 gives the primary arm in each session. The session estimates are those of the lodged analysis. Their intervals were calculated after the run, with the estimator and bootstrap of the lodged script. The lodged rule flags a tested quantity when the two sessions differ by more than a fixed multiple of the bootstrap standard error of their difference, 2 for the floor leakage and 2.64 for each setting of tests 2 and 3. The rule covers tests 1 to 3, and none of their quantities was flagged. The largest ratios were 1.36 for the floor leakage and 2.23 for the acceptance difference at the floor setting.

Table S8 Primary arm in each session. Each interval is given below its estimate: 90% for the two differences, 95% for the loop weight

Setting	Session	Acceptance minus error-free	Loop weight of the recession forecast	Loop minus filter, Δ
$\alpha = -1$	1	0.0001	0.5423	−0.0003
		−0.0099 to 0.0106	0.5210 to 0.5634	−0.0190 to 0.0184
	2	−0.0050	0.5389	−0.0087
		−0.0150 to 0.0054	0.5177 to 0.5608	−0.0274 to 0.0113
$\alpha = -0.5$	1	−0.0046	0.4528	−0.0107
		−0.0143 to 0.0052	0.4305 to 0.4761	−0.0304 to 0.0088
	2	−0.0038	0.4541	−0.0158
		−0.0139 to 0.0056	0.4297 to 0.4787	−0.0370 to 0.0050
$\alpha = 0$	1	−0.0051	0.2503	0.0185
		−0.0145 to 0.0048	0.2266 to 0.2724	−0.0026 to 0.0390
	2	0.0004	0.2416	0.0114
		−0.0092 to 0.0096	0.2192 to 0.2634	−0.0089 to 0.0315
$\alpha = 0.5$	1	0.0015	0.1349	0.0131
		−0.0068 to 0.0097	0.1122 to 0.1582	−0.0080 to 0.0347
	2	−0.0002	0.1327	0.0116
		−0.0086 to 0.0083	0.1091 to 0.1567	−0.0099 to 0.0342
$\alpha = 1$	1	0.0020	0.0080	−0.0020
		−0.0059 to 0.0099	−0.0098 to 0.0249	−0.0187 to 0.0143
	2	0.0039	0.0229	0.0159
		−0.0045 to 0.0122	0.0039 to 0.0427	−0.0020 to 0.0340
Floor	1	0.0084	0.0193	0.0125
		0.0031 to 0.0141	0.0034 to 0.0349	−0.0035 to 0.0281
	2	−0.0025	0.0352	0.0136
		−0.0081 to 0.0032	0.0177 to 0.0519	−0.0036 to 0.0303

S5 Floor leakage by arm, and estimates without readout mitigation

Table S9 gives the floor leakage of each arm by session and pooled. The last column repeats the pooled estimate without readout mitigation. The session intervals and the unmitigated estimates were not part of the plan. They were calculated after the run from the same counts, with the estimator and bootstrap of the lodged script. The pooled estimate is formed from the average of the two sessions' mitigated distributions, so it is not the mean of the two session estimates.

Table S9 Floor leakage by arm. Each 95% interval is given below its estimate

Arm	Session 1	Session 2	Pooled	Pooled, unmitigated
One pair	0.0087	0.0141	0.0114	0.0551
	−0.0065 to 0.0244	−0.0021 to 0.0305	0.0003 to 0.0225	0.0482 to 0.0624
Primary	0.0193	0.0352	0.0270	0.0699
	0.0034 to 0.0349	0.0177 to 0.0519	0.0150 to 0.0390	0.0622 to 0.0783
Unlinked	0.0188	0.0225	0.0206	0.0641
	0.0020 to 0.0354	0.0053 to 0.0383	0.0092 to 0.0316	0.0568 to 0.0719
Original	0.0567	0.0667	0.0616	0.1076
	0.0335 to 0.0794	0.0423 to 0.0916	0.0444 to 0.0786	0.0949 to 0.1214

Without readout mitigation the floor leakage of the primary arm is 0.0699, above the limit of 0.05, and the differences between arms are little changed. The original arm exceeds the primary arm by 0.0376 unmitigated and by 0.0346 mitigated. In the primary arm the unmitigated acceptance difference is at most 0.011 in magnitude and the unmitigated difference between loop and filter at most 0.040. In the second session alone the upper limit of the mitigated interval for the primary arm is above 0.05.

The correction comes mainly from two readout errors (Table S10). Correcting the readout of the qubit carrying F alone lowers the floor leakage of the primary arm from 0.0699 to 0.0495, correcting that of the qubit carrying R alone lowers it to 0.0490, and correcting both gives 0.0280, against 0.0270 with the lodged correction. Correcting that of the qubit carrying O alone leaves it at 0.0699. On F the error that matters is a prepared 0 read as 1, with probability about 0.02, which adds directly to the accepted runs read as $F = 1$. Correcting it alone gives 0.0491. On R it is a prepared 1 read as 0, with probability about 0.015, which admits runs that should have been rejected. Correcting it alone gives 0.0490. A prepared 1 was read as 0 with probability about 0.03 on the qubit carrying O, but a misread O admits or rejects a run whatever its forecast value and leaves the weight unchanged. These figures were calculated after the run. They correct each qubit with the two error rates of its own calibration, taken over the states of the other two qubits, where the lodged correction inverts the full assignment matrix of the three qubits.

The mitigated value depends on each calibration being representative of readout during the benchmark circuits, which is why half of each calibration ran before those circuits and half after. The two halves agree. With the first halves alone the pooled floor leakage of the primary arm is 0.025, and with the second halves alone it is 0.029.

At the floor setting the constant-0 instances run on the $b = 0$ circuit and the NOT instances on the $b = 1$ circuit. Of the floor leakage of the primary arm, 0.0126 came from constant-0 instances and 0.0068 from NOT instances in the first session, and 0.0216 and 0.0136 in the

second. Both rose, so the higher leakage of the second session is not confined to the $b = 1$ circuit, whose witness fidelity fell between the sessions (Table S11).

Table S10 Readout calibration by compiled circuit and session. Mean assignment fidelity is the mean over the eight prepared states of the probability of reading the prepared state, for the half of the calibration run before the benchmark circuits and the half run after. Each error pair is the probability of reading 1 after preparing 0 and of reading 0 after preparing 1, over both halves

		Fidelity		Errors		
Compiled circuit	Session	Before	After	F	O	R
Primary and unlinked, $b = 0$	1	0.9582	0.9566	0.0225, 0.0092	0.0039, 0.0270	0.0107, 0.0137
Primary and unlinked, $b = 0$	2	0.9564	0.9551	0.0213, 0.0088	0.0037, 0.0336	0.0098, 0.0143
Primary and unlinked, $b = 1$	1	0.9537	0.9574	0.0236, 0.0086	0.0045, 0.0312	0.0082, 0.0148
Primary and unlinked, $b = 1$	2	0.9582	0.9592	0.0215, 0.0074	0.0029, 0.0279	0.0096, 0.0162
One pair, $b = 0$	1	0.9561	0.9588	0.0219, 0.0072	0.0039, 0.0287	0.0113, 0.0146
One pair, $b = 0$	2	0.9615	0.9541	0.0207, 0.0078	0.0061, 0.0271	0.0104, 0.0139
One pair, $b = 1$	1	0.9611	0.9576	0.0248, 0.0092	0.0084, 0.0127	0.0027, 0.0252
One pair, $b = 1$	2	0.9578	0.9584	0.0211, 0.0072	0.0090, 0.0127	0.0041, 0.0312
Original, $b = 0$	1	0.9615	0.9584	0.0211, 0.0082	0.0047, 0.0240	0.0088, 0.0162
Original, $b = 0$	2	0.9557	0.9574	0.0262, 0.0059	0.0049, 0.0289	0.0094, 0.0141
Original, $b = 1$	1	0.9570	0.9580	0.0199, 0.0080	0.0098, 0.0152	0.0029, 0.0312
Original, $b = 1$	2	0.9527	0.9617	0.0232, 0.0084	0.0104, 0.0133	0.0035, 0.0293

S6 Witness circuits

Table S11 gives the witness fidelity by session and pooled, with and without readout mitigation. The session intervals and the unmitigated values were calculated after the run. In the primary circuit for $b = 1$ the fidelity was 0.9779 in the first session and 0.9480 in the second. The difference of 0.0299 is 2.8 times its bootstrap standard error of 0.0105. The lodged rule for disagreement between sessions does not cover the witness. The fidelity for $b = 0$ did not change, and every primary value is above $1/2$ in each session, with and without mitigation.

Table S11 Bell-state fidelity in the witness circuits, with and without readout mitigation. Each 95% interval is given below its estimate

Arm	Circuit	Pair	Readout	Session 1	Session 2	Pooled
Primary	$b = 0$	F, R	Mitigated	0.9791	0.9792	0.9792
				0.9662 to 0.9918	0.9657 to 0.9925	0.9695 to 0.9882
			Unmitigated	0.9399	0.9385	0.9392
Primary	$b = 1$	F, O	Mitigated	0.9779	0.9480	0.9630
				0.9637 to 0.9914	0.9333 to 0.9637	0.9528 to 0.9734
			Unmitigated	0.9346	0.9067	0.9207
Unlinked	$b = 0$	F, R	Mitigated	0.4971	0.5009	0.4990
				0.4735 to 0.5211	0.4764 to 0.5256	0.4822 to 0.5153
			Unmitigated	0.4824	0.4868	0.4846
Unlinked	$b = 1$	F, O	Mitigated	0.4834	0.4851	0.4842
				0.4592 to 0.5075	0.4623 to 0.5101	0.4684 to 0.5009
			Unmitigated	0.4697	0.4697	0.4697

S7 Comparisons between arms

Table S12 gives the differences between arms at the floor setting from the lodged analysis.

Table S12 Differences between arms at the floor setting, pooled, with paired bootstrap intervals

Comparison	Difference	95% interval
Floor leakage, original minus primary	0.0346	0.0138 to 0.0552
Floor leakage, primary minus unlinked	0.0064	−0.0056 to 0.0191
Floor leakage, primary minus one pair	0.0156	−0.0005 to 0.0316
Floor acceptance, primary minus unlinked	−0.0008	−0.0070 to 0.0056

Table S13 gives the primary arm minus the unlinked arm at every setting. The plan fixed this comparison at the floor setting only, and the other rows were calculated after the run. Every interval includes zero. The table comes from a separate bootstrap run, so the interval limits of its floor row differ from those of Table S12 by up to 0.0006.

Table S13 Primary arm minus unlinked arm at each setting, pooled. Each 95% interval is given below its estimate

Setting	Acceptance	Loop weight of the recession forecast	Loop minus filter, Δ
$\alpha = -1$	0.0091	0.0093	0.0066
	−0.0032 to 0.0206	−0.0127 to 0.0302	−0.0159 to 0.0282
$\alpha = -0.5$	−0.0109	−0.0046	−0.0045
	−0.0220 to 0.0004	−0.0285 to 0.0165	−0.0280 to 0.0169
$\alpha = 0$	−0.0054	0.0161	0.0139
	−0.0170 to 0.0051	−0.0040 to 0.0374	−0.0075 to 0.0359
$\alpha = 0.5$	−0.0013	−0.0001	−0.0031
	−0.0105 to 0.0086	−0.0214 to 0.0199	−0.0263 to 0.0186
$\alpha = 1$	−0.0014	−0.0056	−0.0061
	−0.0108 to 0.0077	−0.0208 to 0.0096	−0.0225 to 0.0106
Floor	−0.0008	0.0064	0.0039
	−0.0068 to 0.0059	−0.0061 to 0.0185	−0.0098 to 0.0174

S8 Noise model lodged with the plan

The model applies a depolarising error to each two-qubit gate, one tenth of that error to each single-qubit gate, and the readout errors measured in the pilot jobs. The gate error was set to 1.0% and to 1.6%, chosen to match the floor leakage that the plan gives for the pilot circuits with 5 and 7 two-qubit gates in the two pilot jobs that ran them, 0.050 and 0.081. At these errors the model gives 0.055 and 0.084 for the original arm. The figure of 0.050 is the estimate of job 4 without setting negative values to zero, and 0.081 is the estimate of job 2 with that step. Without it the estimate of job 2 is 0.080. The plan records that the model does not reproduce the control-arm values of the pilots closely. In 60 synthetic experiments per case, the primary arm met the leakage test in every experiment with both sessions at the lower gate error, in 97% with one session at each, and in 80% with both at the higher. With both sessions at the higher gate error and a readout error on the middle qubit 0.010 higher during the benchmark circuits than at calibration, it met the test in 8%.

S9 Pilot jobs

Four jobs ran on IBM Kingston on 12 November 2026 (UTC), with circuits built from the same 48 instances per setting. Their IBM job identifiers and submission times are `dbqhae0k09pc73at8vc0` (01:24 UTC), `dbqjns6jjaos73ahdlsg` (04:09),

dbr19e9abdes73fp3p2g (19:34) and dbr1m8ejjaos73ai5cr0 (20:01). Job 1 ran a ten-qubit circuit alone, under two criteria of its own. The first three criteria used for job 4 were fixed for job 2, after job 1 had run, and the fourth for job 3. Job 2 ran the same compiled circuits as job 4, on the same qubits and with the same options, and missed the leakage and equivalence criteria.

The SHA-256 hash of the specification of job 4 is d8f5596914b72a7e2c713a7045520260c3fcb7ebc1623c39721f0a15d667aaa7. It was written to the run record on the author's computer when the job was submitted and is not held by IBM or by any third party, so it shows that the deposited specification matches the one in the run record and does not show when it was written. That specification does not mention readout mitigation, which the analysis applied. The local run folders of jobs 1 to 3 were not retained. Their counts and results were reconstructed from IBM's records of the jobs. The records, counts, analysis and scripts of all four jobs are at https://doi.org/10.5281/zenodo.24267517.

Table S14 Pilot jobs 1 to 3

Job	Content	Result
1	Ten-qubit circuit with 171 two-qubit gates at all six settings; loop and control	Floor leakage 0.2727 (95% interval 0.2518 to 0.2936). Its own two criteria were met: loop and control-predicted weights within a total variation distance of 0.05 at every setting (largest 0.047), and a suppression factor for the recession forecast at α = 1, the input weight of 1/2 divided by its loop weight, of 1.97 (95% interval 1.83 to 2.13), above 1
2	Circuits with 5 and 7 two-qubit gates, and the ten-qubit circuit, at all six settings; loop and control	Circuits with 5 and 7 gates: acceptance criterion met (largest difference from error-free 0.0104); leakage criterion missed, 0.0812 (95% interval 0.0681 to 0.0997); equivalence criterion missed at the floor setting, where the 90% interval for Δ reached 0.0550. Ten-qubit circuit: floor leakage 0.3159 (0.2953 to 0.3389), which is 0.2347 (0.2048 to 0.2603) above that of the shorter circuits
3	Witness circuits only	Entanglement criterion met: fidelity 0.9762 (95% interval 0.9657 to 0.9820) for b = 0 and 0.9593 (0.9490 to 0.9671) for b = 1

Table S15 gives job 4 at each setting. Its analysis set negative mitigated values to zero within each instance, which can only raise an estimate whose true value is near zero. Without that step the floor leakage is 0.0500 (95% interval 0.0324 to 0.0663), and without readout mitigation it is 0.1022 (0.0886 to 0.1154). The witness fidelity in job 4 was 0.9636 (0.9533 to 0.9709) for b = 0 and 0.9418 (0.9315 to 0.9510) for b = 1. Job 4 also ran the ten-qubit

circuit, whose floor leakage was 0.323 (0.303 to 0.346), the value quoted in the main text.

Table S15 Pilot job 4, circuits with 5 and 7 two-qubit gates, under the analysis of its own specification. Each interval is given below its estimate: 90% for the two differences, 95% for the loop weight

Setting	Acceptance minus error-free	Loop weight of the recession forecast	Filter weight	Loop minus filter, Δ
$\alpha = -1$	-0.0078	0.5283	0.5402	-0.0119
	-0.0150 to -0.0003	0.5136 to 0.5428		-0.0242 to 0.0015
$\alpha = -0.5$	-0.0192	0.4559	0.4660	-0.0101
	-0.0257 to -0.0117	0.4404 to 0.4732		-0.0235 to 0.0051
$\alpha = 0$	-0.0018	0.2529	0.2464	0.0064
	-0.0083 to 0.0053	0.2395 to 0.2698		-0.0051 to 0.0223
$\alpha = 0.5$	-0.0013	0.1575	0.1411	0.0164
	-0.0067 to 0.0056	0.1454 to 0.1777		0.0050 to 0.0338
$\alpha = 1$	0.0027	0.0583	0.0322	0.0261
	-0.0029 to 0.0094	0.0489 to 0.0755		0.0158 to 0.0402
Floor	0.0084	0.0535	0.0414	0.0121
	0.0035 to 0.0147	0.0451 to 0.0729		0.0021 to 0.0282