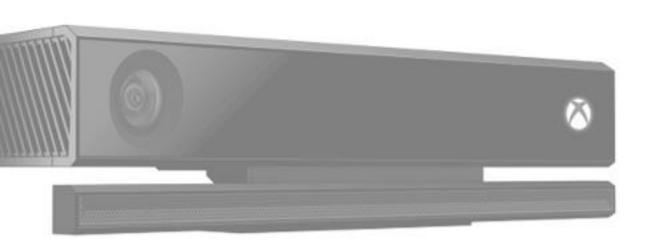
KUNNEN WE ACTIEVE BEWEGING METEN?

Een onderzoek naar de mogelijkheden van Kinect om een fysiotherapeut te ondersteunen bij het bepalen van painful arcs

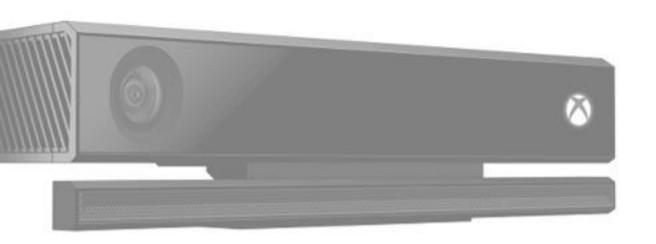






Bezig geweest met..

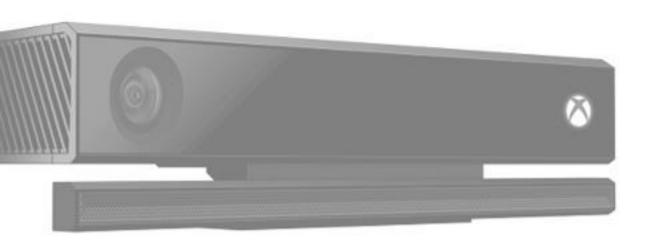
- Programmeren: uitvinden werking kinect, doel is data opslaan
- Plannen van opname sessie
- Opnemen van studenten met deze applicatie





Applicatie voor opslaan data

Demo





Spelen met eerste data

*	- V		tallarana	In Topola	STREET, SHIPPING - S.	KT -	V3 -	74 -	XD -	VIB -	FF -	VIII E	SaintingS	203 E 1	(10) - Loanfracting	Hamiltight's	Hamilton Control	Hand and	HamilityleContail	Halatera Taxos I . Halatpus Fin
0.006	37 0,99094	-0,029511 0,9094	CRAMAN	WANT	7,2065+16 Sprediate	0.0320755	-0.004172	2,25979	0.0234745	0.3000554	-0,027382	-0.00W1	Tracked	0.0524499	0.1003115 NocTracked	Unknown	Low	Unknown-	Low	43734230082 0122-03-423
0.036	37. 0,93094	-0.0295H 0.9004	CNNAMA.	WANT	7,006+16 Spreffid	0.0464546	0.2603092	2.19525	6,0236351	0.3067934	-0.02754	-0.033623	Tracked	0.0824499	0.1003115 NorTracked	Unknown	Low	Unknown	Lov	43254233062 01,22:03 423
0.006	37 0.99094	-0,0005T 0,3004	CNAMA	WANE	7,2065+16 Neck				0.0250728	0.9909402	-0,064366	-0,036536	Tracked	0.0624439	0,500315 NoCracked	Unknown	Low	Unknown	Lev	49034239002 9122-03.423
	37 0.33534	-0.000511 0.3004		WAAR	T206E+B Head		0.7452571		0	. 0	0	. 0	Touched		0.1002195 NorTracked	Uninove	Line	Unknown.	Line	43034233082 0122-03-423
0.006	37 0,39094	-0,0005TI 0,9004		WANT	TJD6E+16 ShouldesLet	-0.107585	0.4327254	2,101905	0,7430540	-0.6563994	-0,01630	0,0700046	Tracked		0.100315 NorTracked	Undercore	Low	Unknown	Lin	43034233082 0122:03 4233
0.006	37 0,99094	-0,0285TI 0,9884		WANT	7.206E+16 ElsowLah	-0.753088	0,2272683	2,267489	0.797636	-0.165273	+0.884124	9,0263483	Tracked	0.0824499	0.1003195 NorTracked	Unknown	Low	Unknown.	Lew	49294233062 0122-03.4233
	PERSON 153	-0.02059 0.0004		WANT	T.206E+16 Workliefs				-0,406464						0,Y003195 NorTracked	Unknown	Lov	Unknown	Live	43234230082 0122-03 4233
	37 0,99094	-0:0295H 0.9094		- WAAR	7,206E+16 Handueh				-0.471975		0.80000395				0.1003195 NorTracked	Litemoore	Live	Unknown	Low	49234233062 0122:03.4233
	27 0,99094	-0.0000H 0.000H		VAME:	T,2055+16 ShoulderRight				0.7720339						0,0001% NoTracked	Chinner	Lin	Unknown.	Line	43034230082 0922:00.4230
	27 0,39094	-0.028511 0.3664		WANT	7,206E+16 Ebouflight				0.7670853		0.6252729				0,1003115 NorTracked	Unknown	Line	Unknown	Low	43234233082 0122:03 4235
	37. 0,99094	-0,028571 0,9684		VANI	7,200E+16 WooFlight				0.5854288						0,1003115 NorTracked	Unknown	Liw	Unknown	Line	49234230082 012200.4233
	27 0.99094	-0.0285TF 0.9884		WANT	7,206E+16 HandRight				0.5864637						0,1003195 NorTracked	Unknown	Lite	Linknown	Low	49234230062-0122-03-4233
	DT 0.99094	-0,028511 0,9884		VAMR :	7,206E+10 HpLah				-0.675207						0.00315 NoTracked	Uninove	Loe	Unknown.	Law	49234230082 0122:00.4230
	37 0,99094	-0.009511 - 0.0004		- WARR	7,208E+10 KneeLeft				-0.6819075						0.00305 NorTracked	Unknown:	Lite	Unknown:	Low	43034233082 0122-03-4233
	37 0.39894	-0.520511 0,9004		WWR	7,208E+16 Anti-Auto-				-0.885273	0.012503	0.8277995				0,00315 NoTracked	Uhánoun	Low	Unknown	Low	49034233082 0922-05-4235
	37 0.99094	-0.0295TI 0.9864		VAN	7,206E+16 Foodush		-0.878536		0		0		Tracked		0.1003115 NorTracked	Unknown	Low	Unknown	Low	49294293082 01:22:03:4235
	37 0,59094	-EJI29571 0,9004		WANT	7,206E-16 HoPsylv				0.6869230						0,00005 No Tracked	Unicom	Liter	Unknown	Los	492342500HZ 0122-03 4235
	37 0,99094	-0.028511 0.9604		WAAR	7.206E+16 KneeFegre				0.7302554						0.1003155 NorTracked	Uhlmoun	Low	Uninove.	Lite .	49234230082 0922:03.4233
	37 0,99094	-0.029511 0,9894		WARR	T,208E+16 Anshiright				0.6307352	0.0294687	0,7064742				0,00295 NorTracked	Uránove	Los	Unknown	Line	43034230062 0122:00:4230
	27 0.99694	-0,029611 0,9004		WWR	. 7,200E+10 Foodbyle		-0.88033		0	-			Tracked		0.100215 forTracked	Chlingers	Line	Unknown	Lite	49294233082 0122 03 4233
	37 0,39894	-0,0295H 0,9864		WWW					0.0045156	0.3001009	-0,04342				0,100305 NotTracked	Ublinous	Lim	Unknown	Line	43034233060 0122-03.4233
	37 0.99094	-0.008STI 0.9884		WANT	7,206E+16 HandTpLoh		<3.8(863)		0				Tracked		0.00315 No Tracked	Unknown	Low	Unknown	Low	49234230062 0122-03 4333
	37 0,99094	-0.029511 0,9004		WARE	7,206E+16 ThumbLeft		-0.006794			- 8	. 0		Tracked		0,00215 NoTracked	Unknown	Low	Unknown	Low	49234230062 0122:00.4235
	37 0.93094	-0.029511 0.9694		WAAR	T.206E+16 HandToPage		-0.110639		0	- 0	0		Tracked		0.0031% No Tracked	Uténoun	Low	Unknown.	Low	43234233082 0122:03 4233
	MODER, 0 TC	-0,0005TF 0,9894		VAAR	7,000+16 TrunkFlight		-0.00027		-		0		Tracked		0.00315 NorTracked	Unknown	Low	Orknown.	Low	49234230002 0122:00.4235
	37. 0.93094	-0,020511 0,9004		WAME	7,000 + 10 SpireDate				0.0235506						0.1003195 NorTracked	Uniness	kine .	Unknown	Low	49294573953-0522-03-4573
	37 0,53034	-0.028511 0.9684		WANT	7,2067 +16 SpineMel				0,0236/04						0.000705 NorTracked	Uhletown	Low	Unknown	Lev.	49234573953 0122:03:4571
	37 0,33054	-0:028511 0,9864		UAAR	7,206E+16 Neck				0.025 8652	0.3063403					0.300395 NorTracked	Uninquin	Low	Unknown	Low	43234873953 0122-03 4573
	37 0,99094	-0,020511 0,0004		VAAR	T,206E+16 Head		0,1451835			20000	0		Tracked		0,00016 NoTracked	Unknown	Low	Ordenseen.	Lee	43234573953 0122-03-4573
	37 0.99094	-0.028511 0.3084		VAME	7,200E+16 ShouldeLah		0.4307045		0.7436423						0.00295 No Tracked	Unknown	Los	Unknown	Low	40234573953 0122-03,4573
	37 0,00094	-0.009511 0,9004		VAME	T,206E+16 ElliewLafe T,206E+10 Most ale				0.712053						0.00316 Notherland	Unknown	Lon	Untrown	1 Line	43234573953 0122:00.4573
	37, 0,99094	-0.028511 0,9884		VAN		-0.199002		2,216637			0.8176536					Unknown	Los	Unknown	Low	43234573953 01,22:03:4573
	27 0.99094	-0.028511 0,9004	Laboration 6 0 0	WAAR	7.206E+16 HandLeft				-0.479502		0,9654000	8,0000			0.90395 NorTracked	Unknown	Low	Unknown	Lov	49234573953 0122:00.4573
	37 0,99094	-0,020511 0,9004		VAAR	7,206E+16 ShoulderPight				0.7979436						0.1003195 NorTracked	Chancolt	Low	Unknown	Liv	43234573963 0122:00.4571
	37 0,99094	-0.0295T 0.9094 -0.0295T 0.9094		WANT	7,200E+91 EboxFlight		0.2123228		0.500584T						0.100795 No/Tracked 0.100795 No/Tracked	Unknown	Lin	Unknown	Low	40234573953 0122:00:4573
	27 0.39094	-0.0205H 0.5004		VAUS	7,005 -10 Woolfight 7,005 -10 Handlight	0.2019062	-0.000531		0.505302		0.8394292				0.00005 No Tracked	Unknown.	Low	Unknown	Lee	43034573953 0122-03-4573 43034573953 0122-03-4573
	37 0.99094	-0.5295TI 0.3004		VAME	T.206E+16 HoLen	-0.042793			+0.675226			0.124351			0.100316 No Tracked	Uhlinown	Low	Unknown	Lov	45234573953 0122:00.4571
	37 0,35054	-0.0295H 0.9064		UAMA	7,596×6 KneeLen				-0.009524						0.00395 NoTracked	Dinon	Low	Unknown	Low	49234573953 0122-03-4573
	37 0.99094	-0.000071 0.3004		VAAR	T.206E+W. Ansiel, an				-0.555790						0.0001% Notherland	(Párost)	Los		Low	43234573953-0122-03-4573
	27 0.35034	-0.0205TI 0.3004		VAAR	T200E+16 Foodark		-0.079670		-0.000 cm	WALL STREET	Water Land St.		Tourist		0.000105 NorTracked	Unknown	Low	Unknown	Low	40234573953 0122-03-450
	27. 0.93094	-0.0285TI 0.9884		VAME	7.206E+10 HeRses				0.6061785	D. E. THOMAS	-0.999365				0.0031% NorTracked	Unknoon	Low	Unknown	Low	40234573953 0122 03 4973
	27 0.99094	-0.020511 0.3004		CAME	Y.206E+'E Kneefigh				0,7303906						0.000795 NorTracked	Unknown	Low	Unknown	Low	49234573953 0122-03.4573
	37. 0.93094	-0.1285TI 0.3884		VAAR	T.206E+16 ArelaFight	0.036045		2.309543			0.7953544				0.1003115 NorTracked	Uninovo	Low	Unknown	Low	43234573953 0122-034573
	ST 0.50054	-0.029511 0.9084		VAAR	1.20E+6 Feelight		-0.095792		ON NORTH		0,100,004		Tracked		0.00075 NoTracked	Unknown	Low	Unincen	Lite	43234573953 0122 03 4573
	37. 0.39094	-0.1005H 0.9004		VAAR	7,206E+W SpracShoulde				0.0246043	0.0000007	-0.043399				D 1003115 NorTracked	Unincen	Lite	Unknown	Low	43234573953 0122-03-4573
	T 0.00004	-0.020511 0.3004		VAAR	7,2065 v B HardToLen		-0.00053			-	. 0		Tracked		0.00076 Notherland	Unknown	Low	Unknown	Low	45034573853 01:22-03:4571
	37 0,39094	-0.029511 0.3004		VAMI	7,206E+16 TrumbLeft	4,223052			ė.	- 1	0		Tracked		0.00315 NoTracked	Unineer	Low	Unknown	Low	43234573953 0122-03.4573
	37 0.99654	-0.0285H 0.9894		WAVE	7,206-10 Handfaffight		-0.197446				- 6		Tracked		0.00016 forTracked	Unknown	Low	Uninown	Low	49234573953 0122-03-4571
	37 0.93034	-0.000511 0.5004		WAAR	7,206E+6 TrumbRight		-0.02709			- 7	0		Tracked		0 X00315 NotTracked	Unknown	Low	Unknown	Low	43234572953 0122-034573
	T 0.00004	-0.029511 0.3004		VAAR	1,000+6 Spreface				0.0236905	A WHITE	-0.07304A				0.00005 Nothwest	Uninous	Line	Chargen.	Law	4503490368 0122-03 4303
	17 0.99094	-0.0285TI 0.3884		WANG					0.023653						D. TOCOTTS Now Translated	Uninoun	Low	Linkropen	Low	4323630768 0122-03-4303
		-0.0000H 0.9884		VAME					0.0252701						0.00005 NoTracked	Uninous	Low	Grángem:	Low	4523430388 0122-014300
1000,000	Oct. (0.00000094				CALOR CHI THEIR	Section (sec.)	10.201214	5,45000	CONTRACTOR AND A	A POST MAN		-9,W-100	T-MOSSIG.	400003500	No. of Contract of	- Comment	April 1	Seattle Seattle	244	4000000000 0000000 4200



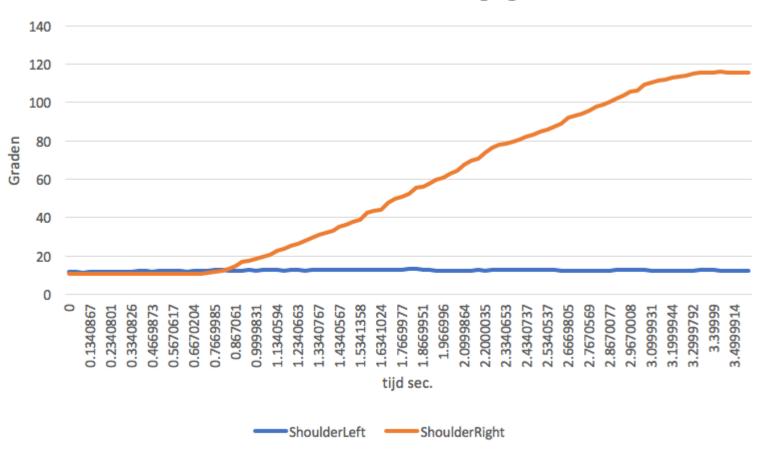
Spelen met eerste data

	А	В		С		D	Е	F
1	RelativeTimeTicks	RelativeTimeString	Ŧ	JointType ▼	X	(2 ▼	Y3 🔻	Z4 ▼
2	10406633499596,0	0 12.01:04:23.3499596		SpineBase		-0,31835	-0,17326	2,122355
3	10406633499596,0	12.01:04:23.3499596		SpineMid		-0,31066	0,155125	2,122335
4	10406633499596,0	0 12.01:04:23.3499596		Neck		-0,30155	0,471462	2,108573
5	10406633499596,0	12.01:04:23.3499596		Head		-0,29126	0,64086	2,085709
6	10406633499596,0	0 12.01:04:23.3499596		ShoulderLeft		-0,48903	0,360609	2,108984
7	10406633499596,0	12.01:04:23.3499596		ElbowLeft		-0,5531	0,082354	2,089372
8	10406633499596,0	0 12.01:04:23.3499596		WristLeft		-0,54888	-0,16898	2,027762
9	10406633499596,0	12.01:04:23.3499596		HandLeft		-0,53447	-0,20071	2,035282
10	10406633499596,0	0 12.01:04:23.3499596		ShoulderRight		-0,12995	0,343898	2,127415
11	10406633499596,0	12.01:04:23.3499596		ElbowRight		-0,08717	0,074085	2,121636
12	10406633499596,0	0 12.01:04:23.3499596		WristRight		-0,08237	-0,18611	2,045217
13	10406633499596,0	12.01:04:23.3499596		HandRight		-0,10053	-0,25389	2,036995
14	10406633499596,0	0 12.01:04:23.3499596		HipLeft		-0,3916	-0,16857	2,077703
15	10406633499596,0	12.01:04:23.3499596		KneeLeft		-0,40659	-0,54875	2,121007
16	10406633499596,0	0 12.01:04:23.3499596		AnkleLeft		-0,37916	-0,92019	2,166824
17	10406633499596,0	12.01:04:23.3499596		FootLeft		-0,40845	-1,00543	2,083634
18	10406633499596,0	0 12.01:04:23.3499596		HipRight		-0,23365	-0,17171	2,090715
19	10406633499596,0	12.01:04:23.3499596		KneeRight		-0,22819	-0,5824	2,139929
20	10406633499596,0	0 12.01:04:23.3499596		AnkleRight		-0,27367	-0,92933	2,171662
21	10406633499596,0	12.01:04:23.3499596		FootRight		-0,26281	-1,00128	2,105361
22	10406633499596,0	0 12.01:04:23.3499596		SpineShoulder	r	-0,3041	0,394033	2,114382
23	10406633499596,0	12.01:04:23.3499596		HandTipLeft		-0,53329	-0,29673	2,034047
24	10406633499596,0	0 12.01:04:23.3499596		ThumbLeft		-0,5741	-0,19454	2,022182
25	10406633499596,0	12.01:04:23.3499596		HandTipRight		-0,11198	-0,33972	2,038708
26	10406633499596,0	0 12.01:04:23.3499596		ThumbRight		-0,13821	-0,23907	1,994195
27	10406633840208,0	12.01:04:23.3840208		SpineBase		-0,31927	-0,17334	2,122523
28	10406633840208,0	0 12.01:04:23.3840208		SpineMid		-0,31123	0,155096	2,122357
29	10406633840208,0	12.01:04:23.3840208		Neck		-0,30182	0,47147	2,108493
30	10406633840208,0	0 12.01:04:23.3840208		Head		-0,29165	0,640743	2,085769
31	10406633840208,0	12.01:04:23.3840208		ShoulderLeft		-0,48925	0,360576	2,108988
32	10406633840208,0	0 12.01:04:23.3840208		ElbowLeft		-0,55322	0,082266	2,089477
33	10406633840208,0	12.01:04:23.3840208		WristLeft		-0,54906	-0,16907	2,027881
34	10406633840208,0	0 12.01:04:23.3840208		HandLeft		-0,53392	-0,19944	2,035592
35	10406633840208,0	12.01:04:23.3840208		ShoulderRight		-0,13017	0,343922	2,127611
36	10406633840208,0	0 12.01:04:23.3840208		ElbowRight		-0,08763	0,073667	2,121859
37	10406633840208,0	12.01:04:23.3840208		WristRight		-0,08244	-0,1778	2,048144
38	10406633840208,0	0 12.01:04:23.3840208		HandRight		-0,09638	-0,23199	2,037615

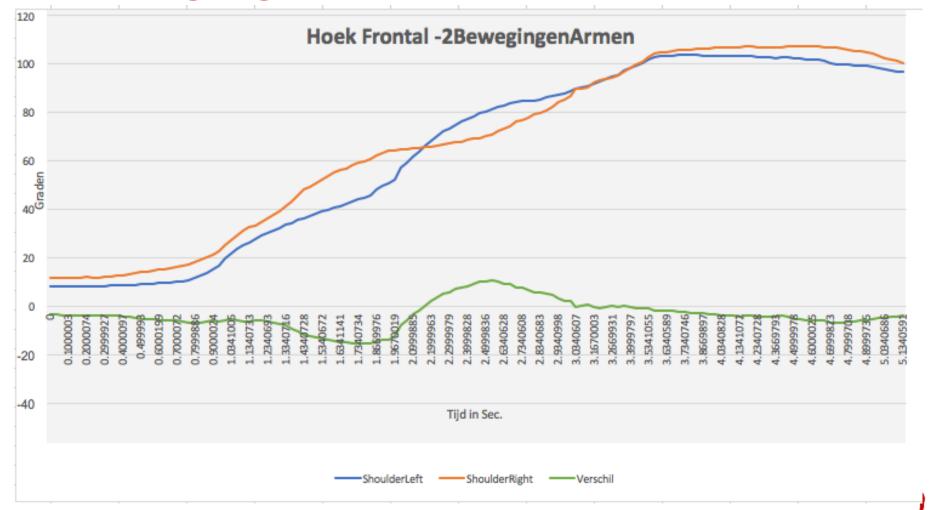
	А	В	С	D
1	RelativeTimeTicks		ShoulderLeft	ShoulderRight
2	49234233082	0	8,410531221	11,76839251
3	49234573953	0,0340871	8,399376212	11,79146677
4	49234903168	0,0670086	8,391707962	11,82213699
5	49235233085	0,1000003	8,365726971	11,87509404
6	49235573981	0,1340899	8,327266179	11,9338361
7	49235903037	0,1669955	8,341391999	12,02792875
8	49236233156	0,2000074	8,35494031	12,15528549
9	49236573802	0,234072	8,372841346	12,05943683
10	49236903001	0,2669919	8,477438166	12,0422537
11	49237233009	0,2999927	8,587716936	12,2313584
12	49237573806	0,3340724	8,610919976	12,39474343
13	49237903171	0,3670089	8,697804602	12,5949267
14	49238233179	0,4000097	8,79409372	12,96213744
15	49238573908	0,4340826	8,931215444	13,31052164
16	49238903052	0,466997	9,029546965	13,7319505
17	49239233012	0,499993	9,165379339	14,14949624
18	49239573833	0,5340751	9,321993015	14,53047852
19	49239903138	0,5670056	9,461201413	14,87452855
20	49240233281	0,6000199	9,613149342	15,23689401
21	49240573856	0,6340774	9,789511501	15,49881007
22	49240903015	0,6669933	10,06433636	15,75608212
23	49241233154	0,7000072	10,30610494	16,19671434
24	49241573895	0,7340813	10,51423414	16,90250589
25	49241903039	0,7669957	10,88856292	17,44164039
26	49242232968	0,7999886	11,59918414	18,19984373
27	49242573986	0,8340904	12,60683852	19,2906511
28	49242903015	0,8669933	14,03405307	20,22275359
29	49243233106	0,9000024	15,40569717	21,2953307
30	49243573768	0,9340686	16,59852771	22,89740497
31	49244232959	0,9999877	19,94563123	25,48498458
32	49244574087	1,0341005	21,93642906	27,18410454
33	49244903038	1,0669956	23,73923944	29,20171816
34	49245232963	1,0999881	25,12834664	
35	49245573815	1,1340733	26,58861363	32,62742204

Beweging met 1 arm

Hoek Frontral - 1ArmBeweging



Beweging met 2 armen



Opname sessie Atrium

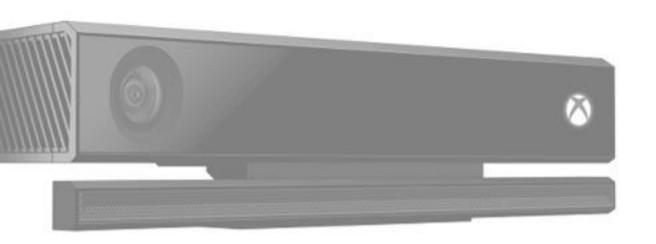
- Voorbereiding
- Van 60 personen data verzameld





Bezoek LUMC

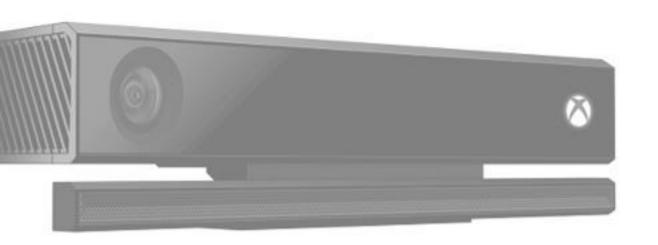
- Manueel therapeut weer gesproken
- •Echte patiënt gezien!
- Medisch Ethische Commissie





Wat gaan we doen?

- Analyse van data
- Nadenken over verbeteren applicatie
- Proberen opnemen patiënten te regelen





Vragen?



