C:\Users\yaels\anaconda3\envs\Gymmy\python.exe "C:\Users\yaels\יעל פרוייקט גמר\zedcheck\TrainingNew.py"

pygame 2.5.2 (SDL 2.28.3, Python 3.11.9)

Hello from the pygame community. https://www.pygame.org/contribute.html

screen start

CAMERA INITIALIZATION

ROBOT INITIALIZATION

CAMERA START

MP INITIALIZATION

Training: start exercises

MP START

ROBOT START

CAMERA: Exercise hello\_waving start

CAMERA: Exercise hello\_waving done

TRAINING: Exercise raising\_hands\_diagonally\_notool start

CAMERA: Exercise raising\_hands\_diagonally\_notool start

ROBOT: Exercise raising\_hands\_diagonally\_notool start

52.72 6.92

99.21 112.8

left shoulder L\_shoulder -341.14835 32.84895 630.87

right shoulder R\_shoulder -452.74097 36.65149 630.8696

111.59262

first angle mean: 52.72

first angle stdev: 0.0

second angle mean: 99.21

second angle stdev: 0.0

125.96 124.02

127.67 47.92

left shoulder L\_shoulder -63.777744 -126.32961 1968.0021

right shoulder R\_shoulder -345.93344 -119.62753 2015.2719

282.1557

first angle mean: 89.34

first angle stdev: 36.62

second angle mean: 113.44

second angle stdev: 14.23

137.48 110.36

177.3 41.75

left shoulder L\_shoulder -83.023895 -122.120224 1935.7799

right shoulder R\_shoulder -341.62454 -127.837746 2026.411

258.60065

first angle mean: 105.38666

first angle stdev: 37.536743

second angle mean: 134.72667

second angle stdev: 32.268246

135.63 108.34

142.03 51.05

left shoulder L\_shoulder -69.217 -109.32546 1943.6473

right shoulder R\_shoulder -343.94183 -114.76351 2040.3726

274.72482

first angle mean: 112.947495

first angle stdev: 35.046455

second angle mean: 136.55249

second angle stdev: 28.123493

119.18 103.86

114.95 48.84

left shoulder L\_shoulder -64.06256 -117.83064 2008.2522

right shoulder R\_shoulder -357.91943 -107.44323 2090.2654

293.85687

first angle mean: 114.19399

first angle stdev: 31.44548

second angle mean: 132.232

second angle stdev: 26.597208

120.24 103.59

115.23 50.19

left shoulder L\_shoulder -67.55905 -135.21887 1995.0895

right shoulder R\_shoulder -362.38885 -124.64774 2057.3955

294.8298

first angle mean: 115.20166

first angle stdev: 28.793962

second angle mean: 129.39833

second angle stdev: 25.092987

122.24 101.58

122.3 46.11

left shoulder L\_shoulder -74.16171 -137.13583 1977.9358

right shoulder R\_shoulder -361.6713 -127.91957 2061.041

287.50958

first angle mean: 116.20714

first angle stdev: 26.771559

second angle mean: 128.38428

second angle stdev: 23.364002

121.51 102.91

120.09 47.46

left shoulder L\_shoulder -74.58023 -130.1674 1988.3762

right shoulder R\_shoulder -364.13187 -121.36065 2062.5977

289.55164

first angle mean: 116.869995

first angle stdev: 25.103832

second angle mean: 127.3475

second angle stdev: 22.026495

119.38 103.03

118.58 47.02

left shoulder L\_shoulder -69.84372 -131.68651 1988.9331

right shoulder R\_shoulder -358.7733 -122.37066 2065.249

288.92957

first angle mean: 117.14889

first angle stdev: 23.681263

second angle mean: 126.37333

second angle stdev: 20.948772

117.06 103.67

113.14 49.23

left shoulder L\_shoulder -65.07967 -134.6388 1996.5265

right shoulder R\_shoulder -356.94882 -127.352554 2060.7346

291.86914

first angle mean: 117.13999

first angle stdev: 22.466034

second angle mean: 125.05

second angle stdev: 20.266397

119.72 101.88

113.83 48.86

left shoulder L\_shoulder -57.05595 -144.14886 1976.3771

right shoulder R\_shoulder -347.2584 -142.61838 2047.2069

290.20245

first angle mean: 117.374535

first angle stdev: 21.43336

second angle mean: 124.03

second angle stdev: 19.590612

118.8 100.38

110.15 50.7

left shoulder L\_shoulder -52.89229 -146.65646 1979.1644

right shoulder R\_shoulder -344.01074 -148.28986 2047.2129

291.11847

first angle mean: 117.493324

first angle stdev: 20.524662

second angle mean: 122.87333

second angle stdev: 19.14487

111.09 100.48

102.27 50.97

left shoulder L\_shoulder -42.058437 -137.31671 1987.9058

right shoulder R\_shoulder -338.0065 -140.33136 2030.8843

295.94806

first angle mean: 117.00076

first angle stdev: 19.79314

second angle mean: 121.28846

second angle stdev: 19.195665

78.48 101.16

99.93 51.92

left shoulder L\_shoulder -41.53705 -137.24832 1990.6805

right shoulder R\_shoulder -342.08945 -139.72337 2012.6605

300.5524

first angle mean: 114.249275

first angle stdev: 21.49892

second angle mean: 119.76286

second angle stdev: 19.297955

51.02 104.7

100.93 52.55

left shoulder L\_shoulder -33.01838 -121.88244 1972.3998

right shoulder R\_shoulder -340.44226 -125.60317 1991.4088

307.4239

first angle mean: 110.03399

first angle stdev: 26.0797

second angle mean: 118.50734

second angle stdev: 19.226349

37.6 104.17

99.43 54.27

left shoulder L\_shoulder -32.84943 -107.784096 2010.8873

right shoulder R\_shoulder -348.08182 -113.13628 2031.7836

315.2324

first angle mean: 105.506874

first angle stdev: 30.7419

second angle mean: 117.315

second angle stdev: 19.180042

26.93 101.07

96.84 53.66

left shoulder L\_shoulder -35.328564 -97.70224 2036.3527

right shoulder R\_shoulder -355.06848 -106.073456 2068.3384

319.73993

first angle mean: 100.884705

first angle stdev: 35.089935

second angle mean: 116.11059

second angle stdev: 19.22093

20.56 99.22

94.73 55.78

left shoulder L\_shoulder -29.10772 -93.029816 2045.6853

right shoulder R\_shoulder -350.6633 -105.65166 2081.2297

321.55557

first angle mean: 96.422226

first angle stdev: 38.748314

second angle mean: 114.92278

second angle stdev: 19.31074

18.65 100.36

93.49 58.08

left shoulder L\_shoulder -22.816391 -88.01469 2034.1099

right shoulder R\_shoulder -347.12546 -103.36561 2064.6343

324.30908

first angle mean: 92.32896

first angle stdev: 41.52104

second angle mean: 113.79474

second angle stdev: 19.39543

18.91 99.36

93.45 60.85

left shoulder L\_shoulder -16.495985 -86.66887 2040.3502

right shoulder R\_shoulder -343.2358 -103.91113 2064.3599

326.73984

first angle mean: 88.658005

first angle stdev: 43.518253

second angle mean: 112.777504

second angle stdev: 19.417368

19.84 99.44

93.99 62.83

left shoulder L\_shoulder -14.782773 -86.9988 2042.0768

right shoulder R\_shoulder -342.23352 -104.34844 2057.1116

327.45074

first angle mean: 85.38096

first angle stdev: 44.927013

second angle mean: 111.88286

second angle stdev: 19.367186

21.7 100.19

94.38 63.47

left shoulder L\_shoulder -13.913333 -86.15972 2039.3765

right shoulder R\_shoulder -341.57565 -103.99685 2049.8953

327.66232

first angle mean: 82.48637

first angle stdev: 45.85456

second angle mean: 111.08727

second angle stdev: 19.269938

23.21 100.6

94.63 63.96

left shoulder L\_shoulder -12.8529215 -85.14145 2039.5873

right shoulder R\_shoulder -340.7219 -103.43512 2047.1611

327.86896

first angle mean: 79.909134

first angle stdev: 46.44727

second angle mean: 110.37173

second angle stdev: 19.142868

24.6 102.01

95.2 64.25

left shoulder L\_shoulder -12.404427 -82.70344 2033.7241

right shoulder R\_shoulder -340.5085 -101.72166 2039.3344

328.1041

first angle mean: 77.60458

first angle stdev: 46.793274

second angle mean: 109.739586

second angle stdev: 18.983465

24.69 101.31

95.05 65.18

left shoulder L\_shoulder -11.969387 -81.66381 2042.2141

right shoulder R\_shoulder -340.57477 -100.9416 2043.8673

328.60538

first angle mean: 75.488

first angle stdev: 47.00579

second angle mean: 109.152

second angle stdev: 18.821352

24.43 101.27

93.99 65.52

left shoulder L\_shoulder -11.058003 -80.60518 2041.3735

right shoulder R\_shoulder -339.91284 -100.19283 2040.0981

328.85483

first angle mean: 73.52423

first angle stdev: 47.127186

second angle mean: 108.56885

second angle stdev: 18.684757

23.66 102.01

93.79 65.3

left shoulder L\_shoulder -9.655817 -80.15659 2032.8259

right shoulder R\_shoulder -338.64847 -100.196945 2031.729

328.99265

first angle mean: 71.67741

first angle stdev: 47.195267

second angle mean: 108.021484

second angle stdev: 18.54669

23.82 102.34

93.8 64.76

left shoulder L\_shoulder -8.996307 -78.98514 2029.0892

right shoulder R\_shoulder -338.23032 -99.522415 2029.9492

329.234

first angle mean: 69.968216

first angle stdev: 47.18813

second angle mean: 107.51357

second angle stdev: 18.402716

24.08 102.1

93.73 65.0

left shoulder L\_shoulder -8.710755 -78.833176 2032.1372

right shoulder R\_shoulder -338.19406 -99.79435 2032.4427

329.4833

first angle mean: 68.38586

first angle stdev: 47.11734

second angle mean: 107.03828

second angle stdev: 18.256706

24.7 103.06

94.21 65.33

left shoulder L\_shoulder -8.1601 -79.729546 2025.186

right shoulder R\_shoulder -337.8332 -100.9954 2024.3945

329.6731

first angle mean: 66.929665

first angle stdev: 46.98443

second angle mean: 106.61067

second angle stdev: 18.096952

24.91 103.29

94.23 65.73

left shoulder L\_shoulder -7.8765006 -79.69998 2024.6656

right shoulder R\_shoulder -337.63275 -101.157234 2023.1969

329.75626

first angle mean: 65.57419

first angle stdev: 46.812874

second angle mean: 106.21129

second angle stdev: 17.936563

25.03 102.93

94.6 65.23

left shoulder L\_shoulder -8.944809 -81.892166 2028.9502

right shoulder R\_shoulder -338.85013 -103.05686 2023.1691

329.90533

first angle mean: 64.30719

first angle stdev: 46.612522

second angle mean: 105.848434

second angle stdev: 17.7693

23.57 103.16

96.87 64.93

left shoulder L\_shoulder -9.474248 -66.59801 2006.109

right shoulder R\_shoulder -312.13803 -83.22645 1990.73

302.6638

first angle mean: 63.07273

first angle stdev: 46.428997

second angle mean: 105.57636

second angle stdev: 17.565554

18.03 63.75

96.55 73.14

left shoulder L\_shoulder -32.922924 -74.99611 1952.4675

right shoulder R\_shoulder -336.05835 -80.79986 1967.263

303.13544

first angle mean: 61.747948

first angle stdev: 46.369892

second angle mean: 105.31088

second angle stdev: 17.37238

14.42 84.2

93.67 62.06

left shoulder L\_shoulder -36.526398 -81.71296 1956.1671

right shoulder R\_shoulder -343.32486 -83.908806 1996.763

306.79846

first angle mean: 60.395718

first angle stdev: 46.377827

second angle mean: 104.97829

second angle stdev: 17.231884

19.96 103.77

94.16 45.25

left shoulder L\_shoulder -32.267498 -92.060555 1997.2914

right shoulder R\_shoulder -340.1897 -101.6431 2047.2977

307.9222

first angle mean: 59.272503

first angle stdev: 46.20944

second angle mean: 104.67777

second angle stdev: 17.083624

24.67 105.83

96.5 43.16

left shoulder L\_shoulder -21.187408 -93.45422 2018.4911

right shoulder R\_shoulder -328.3029 -114.340546 2064.536

307.11548

first angle mean: 58.337296

first angle stdev: 45.924793

second angle mean: 104.45676

second angle stdev: 16.903284

27.45 106.25

98.1 44.18

left shoulder L\_shoulder -8.6345825 -91.96235 2027.3082

right shoulder R\_shoulder -315.8819 -123.74893 2063.1116

307.2473

first angle mean: 57.52447

first angle stdev: 45.585407

second angle mean: 104.289474

second angle stdev: 16.710398

28.31 107.4

99.13 44.21

left shoulder L\_shoulder 0.28544664 -92.78974 2029.4795

right shoulder R\_shoulder -305.6281 -131.89476 2057.5242

305.91357

first angle mean: 56.775383

first angle stdev: 45.233505

second angle mean: 104.15717

second angle stdev: 16.514917

28.26 109.78

100.14 44.3

left shoulder L\_shoulder 2.8683841 -88.962494 2032.8522

right shoulder R\_shoulder -301.25665 -131.68864 2048.9802

304.12503

first angle mean: 56.0625

first angle stdev: 44.885838

second angle mean: 104.05674

second angle stdev: 16.319231

27.18 110.51

100.42 45.13

left shoulder L\_shoulder 5.2255697 -86.46726 2043.0043

right shoulder R\_shoulder -299.92877 -122.93484 2045.239

305.15433

first angle mean: 55.358047

first angle stdev: 44.55837

second angle mean: 103.96803

second angle stdev: 16.128748

24.7 110.04

99.43 46.15

left shoulder L\_shoulder 10.03161 -86.3108 2051.619

right shoulder R\_shoulder -295.49075 -119.71925 2039.8534

305.52237

first angle mean: 54.628094

first angle stdev: 44.272133

second angle mean: 103.85999

second angle stdev: 15.950595

24.78 110.45

98.64 46.44

left shoulder L\_shoulder 15.367374 -84.02525 2047.6241

right shoulder R\_shoulder -289.78506 -118.649704 2031.8759

305.15244

first angle mean: 53.933952

first angle stdev: 43.984962

second angle mean: 103.7386

second angle stdev: 15.78365

24.91 110.55

98.34 46.47

left shoulder L\_shoulder 19.031612 -82.83059 2042.4087

right shoulder R\_shoulder -285.6011 -119.88664 2026.47

304.63272

first angle mean: 53.274315

first angle stdev: 43.696877

second angle mean: 103.6159

second angle stdev: 15.623989

25.26 110.67

98.21 46.27

left shoulder L\_shoulder 19.721539 -81.98385 2039.55

right shoulder R\_shoulder -284.5959 -122.54679 2027.627

304.3174

first angle mean: 52.651775

first angle stdev: 43.40551

second angle mean: 103.495766

second angle stdev: 15.46995

26.52 111.49

97.68 45.94

left shoulder L\_shoulder 17.299294 -77.35273 2039.8837

right shoulder R\_shoulder -287.47748 -119.90047 2031.631

304.77676

first angle mean: 52.08369

first angle stdev: 43.09992

second angle mean: 103.36934

second angle stdev: 15.324363

28.22 113.12

97.25 45.73

left shoulder L\_shoulder 13.543472 -74.520226 2040.7693

right shoulder R\_shoulder -291.78528 -116.91522 2036.535

305.32874

first angle mean: 51.575954

first angle stdev: 42.77778

second angle mean: 103.23914

second angle stdev: 15.186157

28.51 115.18

97.39 46.31

left shoulder L\_shoulder 10.43217 -70.74138 2039.0332

right shoulder R\_shoulder -295.0451 -112.45016 2038.6305

305.47726

first angle mean: 51.095417

first angle stdev: 42.457832

second angle mean: 103.11729

second angle stdev: 15.050339

28.04 120.14

97.49 47.0

left shoulder L\_shoulder 11.596709 -68.39757 2014.3402

right shoulder R\_shoulder -293.7504 -110.702896 2019.1877

305.3471

first angle mean: 50.6249

first angle stdev: 42.14861

second angle mean: 103.00245

second angle stdev: 14.917206

27.21 126.18

97.73 49.98

left shoulder L\_shoulder 13.946474 -62.556557 1996.1011

right shoulder R\_shoulder -291.25327 -104.87933 2000.5925

305.19974

first angle mean: 50.1566

first angle stdev: 41.853565

second angle mean: 102.897

second angle stdev: 14.785718

27.9 132.68

98.5 53.71

left shoulder L\_shoulder 13.83257 -54.35541 1986.045

right shoulder R\_shoulder -290.94528 -97.2602 1992.6893

304.77786

first angle mean: 49.720196

first angle stdev: 41.555935

second angle mean: 102.81078

second angle stdev: 14.65273

27.97 136.75

99.32 57.26

left shoulder L\_shoulder 12.2567425 -55.318455 1989.8406

right shoulder R\_shoulder -292.3976 -97.73576 1995.566

304.65436

first angle mean: 49.30192

first angle stdev: 41.26268

second angle mean: 102.74365

second angle stdev: 14.519072

27.41 140.34

99.86 61.35

left shoulder L\_shoulder 12.017742 -57.77487 2005.7225

right shoulder R\_shoulder -292.74252 -99.63845 2007.0848

304.76025

first angle mean: 48.888866

first angle stdev: 40.97995

second angle mean: 102.68924

second angle stdev: 14.386797

26.24 141.08

100.13 64.4

left shoulder L\_shoulder 11.63523 -58.883465 2027.6864

right shoulder R\_shoulder -293.1001 -100.40554 2022.2616

304.73532

first angle mean: 48.46944

first angle stdev: 40.713394

second angle mean: 102.641846

second angle stdev: 14.257139

25.23 140.49

99.7 65.71

left shoulder L\_shoulder 11.164219 -61.045296 2044.738

right shoulder R\_shoulder -293.33398 -102.061264 2033.5061

304.4982

first angle mean: 48.046906

first angle stdev: 40.46089

second angle mean: 102.58836

second angle stdev: 14.132402

24.42 139.72

99.91 65.41

left shoulder L\_shoulder 8.211433 -66.046646 2052.273

right shoulder R\_shoulder -295.99316 -105.995 2034.5845

304.2046

first angle mean: 47.625

first angle stdev: 40.219902

second angle mean: 102.540535

second angle stdev: 14.010141

24.79 139.28

100.42 64.49

left shoulder L\_shoulder 6.252021 -70.597916 2052.9272

right shoulder R\_shoulder -297.45676 -109.96405 2029.5637

303.70877

first angle mean: 47.22439

first angle stdev: 39.9781

second angle mean: 102.503334

second angle stdev: 13.889492

25.14 138.6

100.39 62.94

left shoulder L\_shoulder 4.5016556 -69.52674 2051.1934

right shoulder R\_shoulder -299.1233 -107.96719 2025.7571

303.62494

first angle mean: 46.84362

first angle stdev: 39.736084

second angle mean: 102.466896

second angle stdev: 13.771982

26.58 136.45

99.67 59.94

left shoulder L\_shoulder 2.7450175 -63.65895 2040.0779

right shoulder R\_shoulder -301.73428 -100.9879 2023.0427

304.4793

first angle mean: 46.500168

first angle stdev: 39.484627

second angle mean: 102.419495

second angle stdev: 13.659544

27.28 132.67

99.05 56.21

left shoulder L\_shoulder -0.09679803 -57.878414 2024.8346

right shoulder R\_shoulder -305.69968 -93.85998 2020.4935

305.60287

first angle mean: 46.179832

first angle stdev: 39.231445

second angle mean: 102.36333

second angle stdev: 13.552103

27.72 128.42

98.68 54.03

left shoulder L\_shoulder 34.144833 53.29399 2041.3539

right shoulder R\_shoulder -259.61133 14.3108635 2021.4366

293.75616

first angle mean: 45.877213

first angle stdev: 38.979095

second angle mean: 102.30295

second angle stdev: 13.448697

24.11 125.4

95.99 54.34

left shoulder L\_shoulder 19.240974 22.091133 2029.6051

right shoulder R\_shoulder -275.47137 -14.975976 2009.171

294.71234

first angle mean: 45.52613

first angle stdev: 38.76058

second angle mean: 102.20113

second angle stdev: 13.3634815

24.09 100.8

95.7 49.61

left shoulder L\_shoulder -10.565266 -77.17047 2056.6538

right shoulder R\_shoulder -319.79996 -111.0073 2053.6814

309.23468

first angle mean: 45.185875

first angle stdev: 38.544952

second angle mean: 102.097946

second angle stdev: 13.281875

21.89 63.52

85.33 54.82

left shoulder L\_shoulder -16.806917 -106.92062 2048.2449

right shoulder R\_shoulder -340.25363 -130.86467 2053.062

323.44672

first angle mean: 44.821877

first angle stdev: 38.351612

second angle mean: 101.83594

second angle stdev: 13.340778

25.34 46.61

90.86 66.87

left shoulder L\_shoulder -19.209415 -83.47314 2056.859

right shoulder R\_shoulder -343.5014 -104.42231 2056.0981

324.292

first angle mean: 44.522156

first angle stdev: 38.13092

second angle mean: 101.667076

second angle stdev: 13.306509

19.28 34.12

94.1 77.57

left shoulder L\_shoulder -18.357515 -64.04282 2068.2402

right shoulder R\_shoulder -343.3887 -81.11652 2058.4373

325.0312

first angle mean: 44.1397

first angle stdev: 37.96637

second angle mean: 101.55242

second angle stdev: 13.237631

16.62 27.39

93.66 84.0

left shoulder L\_shoulder -20.028429 -58.939495 2081.8975

right shoulder R\_shoulder -346.28784 -69.9629 2072.4604

326.2594

first angle mean: 43.728962

first angle stdev: 37.82943

second angle mean: 101.43463

second angle stdev: 13.173278

16.8 26.7

93.25 85.41

left shoulder L\_shoulder -21.708876 -58.32815 2089.284

right shoulder R\_shoulder -350.2994 -66.72135 2084.8792

328.59055

first angle mean: 43.332947

first angle stdev: 37.68989

second angle mean: 101.31427

second angle stdev: 13.113118

18.22 29.06

92.88 84.5

left shoulder L\_shoulder -23.437634 -59.88258 2092.8096

right shoulder R\_shoulder -357.51755 -65.53042 2099.1726

334.07993

first angle mean: 42.96899

first angle stdev: 37.535957

second angle mean: 101.19203

second angle stdev: 13.056715

19.35 30.87

93.38 83.84

left shoulder L\_shoulder -25.502277 -61.982914 2090.6611

right shoulder R\_shoulder -362.31647 -66.81345 2102.5007

336.81418

first angle mean: 42.631577

first angle stdev: 37.372128

second angle mean: 101.08043

second angle stdev: 12.9962225

21.47 33.53

94.77 88.4

left shoulder L\_shoulder -30.230818 -64.03019 2098.3105

right shoulder R\_shoulder -367.53598 -68.40401 2099.973

337.30518

first angle mean: 42.333527

first angle stdev: 37.191704

second angle mean: 100.99155

second angle stdev: 12.925782

23.48 37.28

95.9 90.27

left shoulder L\_shoulder -38.546635 -65.47435 2096.0955

right shoulder R\_shoulder -377.13867 -66.46641 2104.376

338.59204

first angle mean: 42.07167

first angle stdev: 36.99837

second angle mean: 100.92083

second angle stdev: 12.849529

23.51 37.39

96.56 95.01

left shoulder L\_shoulder -42.305458 -68.636375 2097.577

right shoulder R\_shoulder -381.2584 -64.89804 2107.4097

338.95294

first angle mean: 41.817398

first angle stdev: 36.807377

second angle mean: 100.86109

second angle stdev: 12.771278

24.41 35.46

96.71 98.89

left shoulder L\_shoulder -46.624287 -71.65187 2093.1758

right shoulder R\_shoulder -385.39377 -61.22467 2107.3042

338.76947

first angle mean: 41.582165

first angle stdev: 36.613037

second angle mean: 100.805

second angle stdev: 12.693744

26.13 34.99

97.59 101.79

left shoulder L\_shoulder -50.897156 -73.93749 2084.9958

right shoulder R\_shoulder -389.37976 -57.274918 2102.5125

338.4826

first angle mean: 41.376133

first angle stdev: 36.411293

second angle mean: 100.76213

second angle stdev: 12.614227

29.53 35.35

99.1 103.85

left shoulder L\_shoulder -57.46999 -79.41001 2072.999

right shoulder R\_shoulder -395.2876 -56.047745 2097.154

337.8176

first angle mean: 41.220264

first angle stdev: 36.196133

second angle mean: 100.74026

second angle stdev: 12.532394

33.91 34.48

101.19 104.6

left shoulder L\_shoulder -67.1256 -85.01315 2064.255

right shoulder R\_shoulder -403.44675 -53.04615 2099.4019

336.32114

first angle mean: 41.125324

first angle stdev: 35.969845

second angle mean: 100.7461

second angle stdev: 12.450853

37.89 32.39

103.59 104.55

left shoulder L\_shoulder -76.31047 -91.40548 2059.9824

right shoulder R\_shoulder -410.25668 -50.725883 2108.3765

333.94623

first angle mean: 41.083843

first angle stdev: 35.74038

second angle mean: 100.782555

second angle stdev: 12.37492

47.69 29.15

107.16 105.05

left shoulder L\_shoulder -88.932144 -107.37425 2055.6074

right shoulder R\_shoulder -416.79 -51.35153 2130.1123

327.85785

first angle mean: 41.167465

first angle stdev: 35.521133

second angle mean: 100.86329

second angle stdev: 12.316999

56.31 28.44

110.57 105.46

left shoulder L\_shoulder -100.58461 -119.96502 2051.9607

right shoulder R\_shoulder -421.89194 -48.85427 2149.331

321.3073

first angle mean: 41.35675

first angle stdev: 35.338497

second angle mean: 100.984634

second angle stdev: 12.287195

67.92 28.93

112.88 106.49

left shoulder L\_shoulder -115.49457 -132.87405 2042.1057

right shoulder R\_shoulder -426.13126 -44.797012 2162.1348

310.6367

first angle mean: 41.684692

first angle stdev: 35.24196

second angle mean: 101.131485

second angle stdev: 12.281555

79.09 29.57

115.16 107.41

left shoulder L\_shoulder -139.02486 -156.55115 2037.2147

right shoulder R\_shoulder -438.51974 -53.35672 2173.3337

299.49487

first angle mean: 42.140854

first angle stdev: 35.26619

second angle mean: 101.30257

second angle stdev: 12.3031645

107.21 30.12

126.09 107.26

left shoulder L\_shoulder -165.98788 -166.44159 2001.8333

right shoulder R\_shoulder -444.7753 -50.005898 2168.8057

278.7874

first angle mean: 42.92482

first angle stdev: 35.764748

second angle mean: 101.60121

second angle stdev: 12.52428

115.93 30.32

121.06 107.54

left shoulder L\_shoulder -168.33528 -153.63193 1998.5608

right shoulder R\_shoulder -437.97388 -34.89051 2177.9995

269.6386

first angle mean: 43.793926

first angle stdev: 36.4223

second angle mean: 101.832855

second angle stdev: 12.627124

119.01 30.5

108.51 107.92

left shoulder L\_shoulder -167.35518 -140.82208 1998.5413

right shoulder R\_shoulder -434.99368 -19.72118 2179.5334

267.6385

first angle mean: 44.67882

first angle stdev: 37.10461

second angle mean: 101.91141

second angle stdev: 12.5732565

121.41 31.19

100.86 108.87

left shoulder L\_shoulder -162.53743 -136.02382 1990.8474

right shoulder R\_shoulder -429.27567 -12.442734 2171.659

266.73822

first angle mean: 45.571045

first angle stdev: 37.794292

second angle mean: 101.899185

second angle stdev: 12.50045

122.93 31.65

105.18 109.23

left shoulder L\_shoulder -171.58936 -151.15608 1985.5544

right shoulder R\_shoulder -430.55835 -17.47032 2170.525

258.969

first angle mean: 46.460228

first angle stdev: 38.47058

second angle mean: 101.9369

second angle stdev: 12.433321

122.27 31.98

113.73 109.35

left shoulder L\_shoulder -191.4994 -163.8589 1991.162

right shoulder R\_shoulder -436.5173 -18.916128 2181.1936

245.0179

first angle mean: 47.3217

first angle stdev: 39.086235

second angle mean: 102.070915

second angle stdev: 12.425508

132.33 34.04

101.74 111.61

left shoulder L\_shoulder -201.72263 -175.01308 1973.6609

right shoulder R\_shoulder -434.1832 -23.808788 2174.692

232.46057

first angle mean: 48.27685

first angle stdev: 39.885483

second angle mean: 102.0672

second angle stdev: 12.355554

robot count: 1132.42

32.96

91.46 110.09

left shoulder L\_shoulder -203.5224 -178.93474 1969.9739

right shoulder R\_shoulder -428.7757 -24.30629 2176.5037

225.2533

first angle mean: 49.211773

first angle stdev: 40.632114

second angle mean: 101.94934

second angle stdev: 12.3369255

130.97 35.26

88.96 113.25

left shoulder L\_shoulder -196.58925 -173.59575 1970.314

right shoulder R\_shoulder -421.305 -22.374247 2177.2263

224.71574

first angle mean: 50.110218

first angle stdev: 41.297386

second angle mean: 101.806595

second angle stdev: 12.343457

131.03 35.92

101.43 114.46

left shoulder L\_shoulder -188.3527 -169.54433 1978.5902

right shoulder R\_shoulder -418.9137 -22.428642 2176.4824

230.56099

first angle mean: 50.989777

first angle stdev: 41.9206

second angle mean: 101.8025

second angle stdev: 12.276252

124.44 34.37

105.24 112.81

left shoulder L\_shoulder -185.79767 -174.04247 2002.6328

right shoulder R\_shoulder -418.35593 -27.019764 2198.5308

232.55826

first angle mean: 51.779564

first angle stdev: 42.377197

second angle mean: 101.83946

second angle stdev: 12.215219

125.44 34.13

103.02 112.57

left shoulder L\_shoulder -183.87076 -177.47002 2004.2872

right shoulder R\_shoulder -417.27438 -31.660295 2201.386

233.40363

first angle mean: 52.563187

first angle stdev: 42.823246

second angle mean: 101.85202

second angle stdev: 12.150673

125.22 31.43

100.07 109.57

left shoulder L\_shoulder -180.65413 -179.0406 2008.2367

right shoulder R\_shoulder -417.8541 -34.407166 2203.3706

237.19997

first angle mean: 53.327995

first angle stdev: 43.237835

second angle mean: 101.83327

second angle stdev: 12.087921

121.39 31.67

103.2 110.28

left shoulder L\_shoulder -173.84381 -176.26006 2011.9441

right shoulder R\_shoulder -417.25082 -34.68749 2201.8823

243.40701

first angle mean: 54.036976

first angle stdev: 43.56361

second angle mean: 101.847496

second angle stdev: 12.0255995

119.35 31.24

108.62 109.93

left shoulder L\_shoulder -164.70308 -171.52113 1998.7651

right shoulder R\_shoulder -413.6956 -36.857323 2186.5134

248.99251

first angle mean: 54.710308

first angle stdev: 43.837738

second angle mean: 101.91731

second angle stdev: 11.982993

117.55 29.89

108.67 108.68

left shoulder L\_shoulder -147.89026 -167.31902 1987.2327

right shoulder R\_shoulder -408.061 -44.783623 2169.7925

260.17075

first angle mean: 55.35153

first angle stdev: 44.06836

second angle mean: 101.98622

second angle stdev: 11.940999

113.11 28.99

105.87 107.8

left shoulder L\_shoulder -137.57013 -166.93582 1992.7776

right shoulder R\_shoulder -406.43732 -51.25551 2168.452

268.8672

first angle mean: 55.934944

first angle stdev: 44.223988

second angle mean: 102.02545

second angle stdev: 11.886884

115.29 29.42

101.7 108.09

left shoulder L\_shoulder -120.69242 -170.226 1991.2998

right shoulder R\_shoulder -399.77832 -64.12672 2167.9226

279.0859

first angle mean: 56.528496

first angle stdev: 44.396866

second angle mean: 102.022194

second angle stdev: 11.827345

115.17 29.79

100.28 108.46

left shoulder L\_shoulder -105.56082 -162.60168 1976.5267

right shoulder R\_shoulder -390.89215 -70.07445 2152.2441

285.33133

first angle mean: 57.109104

first angle stdev: 44.55644

second angle mean: 102.00495

second angle stdev: 11.769911

105.37 29.44

114.16 107.39

left shoulder L\_shoulder -96.39441 -153.96391 1973.0553

right shoulder R\_shoulder -385.52933 -70.04749 2157.7922

289.13492

first angle mean: 57.582253

first angle stdev: 44.591743

second angle mean: 102.12412

second angle stdev: 11.773146

81.53 33.12

111.93 111.87

left shoulder L\_shoulder -91.79405 -160.08853 2017.699

right shoulder R\_shoulder -391.44852 -74.04566 2176.8071

299.65448

first angle mean: 57.81475

first angle stdev: 44.436836

second angle mean: 102.21932

second angle stdev: 11.755242

54.92 35.74

107.49 113.8

left shoulder L\_shoulder -79.07215 -155.39752 2040.0393

right shoulder R\_shoulder -388.4131 -68.63478 2179.7327

309.34094

first angle mean: 57.786922

first angle stdev: 44.223583

second angle mean: 102.270004

second angle stdev: 11.709892

25.82 31.84

112.02 110.44

left shoulder L\_shoulder -68.12335 -143.67807 2028.9717

right shoulder R\_shoulder -379.728 -58.963425 2174.6816

311.60464

first angle mean: 57.48247

first angle stdev: 44.121864

second angle mean: 102.362854

second angle stdev: 11.692409

41.83 34.86

104.31 111.89

left shoulder L\_shoulder -47.15794 -117.427925 2041.095

right shoulder R\_shoulder -376.53888 -53.836964 2155.3147

329.38095

first angle mean: 57.33481

first angle stdev: 43.93931

second angle mean: 102.38122

second angle stdev: 11.638645

32.4 34.36

101.56 111.36

left shoulder L\_shoulder -33.14097 -103.578445 2054.238

right shoulder R\_shoulder -374.11932 -57.482433 2135.8452

340.97836

first angle mean: 57.101772

first angle stdev: 43.799267

second angle mean: 102.37354

second angle stdev: 11.584402

28.35 31.72

101.9 109.76

left shoulder L\_shoulder -22.114113 -92.004944 2061.3464

right shoulder R\_shoulder -368.7274 -60.825104 2116.2808

346.61328

first angle mean: 56.835552

first angle stdev: 43.682907

second angle mean: 102.369156

second angle stdev: 11.530734

26.41 28.48

103.16 106.93

left shoulder L\_shoulder -13.774543 -84.63739 2076.3213

right shoulder R\_shoulder -364.14804 -69.020836 2103.3247

350.3735

first angle mean: 56.55642

first angle stdev: 43.578724

second angle mean: 102.37642

second angle stdev: 11.477968

26.61 26.71

104.15 104.95

left shoulder L\_shoulder -9.812042 -77.502426 2083.9695

right shoulder R\_shoulder -360.48657 -71.732185 2091.554

350.67453

first angle mean: 56.28418

first angle stdev: 43.473194

second angle mean: 102.39254

second angle stdev: 11.426916

26.85 27.48

105.03 105.13

left shoulder L\_shoulder -7.0099235 -75.83088 2088.7314

right shoulder R\_shoulder -355.61554 -78.39738 2082.5354

348.60562

first angle mean: 56.01901

first angle stdev: 43.3662

second angle mean: 102.416306

second angle stdev: 11.378056

27.13 28.21

105.45 106.31

left shoulder L\_shoulder -4.61644 -76.54773 2089.74

right shoulder R\_shoulder -351.16248 -83.42887 2079.1953

346.54602

first angle mean: 55.76107

first angle stdev: 43.257614

second angle mean: 102.4434

second angle stdev: 11.330741

28.37 28.7

106.07 106.47

left shoulder L\_shoulder 2.123803 -72.80775 2090.482

right shoulder R\_shoulder -342.6204 -87.67049 2080.662

344.7442

first angle mean: 55.518673

first angle stdev: 43.142117

second angle mean: 102.475494

second angle stdev: 11.285605

28.79 37.68

105.96 105.02

left shoulder L\_shoulder 6.406725 -75.25819 2094.9

right shoulder R\_shoulder -336.53766 -89.95708 2078.6934

342.9444

first angle mean: 55.28421

first angle stdev: 43.02473

second angle mean: 102.50606

second angle stdev: 11.240696

29.04 39.67

105.72 104.44

left shoulder L\_shoulder 12.678965 -76.05576 2098.0762

right shoulder R\_shoulder -328.74893 -91.521034 2077.0925

341.4279

first angle mean: 55.056

first angle stdev: 42.9065

second angle mean: 102.534004

second angle stdev: 11.195694

26.85 50.03

105.57 91.74

left shoulder L\_shoulder -21.219372 -91.53859 2083.334

right shoulder R\_shoulder -324.47958 -101.67149 2100.4775

303.26022

first angle mean: 54.812843

first angle stdev: 42.800663

second angle mean: 102.56017

second angle stdev: 11.150865

31.9 83.95

109.06 74.8

left shoulder L\_shoulder 20.567387 -100.963524 2092.8176

right shoulder R\_shoulder -283.00815 -147.1792 2075.038

303.57553

first angle mean: 54.61701

first angle stdev: 42.669525

second angle mean: 102.61573

second angle stdev: 11.11922

33.74 104.99

111.29 58.74

left shoulder L\_shoulder 32.27961 -83.52273 2060.0422

right shoulder R\_shoulder -268.07376 -141.77507 2034.0944

300.35336

first angle mean: 54.440086

first angle stdev: 42.531418

second angle mean: 102.68924

second angle stdev: 11.100519

33.83 113.19

111.71 51.36

left shoulder L\_shoulder 39.528038 -73.75723 2031.658

right shoulder R\_shoulder -261.97885 -124.02103 2026.0673

301.5069

first angle mean: 54.26689

first angle stdev: 42.394104

second angle mean: 102.765045

second angle stdev: 11.084408

33.58 118.09

111.88 50.1

left shoulder L\_shoulder 37.98327 -62.4019 2044.4384

right shoulder R\_shoulder -259.9121 -118.36325 2029.2339

297.8954

first angle mean: 54.094498

first angle stdev: 42.258953

second angle mean: 102.840996

second angle stdev: 11.069184

33.37 122.63

111.88 54.91

left shoulder L\_shoulder 35.69869 -54.720634 2062.7056

right shoulder R\_shoulder -258.57547 -111.87707 2023.9255

294.27417

first angle mean: 53.92322

first angle stdev: 42.12577

second angle mean: 102.9157

second angle stdev: 11.05368

32.74 127.34

111.52 63.8

left shoulder L\_shoulder 37.449757 -56.293156 2107.3123

right shoulder R\_shoulder -246.01347 -120.439186 2024.4889

283.46323

first angle mean: 53.74959

first angle stdev: 41.996223

second angle mean: 102.98622

second angle stdev: 11.035588

31.27 129.5

110.26 66.82

left shoulder L\_shoulder 34.3459 -60.526413 2144.5845

right shoulder R\_shoulder -234.1423 -131.7308 2023.6714

268.48822

first angle mean: 53.56683

first angle stdev: 41.873844

second angle mean: 103.04536

second angle stdev: 11.010029

28.98 129.49

106.91 67.89

left shoulder L\_shoulder 27.883663 -61.52424 2174.825

right shoulder R\_shoulder -225.18568 -139.39189 2020.7487

253.06935

first angle mean: 53.36855

first angle stdev: 41.762592

second angle mean: 103.07652

second angle stdev: 10.97099

27.03 129.9

103.65 66.42

left shoulder L\_shoulder 15.821121 -58.778923 2191.166

right shoulder R\_shoulder -223.63757 -140.26385 2007.6119

239.4587

first angle mean: 53.15784

first angle stdev: 41.66133

second angle mean: 103.081116

second angle stdev: 10.927138

26.97 129.28

102.81 66.3

left shoulder L\_shoulder 10.234781 -50.37094 2199.153

right shoulder R\_shoulder -225.28648 -133.2515 2004.777

235.52127

first angle mean: 52.95

first angle stdev: 41.560688

second angle mean: 103.078964

second angle stdev: 10.883717

27.0 128.87

102.81 65.49

left shoulder L\_shoulder 9.372175 -48.97523 2199.1858

right shoulder R\_shoulder -226.88174 -132.43806 2000.4192

236.25392

first angle mean: 52.74567

first angle stdev: 41.46024

second angle mean: 103.07684

second angle stdev: 10.840809

26.92 128.33

103.33 64.2

left shoulder L\_shoulder 6.8749175 -51.868755 2192.7915

right shoulder R\_shoulder -234.89032 -131.55428 1995.4039

241.76524

first angle mean: 52.543903

first angle stdev: 41.360508

second angle mean: 103.07883

second angle stdev: 10.798402

27.27 125.77

105.04 62.41

left shoulder L\_shoulder 2.408177 -55.449112 2175.9587

right shoulder R\_shoulder -252.90839 -125.530136 1992.3655

255.31656

first angle mean: 52.347984

first angle stdev: 41.25947

second angle mean: 103.09403

second angle stdev: 10.757841

28.32 120.33

107.04 62.51

left shoulder L\_shoulder 0.57902926 -62.446426 2162.0327

right shoulder R\_shoulder -269.54514 -125.72561 1999.0507

270.12418

first angle mean: 52.163155

first angle stdev: 41.15405

second angle mean: 103.12438

second angle stdev: 10.721929

29.56 112.87

108.38 61.63

left shoulder L\_shoulder 5.7464385 -73.3354 2128.5906

right shoulder R\_shoulder -281.09564 -129.5332 1997.7521

286.84207

first angle mean: 51.990616

first angle stdev: 41.04385

second angle mean: 103.164505

second angle stdev: 10.690719

29.33 99.39

108.02 64.06

left shoulder L\_shoulder 3.9649453 -79.80511 2134.6724

right shoulder R\_shoulder -294.70703 -133.50888 2029.3309

298.67197

first angle mean: 51.818943

first angle stdev: 40.93527

second angle mean: 103.201294

second angle stdev: 10.6584635

28.5 86.71

107.26 65.88

left shoulder L\_shoulder 1.3601935 -88.5195 2137.7068

right shoulder R\_shoulder -309.52515 -136.38177 2071.3704

310.88535

first angle mean: 51.643612

first angle stdev: 40.830807

second angle mean: 103.231804

second angle stdev: 10.624106

27.03 75.74

106.37 60.09

left shoulder L\_shoulder -1.9378363 -99.66602 2117.5508

right shoulder R\_shoulder -323.67096 -142.70915 2105.9612

321.73312

first angle mean: 51.459927

first angle stdev: 40.733284

second angle mean: 103.25522

second angle stdev: 10.587835

27.11 67.25

106.71 56.2

left shoulder L\_shoulder -5.8153424 -93.241066 2092.388

right shoulder R\_shoulder -332.87146 -133.75201 2126.3318

327.05612

first angle mean: 51.279556

first angle stdev: 40.635815

second angle mean: 103.280815

second angle stdev: 10.552707

26.4 63.07

105.3 69.67

left shoulder L\_shoulder -10.046765 -82.161476 2064.0337

right shoulder R\_shoulder -337.31805 -112.37121 2106.899

327.2713

first angle mean: 51.09662

first angle stdev: 40.541904

second angle mean: 103.29566

second angle stdev: 10.515253

25.01 56.39

103.23 83.88

left shoulder L\_shoulder -12.9927845 -78.125435 2045.8422

right shoulder R\_shoulder -341.4081 -95.34159 2088.908

328.4153

first angle mean: 50.906204

first angle stdev: 40.45466

second angle mean: 103.29518

second angle stdev: 10.476809

24.2 55.14

102.42 85.58

left shoulder L\_shoulder -13.928981 -79.29389 2041.2498

right shoulder R\_shoulder -343.78372 -88.88183 2075.8438

329.85474

first angle mean: 50.71268

first angle stdev: 40.371414

second angle mean: 103.28883

second angle stdev: 10.439043

24.27 38.31

103.3 99.11

left shoulder L\_shoulder -30.020863 -72.26146 2062.4106

right shoulder R\_shoulder -361.71338 -81.592384 2075.4731

331.6925

first angle mean: 50.522446

first angle stdev: 40.287956

second angle mean: 103.288925

second angle stdev: 10.401424

23.68 34.74

102.64 101.56

left shoulder L\_shoulder -34.518272 -74.46659 2071.7107

right shoulder R\_shoulder -366.7743 -78.03882 2074.1812

332.256

first angle mean: 50.330715

first angle stdev: 40.20741

second angle mean: 103.28429

second angle stdev: 10.364354

23.19 34.92

102.27 102.08

left shoulder L\_shoulder -39.083214 -73.80707 2071.7522

right shoulder R\_shoulder -371.3935 -72.14451 2074.15

332.31027

first angle mean: 50.13823

first angle stdev: 40.129257

second angle mean: 103.27709

second angle stdev: 10.327887

22.43 34.25

101.93 101.61

left shoulder L\_shoulder -41.536198 -73.53033 2072.192

right shoulder R\_shoulder -374.47244 -68.19593 2077.9106

332.93625

first angle mean: 49.9431

first angle stdev: 40.05478

second angle mean: 103.26761

second angle stdev: 10.292073

23.76 33.75

103.13 101.43

left shoulder L\_shoulder -43.047367 -73.53331 2070.6526

right shoulder R\_shoulder -376.95123 -65.10461 2079.924

333.90387

first angle mean: 49.760002

first angle stdev: 39.97407

second angle mean: 103.26664

second angle stdev: 10.25603

27.27 32.98

105.83 102.14

left shoulder L\_shoulder -44.22888 -76.20359 2071.48

right shoulder R\_shoulder -378.68933 -63.594402 2083.9766

334.46045

first angle mean: 49.60382

first angle stdev: 39.878788

second angle mean: 103.28445

second angle stdev: 10.222573

32.9 33.19

108.96 103.5

left shoulder L\_shoulder -48.358997 -81.283745 2068.448

right shoulder R\_shoulder -382.60666 -62.636265 2082.179

334.24765

first angle mean: 49.48862

first angle stdev: 39.76507

second angle mean: 103.323586

second angle stdev: 10.198085

44.4 34.06

113.04 105.54

left shoulder L\_shoulder -59.479637 -97.528496 2063.5474

right shoulder R\_shoulder -392.14288 -65.58696 2081.364

332.66324

first angle mean: 49.453766

first angle stdev: 39.63088

second angle mean: 103.39014

second angle stdev: 10.194646

55.64 34.21

115.61 106.61

left shoulder L\_shoulder -72.21225 -110.919174 2058.7407

right shoulder R\_shoulder -399.4119 -65.738266 2084.9902

327.19965

first angle mean: 49.49585

first angle stdev: 39.499126

second angle mean: 103.47327

second angle stdev: 10.209442

65.72 32.73

117.34 105.38

left shoulder L\_shoulder -82.94801 -122.65615 2054.7737

right shoulder R\_shoulder -404.39886 -61.98128 2106.328

321.45087

first angle mean: 49.605476

first angle stdev: 39.387886

second angle mean: 103.56696

second angle stdev: 10.238109

71.63 31.49

119.29 104.74

left shoulder L\_shoulder -89.76036 -127.055916 2049.3428

right shoulder R\_shoulder -405.2559 -56.744083 2119.5754

315.49554

first angle mean: 49.75329

first angle stdev: 39.296658

second angle mean: 103.67248

second angle stdev: 10.284134

79.26 29.77

123.81 101.21

left shoulder L\_shoulder -105.87834 -147.1827 2021.6562

right shoulder R\_shoulder -404.66772 -54.228447 2145.557

298.78937

first angle mean: 49.95

first angle stdev: 39.238987

second angle mean: 103.80673

second angle stdev: 10.37997

104.63 29.11

118.54 102.3

left shoulder L\_shoulder -113.02008 -157.48453 2029.7439

right shoulder R\_shoulder -399.7755 -52.480595 2174.7896

286.75543

first angle mean: 50.31212

first angle stdev: 39.35951

second angle mean: 103.904305

second angle stdev: 10.41433

108.21 29.77

106.81 103.76

left shoulder L\_shoulder -118.14099 -164.11003 2026.8927

right shoulder R\_shoulder -394.9189 -52.404255 2186.515

276.77792

first angle mean: 50.693024

first angle stdev: 39.508068

second angle mean: 103.923416

second angle stdev: 10.382673

105.24 29.89

97.81 103.8

left shoulder L\_shoulder -122.24725 -172.17 2032.6207

right shoulder R\_shoulder -391.7589 -54.16943 2205.2969

269.51166

first angle mean: 51.04954

first angle stdev: 39.623295

second angle mean: 103.88345

second angle stdev: 10.360406

108.69 29.71

88.84 103.43

left shoulder L\_shoulder -120.901566 -176.89934 2013.9027

right shoulder R\_shoulder -387.09854 -61.37372 2197.8076

266.19696

first angle mean: 51.423832

first angle stdev: 39.76487

second angle mean: 103.785774

second angle stdev: 10.397162

106.0 29.93

78.12 105.1

left shoulder L\_shoulder -126.06576 -179.98988 2028.9106

right shoulder R\_shoulder -391.04816 -64.78348 2214.767

264.9824

first angle mean: 51.775936

first angle stdev: 39.876507

second angle mean: 103.620186

second angle stdev: 10.565321

108.02 31.07

66.13 107.16

left shoulder L\_shoulder -124.67592 -173.26839 2002.0311

right shoulder R\_shoulder -394.8637 -63.957268 2183.0088

270.1878

first angle mean: 52.136475

first angle stdev: 40.001133

second angle mean: 103.37987

second angle stdev: 10.94817

113.21 31.01

53.87 106.41

left shoulder L\_shoulder -131.80956 -177.73396 1982.5436

right shoulder R\_shoulder -398.07217 -67.42024 2168.8774

266.26263

first angle mean: 52.52548

first angle stdev: 40.168465

second angle mean: 103.064514

second angle stdev: 11.602261

112.8 31.36

55.81 106.27

left shoulder L\_shoulder -139.84895 -182.18759 1984.9015

right shoulder R\_shoulder -401.99518 -67.679726 2174.151

262.14624

first angle mean: 52.90696

first angle stdev: 40.32545

second angle mean: 102.765434

second angle stdev: 12.157461

113.6 30.71

57.93 104.44

left shoulder L\_shoulder -146.1158 -186.04678 1997.5698

right shoulder R\_shoulder -403.08447 -69.562614 2195.3188

256.9687

first angle mean: 53.28868

first angle stdev: 40.483776

second angle mean: 102.483444

second angle stdev: 12.626862

113.38 30.41

61.94 103.92

left shoulder L\_shoulder -150.96306 -191.33826 2018.5607

right shoulder R\_shoulder -405.27866 -68.10055 2217.38

254.3156

first angle mean: 53.664253

first angle stdev: 40.63398

second angle mean: 102.230064

second angle stdev: 12.986551

112.1 30.06

65.6 103.88

left shoulder L\_shoulder -153.70876 -195.84854 2030.4656

right shoulder R\_shoulder -405.04425 -65.841576 2230.0244

251.3355

first angle mean: 54.02721

first angle stdev: 40.766933

second angle mean: 102.00255

second angle stdev: 13.26217

112.56 30.76

65.58 105.31

left shoulder L\_shoulder -150.50487 -191.98155 2027.1847

right shoulder R\_shoulder -404.61554 -62.361084 2222.806

254.11067

first angle mean: 54.38852

first angle stdev: 40.89868

second angle mean: 101.77772

second angle stdev: 13.52545

111.97 31.65

65.71 106.83

left shoulder L\_shoulder -145.17221 -188.53111 2026.5183

right shoulder R\_shoulder -401.75818 -61.653328 2219.2688

256.58597

first angle mean: 54.74178

first angle stdev: 41.020195

second angle mean: 101.556435

second angle stdev: 13.774881

110.35 31.45

63.71 107.13

left shoulder L\_shoulder -137.19002 -191.0784 2024.0426

right shoulder R\_shoulder -397.65833 -66.40629 2212.885

260.46832

first angle mean: 55.080856

first angle stdev: 41.123432

second angle mean: 101.32567

second angle stdev: 14.045319

110.6 31.32

61.59 107.36

left shoulder L\_shoulder -129.86732 -192.48222 2014.0131

right shoulder R\_shoulder -393.84128 -71.12181 2200.0566

263.97394

first angle mean: 55.417343

first angle stdev: 41.22445

second angle mean: 101.08485

second angle stdev: 14.338293

109.37 30.81

61.65 107.03

left shoulder L\_shoulder -120.2946 -184.82426 2008.5914

right shoulder R\_shoulder -391.99802 -71.55234 2186.669

271.70343

first angle mean: 55.74235

first angle stdev: 41.311592

second angle mean: 100.84729

second angle stdev: 14.617107

106.58 30.87

63.51 107.52

left shoulder L\_shoulder -111.84603 -174.25192 2003.3309

right shoulder R\_shoulder -393.03238 -71.539986 2169.3022

281.18634

first angle mean: 56.04677

first angle stdev: 41.374043

second angle mean: 100.62371

second angle stdev: 14.855241

104.84 30.84

80.41 107.46

left shoulder L\_shoulder -109.536545 -167.13397 2008.695

right shoulder R\_shoulder -399.82742 -74.2849 2159.2786

290.2909

first angle mean: 56.337204

first angle stdev: 41.421116

second angle mean: 100.503395

second angle stdev: 14.892356

97.4 30.45

98.62 106.63

left shoulder L\_shoulder -113.427345 -172.80673 2039.2561

right shoulder R\_shoulder -407.22043 -78.53291 2181.589

293.7931

first angle mean: 56.58018

first angle stdev: 41.418293

second angle mean: 100.492256

second angle stdev: 14.848933

robot count: 2

87.81 29.93

90.68 106.4

left shoulder L\_shoulder -93.73879 -170.40677 2059.6665

right shoulder R\_shoulder -395.88467 -78.69918 2192.7007

302.14587

first angle mean: 56.763885

first angle stdev: 41.365288

second angle mean: 100.43453

second angle stdev: 14.824198

71.7 30.05

99.69 106.26

left shoulder L\_shoulder -80.44252 -158.94727 2049.1724

right shoulder R\_shoulder -387.21518 -74.54107 2178.297

306.77264

first angle mean: 56.85123

first angle stdev: 41.25988

second angle mean: 100.430176

second angle stdev: 14.780898

46.66 30.84

103.63 106.81

left shoulder L\_shoulder -74.87131 -143.81735 2026.5198

right shoulder R\_shoulder -383.79422 -66.21185 2158.2903

308.9229

first angle mean: 56.79198

first angle stdev: 41.14706

second angle mean: 100.448784

second angle stdev: 14.739875

12.46 28.94

109.74 102.62

left shoulder L\_shoulder -63.688084 -123.92982 1986.8053

right shoulder R\_shoulder -371.874 -58.12525 2141.0642

308.1859

first angle mean: 56.535725

first angle stdev: 41.16538

second angle mean: 100.50249

second angle stdev: 14.71408

39.21 27.37

106.26 100.35

left shoulder L\_shoulder -50.98344 -112.42133 1997.8082

right shoulder R\_shoulder -369.35614 -64.25284 2134.6

318.3727

first angle mean: 56.436153

first angle stdev: 41.067806

second angle mean: 100.53558

second angle stdev: 14.678191

34.31 27.89

104.24 101.28

left shoulder L\_shoulder -36.52947 -99.366035 2020.3137

right shoulder R\_shoulder -368.31635 -67.18898 2117.745

331.78687

first angle mean: 56.30972

first angle stdev: 40.98425

second angle mean: 100.55674

second angle stdev: 14.638856

35.61 28.66

103.83 102.74

left shoulder L\_shoulder -24.528654 -90.43731 2039.5243

right shoulder R\_shoulder -364.35226 -70.68376 2101.166

339.8236

first angle mean: 56.1921

first angle stdev: 40.89726

second angle mean: 100.57534

second angle stdev: 14.599283

31.37 29.03

102.81 103.68

left shoulder L\_shoulder -15.224771 -84.968544 2061.851

right shoulder R\_shoulder -358.9465 -75.827614 2089.138

343.72174

first angle mean: 56.05186

first angle stdev: 40.82398

second angle mean: 100.58797

second angle stdev: 14.558948

26.79 31.76

101.97 106.27

left shoulder L\_shoulder -5.248398 -80.54138 2081.945

right shoulder R\_shoulder -346.99796 -77.23383 2062.7395

341.74957

first angle mean: 55.88747

first angle stdev: 40.767853

second angle mean: 100.595726

second angle stdev: 14.518361

25.92 35.65

102.6 105.3

left shoulder L\_shoulder -0.031918287 -80.1643 2092.7166

right shoulder R\_shoulder -338.4351 -88.55638 2059.669

338.40317

first angle mean: 55.720055

first angle stdev: 40.715134

second angle mean: 100.60692

second angle stdev: 14.478521

26.39 46.43

102.73 101.45

left shoulder L\_shoulder 6.5994864 -82.84619 2105.828

right shoulder R\_shoulder -327.19354 -103.648315 2050.7627

333.79303

first angle mean: 55.557106

first angle stdev: 40.660362

second angle mean: 100.61872

second angle stdev: 14.439109

25.7 59.23

101.22 98.24

left shoulder L\_shoulder 12.259305 -81.7308 2123.9976

right shoulder R\_shoulder -311.83435 -114.19397 2030.5405

324.09366

first angle mean: 55.39216

first angle stdev: 40.608234

second angle mean: 100.62204

second angle stdev: 14.399237

25.77 64.26

101.69 98.86

left shoulder L\_shoulder 13.150333 -80.698265 2144.6157

right shoulder R\_shoulder -298.4528 -128.37247 2024.2484

311.60312

first angle mean: 55.229397

first angle stdev: 40.55568

second angle mean: 100.62791

second angle stdev: 14.359839

26.81 75.48

103.95 85.14

left shoulder L\_shoulder 13.244093 -95.398254 2166.996

right shoulder R\_shoulder -290.519 -162.34288 2036.9673

303.7631

first angle mean: 55.0741

first angle stdev: 40.498947

second angle mean: 100.646065

second angle stdev: 14.322645

30.72 108.99

106.54 41.25

left shoulder L\_shoulder 26.172997 -98.791115 2036.7051

right shoulder R\_shoulder -296.1903 -147.3748 2008.0704

322.3633

first angle mean: 54.941734

first angle stdev: 40.428413

second angle mean: 100.67809

second angle stdev: 14.290243

29.96 115.89

106.1 46.42

left shoulder L\_shoulder 30.441107 -69.14883 2060.4414

right shoulder R\_shoulder -285.49457 -124.51338 2007.8597

315.93567

first angle mean: 54.806698

first angle stdev: 40.360588

second angle mean: 100.7074

second angle stdev: 14.2571125

26.66 121.25

105.05 55.97

left shoulder L\_shoulder 27.681755 -60.287632 2141.1948

right shoulder R\_shoulder -264.76215 -127.99865 2018.7335

292.4439

first angle mean: 54.655373

first angle stdev: 40.30453

second angle mean: 100.73074

second angle stdev: 14.2222805

26.54 122.92

103.85 60.85

left shoulder L\_shoulder 21.5251 -52.164814 2176.3628

right shoulder R\_shoulder -250.36946 -132.68613 2019.4609

271.89456

first angle mean: 54.505024

first angle stdev: 40.24889

second angle mean: 100.74743

second angle stdev: 14.186027

25.77 120.89

102.33 62.62

left shoulder L\_shoulder 8.736968 -54.1856 2190.8008

right shoulder R\_shoulder -247.66838 -140.43703 2010.3414

256.40533

first angle mean: 54.352177

first angle stdev: 40.19608

second angle mean: 100.75584

second angle stdev: 14.148716

25.02 115.97

101.59 60.58

left shoulder L\_shoulder 2.1120312 -60.33753 2187.0247

right shoulder R\_shoulder -251.08522 -144.30386 1999.1272

253.19725

first angle mean: 54.196983

first angle stdev: 40.146038

second angle mean: 100.760254

second angle stdev: 14.111366

26.42 108.27

103.75 57.31

left shoulder L\_shoulder 6.3304315 -70.44912 2153.7449

right shoulder R\_shoulder -256.87036 -150.37607 1978.1931

263.2008

first angle mean: 54.050785

first angle stdev: 40.090656

second angle mean: 100.775986

second angle stdev: 14.075845

26.39 105.99

104.91 55.92

left shoulder L\_shoulder -4.125051 -117.84671 2156.4473

right shoulder R\_shoulder -224.66084 -170.74239 1943.7416

220.5358

first angle mean: 53.905964

first angle stdev: 40.03537

second angle mean: 100.79763

second angle stdev: 14.042117

27.37 90.11

107.41 61.97

left shoulder L\_shoulder 12.760513 -111.480415 2058.9937

right shoulder R\_shoulder -258.05627 -145.22624 1932.7792

270.81677

first angle mean: 53.76776

first angle stdev: 39.976635

second angle mean: 100.832085

second angle stdev: 14.013587

26.61 40.95

106.45 88.2

left shoulder L\_shoulder -6.7075787 -72.17844 2095.2651

right shoulder R\_shoulder -303.7202 -114.19901 1988.7764

297.01263

first angle mean: 53.627045

first angle stdev: 39.920574

second angle mean: 100.8612

second angle stdev: 13.983053

26.8 29.91

105.76 95.13

left shoulder L\_shoulder -18.62915 -66.65993 2108.7883

right shoulder R\_shoulder -330.29724 -94.44716 2031.1589

311.6681

first angle mean: 53.488766

first angle stdev: 39.863873

second angle mean: 100.88644

second angle stdev: 13.95138

30.09 29.29

106.06 96.24

left shoulder L\_shoulder -30.92772 -76.27503 2092.9285

right shoulder R\_shoulder -355.76636 -81.10228 2066.4365

324.83862

first angle mean: 53.36877

first angle stdev: 39.796635

second angle mean: 100.91297

second angle stdev: 13.920467

38.37 32.27

105.59 101.53

left shoulder L\_shoulder -46.357735 -82.3857 2072.7305

right shoulder R\_shoulder -373.62836 -76.56887 2085.535

327.27063

first angle mean: 53.29224

first angle stdev: 39.709366

second angle mean: 100.93683

second angle stdev: 13.888907

52.95 33.28

105.5 105.42

left shoulder L\_shoulder -64.90298 -96.13684 2048.7415

right shoulder R\_shoulder -388.43698 -72.86289 2095.8274

323.534

first angle mean: 53.29051

first angle stdev: 39.608463

second angle mean: 100.96

second angle stdev: 13.857407

66.74 32.38

105.72 105.44

left shoulder L\_shoulder -79.4067 -110.3147 2021.4698

right shoulder R\_shoulder -394.14053 -72.786545 2106.548

314.73383

first angle mean: 53.358437

first angle stdev: 39.519814

second angle mean: 100.98404

second angle stdev: 13.826488

73.44 30.07

102.64 105.89

left shoulder L\_shoulder -95.69516 -129.33351 2022.8846

right shoulder R\_shoulder -404.03342 -71.1121 2123.327

308.33826

first angle mean: 53.459347

first angle stdev: 39.445957

second angle mean: 100.992355

second angle stdev: 13.7922

101.31 28.2

112.28 104.33

left shoulder L\_shoulder -124.4274 -150.86148 1994.367

right shoulder R\_shoulder -414.8752 -65.85073 2143.579

290.4478

first angle mean: 53.698597

first angle stdev: 39.491707

second angle mean: 101.0488

second angle stdev: 13.780694

110.95 27.21

106.5 103.37

left shoulder L\_shoulder -141.65291 -162.30052 1994.818

right shoulder R\_shoulder -419.02002 -60.43934 2159.8296

277.36713

first angle mean: 53.983433

first angle stdev: 39.598755

second angle mean: 101.07592

second angle stdev: 13.75172

117.96 27.98

103.39 103.39

left shoulder L\_shoulder -150.39757 -162.59352 1990.0604

right shoulder R\_shoulder -417.7912 -49.44707 2164.5103

267.39362

first angle mean: 54.300148

first angle stdev: 39.755016

second angle mean: 101.08737

second angle stdev: 13.7186

122.98 30.15

107.91 104.76

left shoulder L\_shoulder -170.73814 -162.77046 1975.3629

right shoulder R\_shoulder -418.71945 -33.228844 2166.4958

247.98131

first angle mean: 54.63847

first angle stdev: 39.94743

second angle mean: 101.12098

second angle stdev: 13.693104

129.88 31.63

103.14 105.64

left shoulder L\_shoulder -195.43384 -160.99464 1958.1475

right shoulder R\_shoulder -422.81726 -15.853174 2165.7283

227.38342

first angle mean: 55.007305

first angle stdev: 40.194405

second angle mean: 101.13088

second angle stdev: 13.66023

137.3 32.41

96.54 105.5

left shoulder L\_shoulder -218.41359 -161.4764 1950.525

right shoulder R\_shoulder -425.19757 -2.2762334 2174.6582

206.78398

first angle mean: 55.408726

first angle stdev: 40.504105

second angle mean: 101.10848

second angle stdev: 13.630624

143.87 32.66

91.42 105.65

left shoulder L\_shoulder -233.75336 -169.58821 1951.8162

right shoulder R\_shoulder -426.50266 -3.3596969 2184.7373

192.7493

first angle mean: 55.838158

first angle stdev: 40.870792

second angle mean: 101.061455

second angle stdev: 13.614163

147.46 33.29

88.75 106.9

left shoulder L\_shoulder -236.72983 -170.11589 1952.8807

right shoulder R\_shoulder -427.64108 -1.6633048 2186.0012

190.91125

first angle mean: 56.28077

first angle stdev: 41.263897

second angle mean: 101.00198

second angle stdev: 13.60804

146.31 33.21

86.43 107.03

left shoulder L\_shoulder -235.28142 -166.88614 1952.3835

right shoulder R\_shoulder -428.23203 1.4306698 2184.4343

192.9506

first angle mean: 56.713604

first angle stdev: 41.63296

second angle mean: 100.93192

second angle stdev: 13.612658

142.37 32.31

83.86 106.06

left shoulder L\_shoulder -229.91774 -165.09303 1955.1044

right shoulder R\_shoulder -428.6672 -0.8145589 2185.5005

198.74947

first angle mean: 57.123444

first angle stdev: 41.951725

second angle mean: 100.850235

second angle stdev: 13.631054

133.15 31.29

80.09 104.77

left shoulder L\_shoulder -219.73363 -175.32219 1961.1172

right shoulder R\_shoulder -425.32947 -18.433462 2190.728

205.59584

first angle mean: 57.485474

first angle stdev: 42.177715

second angle mean: 100.75137

second angle stdev: 13.673456

118.35 30.38

70.62 105.16

left shoulder L\_shoulder -184.64404 -168.94643 1957.9604

right shoulder R\_shoulder -425.4223 -31.221203 2163.164

240.77826

first angle mean: 57.773933

first angle stdev: 42.284775

second angle mean: 100.60858

second angle stdev: 13.797093

101.15 30.08

79.66 105.75

left shoulder L\_shoulder -169.00363 -171.70384 1981.0198

right shoulder R\_shoulder -432.34555 -40.808945 2161.746

263.34192

first angle mean: 57.978535

first angle stdev: 42.289497

second angle mean: 100.509766

second angle stdev: 13.839151

73.7 30.48

96.15 106.31

left shoulder L\_shoulder -155.35999 -199.24101 2005.2686

right shoulder R\_shoulder -441.75934 -77.435616 2157.2769

286.39935

first angle mean: 58.05235

first angle stdev: 42.203793

second angle mean: 100.489296

second angle stdev: 13.809842

57.12 32.97

94.97 108.64

left shoulder L\_shoulder -132.05907 -192.00087 2018.4824

right shoulder R\_shoulder -437.79367 -76.945465 2142.6992

305.73462

first angle mean: 58.04799

first angle stdev: 42.105118

second angle mean: 100.46351

second angle stdev: 13.782679

45.84 34.23

95.31 109.07

left shoulder L\_shoulder -106.4189 -167.40494 2018.2975

right shoulder R\_shoulder -423.52356 -64.16793 2123.2505

317.10468

first angle mean: 57.991207

first angle stdev: 42.015297

second angle mean: 100.43954

second angle stdev: 13.75506

38.57 34.92

100.64 105.26

left shoulder L\_shoulder -78.08012 -136.62193 2023.7351

right shoulder R\_shoulder -407.60864 -58.608604 2101.0786

329.52853

first angle mean: 57.901295

first angle stdev: 41.938656

second angle mean: 100.44047

second angle stdev: 13.723188

37.83 38.84

104.81 100.89

left shoulder L\_shoulder -55.91351 -121.0371 2034.2877

right shoulder R\_shoulder -393.4416 -65.436806 2080.6858

337.52808

first angle mean: 57.8088

first angle stdev: 41.863983

second angle mean: 100.460594

second angle stdev: 13.694731

39.7 44.22

105.9 99.46

left shoulder L\_shoulder -46.503754 -110.7529 2049.717

right shoulder R\_shoulder -386.93988 -74.01988 2060.9304

340.43613

first angle mean: 57.725735

first angle stdev: 41.785778

second angle mean: 100.48556

second angle stdev: 13.668227

38.62 62.81

109.89 96.67

left shoulder L\_shoulder -20.83415 -112.65913 2058.2407

right shoulder R\_shoulder -358.29175 -86.86387 2012.5187

337.4576

first angle mean: 57.638493

first angle stdev: 41.710163

second angle mean: 100.528496

second angle stdev: 13.651717

39.46 78.85

113.76 97.44

left shoulder L\_shoulder -0.628337 -114.64914 2105.6543

right shoulder R\_shoulder -318.90112 -114.76365 1983.6969

318.2728

first angle mean: 57.555862

first angle stdev: 41.633217

second angle mean: 100.58864

second angle stdev: 13.649704

38.21 85.01

114.44 92.36

left shoulder L\_shoulder 10.048362 -116.91899 2138.0664

right shoulder R\_shoulder -291.0373 -147.91133 1981.6716

301.08566

first angle mean: 57.468327

first angle stdev: 41.559208

second angle mean: 100.65132

second angle stdev: 13.650479

38.09 93.44

115.86 74.73

left shoulder L\_shoulder 16.84186 -101.9636 2152.1953

right shoulder R\_shoulder -282.65335 -161.32231 2004.5719

299.4952

first angle mean: 57.381035

first angle stdev: 41.485798

second angle mean: 100.719826

second angle stdev: 13.657725

37.96 105.88

116.3 63.66

left shoulder L\_shoulder 26.885517 -92.10132 2125.145

right shoulder R\_shoulder -265.6896 -165.01068 1983.0308

292.57513

first angle mean: 57.293945

first angle stdev: 41.413013

second angle mean: 100.789696

second angle stdev: 13.666771

35.97 116.44

114.2 70.75

left shoulder L\_shoulder 31.363115 -80.966354 2130.3213

right shoulder R\_shoulder -246.77107 -161.9314 1977.5814

278.1342

first angle mean: 57.19875

first angle stdev: 41.344917

second angle mean: 100.849556

second angle stdev: 13.665505

33.44 128.62

110.07 74.59

left shoulder L\_shoulder 35.549175 -65.234406 2139.9517

right shoulder R\_shoulder -222.88213 -145.48463 1957.4537

258.4313

first angle mean: 57.093155

first angle stdev: 41.283195

second angle mean: 100.89054

second angle stdev: 13.6488905

30.9 136.35

104.2 80.58

left shoulder L\_shoulder 38.465378 -57.106323 2175.949

right shoulder R\_shoulder -191.16641 -151.0343 1959.3364

229.63179

first angle mean: 56.977253

first angle stdev: 41.228428

second angle mean: 100.90518

second angle stdev: 13.620432

30.04 141.22

99.4 82.7

left shoulder L\_shoulder 38.44412 -51.573864 2208.427

right shoulder R\_shoulder -169.80379 -157.7102 1961.855

208.24791

first angle mean: 56.858593

first angle stdev: 41.176178

second angle mean: 100.89856

second angle stdev: 13.590764

29.95 144.68

97.17 81.78

left shoulder L\_shoulder 34.387543 -46.95256 2231.588

right shoulder R\_shoulder -161.47653 -159.99112 1964.5664

195.86407

first angle mean: 56.74057

first angle stdev: 41.124245

second angle mean: 100.882195

second angle stdev: 13.563165

30.28 148.12

95.58 78.9

left shoulder L\_shoulder 29.50154 -43.934265 2247.8948

right shoulder R\_shoulder -154.00467 -162.27344 1965.626

183.50621

first angle mean: 56.625023

first angle stdev: 41.07143

second angle mean: 100.859055

second angle stdev: 13.538034

30.69 147.15

95.42 76.52

left shoulder L\_shoulder 27.941833 -45.136536 2250.4485

right shoulder R\_shoulder -155.44043 -162.55283 1965.4285

183.38226

first angle mean: 56.51226

first angle stdev: 41.017555

second angle mean: 100.835396

second angle stdev: 13.5133095

31.02 144.94

95.44 75.19

left shoulder L\_shoulder 26.16827 -43.999786 2249.7532

right shoulder R\_shoulder -158.10677 -160.12233 1963.917

184.27504

first angle mean: 56.401905

first angle stdev: 40.962883

second angle mean: 100.81204

second angle stdev: 13.488681

30.74 127.98

101.22 70.37

left shoulder L\_shoulder 18.510908 -56.825054 2225.219

right shoulder R\_shoulder -184.3125 -167.15268 1958.3331

202.82341

first angle mean: 56.291294

first angle stdev: 40.909065

second angle mean: 100.8138

second angle stdev: 13.459605

31.11 116.72

104.57 67.21

left shoulder L\_shoulder 16.922056 -64.39196 2204.8855

right shoulder R\_shoulder -211.2539 -166.8626 1958.3893

228.17596

first angle mean: 56.183216

first angle stdev: 40.85436

second angle mean: 100.82992

second angle stdev: 13.432936

33.05 105.3

109.96 64.32

left shoulder L\_shoulder 8.652546 -78.15961 2161.167

right shoulder R\_shoulder -245.52208 -164.81323 1951.0818

254.17462

first angle mean: 56.08436

first angle stdev: 40.794888

second angle mean: 100.868935

second angle stdev: 13.417426

33.62 91.64

111.77 67.26

left shoulder L\_shoulder 1.340985 -92.60626 2160.034

right shoulder R\_shoulder -274.22815 -172.40346 1981.0374

275.56912

first angle mean: 55.98876

first angle stdev: 40.734253

second angle mean: 100.91531

second angle stdev: 13.4076395

32.84 81.6

111.54 67.95

left shoulder L\_shoulder 0.5681664 -98.94524 2159.751

right shoulder R\_shoulder -291.9924 -167.74004 2005.6052

292.56058

first angle mean: 55.890675

first angle stdev: 40.675663

second angle mean: 100.96034

second angle stdev: 13.396991

31.78 71.36

110.78 72.35

left shoulder L\_shoulder -7.772952 -99.075165 2162.5112

right shoulder R\_shoulder -307.0354 -160.49362 2018.116

299.26245

first angle mean: 55.788944

first angle stdev: 40.619835

second angle mean: 101.00177

second angle stdev: 13.383842

30.93 62.37

109.44 76.2

left shoulder L\_shoulder -13.676898 -86.98508 2151.9773

right shoulder R\_shoulder -320.14944 -138.97896 2016.5588

306.47253

first angle mean: 55.684498

first angle stdev: 40.56629

second angle mean: 101.037224

second angle stdev: 13.366843

31.55 53.87

110.03 82.12

left shoulder L\_shoulder -16.669794 -78.20277 2122.9084

right shoulder R\_shoulder -328.53867 -120.87942 1997.371

311.86887

first angle mean: 55.58351

first angle stdev: 40.5113

second angle mean: 101.07486

second angle stdev: 13.351475

30.06 44.18

108.89 91.13

left shoulder L\_shoulder -22.416859 -76.534904 2108.5557

right shoulder R\_shoulder -339.0032 -106.499954 1992.3885

316.58633

first angle mean: 55.47717

first angle stdev: 40.460228

second angle mean: 101.10742

second angle stdev: 13.333137

28.35 37.91

107.18 96.47

left shoulder L\_shoulder -32.347317 -80.377785 2107.9954

right shoulder R\_shoulder -351.59412 -100.0212 1995.9445

319.2468

first angle mean: 55.36461

first angle stdev: 40.41384

second angle mean: 101.13262

second angle stdev: 13.311171

26.45 32.96

105.34 102.45

left shoulder L\_shoulder -48.386856 -84.22609 2096.9639

right shoulder R\_shoulder -375.2135 -85.88917 2006.486

326.82666

first angle mean: 55.245125

first angle stdev: 40.372883

second angle mean: 101.15

second angle stdev: 13.286382

25.31 34.65

104.64 105.83

left shoulder L\_shoulder -65.93549 -87.46722 2071.5234

right shoulder R\_shoulder -401.81442 -68.84223 2028.5945

335.87894

first angle mean: 55.121937

first angle stdev: 40.335278

second angle mean: 101.16436

second angle stdev: 13.260897

28.3 36.25

104.97 107.71

left shoulder L\_shoulder -79.59238 -88.24565 2043.083

right shoulder R\_shoulder -417.71646 -66.02164 2052.5728

338.12408

first angle mean: 55.012012

first angle stdev: 40.288994

second angle mean: 101.17996

second angle stdev: 13.2359295

37.01 36.09

105.25 109.93

left shoulder L\_shoulder -99.75756 -96.25069 2012.917

right shoulder R\_shoulder -431.45523 -61.0183 2072.405

331.69766

first angle mean: 54.938534

first angle stdev: 40.22307

second angle mean: 101.19657

second angle stdev: 13.211438

49.0robot count: 3

36.14

106.96 110.99

left shoulder L\_shoulder -126.386795 -108.194214 1981.1599

right shoulder R\_shoulder -440.13544 -54.55428 2094.3706

313.74866

first angle mean: 54.91439

first angle stdev: 40.14301

second angle mean: 101.21999

second angle stdev: 13.189656

61.85 38.67

110.19 113.74

left shoulder L\_shoulder -155.10431 -119.37933 1944.4777

right shoulder R\_shoulder -437.17316 -39.218784 2111.5776

282.06885

first angle mean: 54.942474

first angle stdev: 40.064087

second angle mean: 101.25631

second angle stdev: 13.175247

69.61 41.29

96.33 116.98

left shoulder L\_shoulder -182.6893 -148.24786 1960.2999

right shoulder R\_shoulder -443.6346 -36.279522 2141.604

260.9453

first angle mean: 55.001614

first angle stdev: 39.994034

second angle mean: 101.23646

second angle stdev: 13.152364

86.94 43.82

87.69 119.8

left shoulder L\_shoulder -200.89879 -173.55435 1952.6857

right shoulder R\_shoulder -448.04572 -46.52683 2142.692

247.14693

first angle mean: 55.12988

first angle stdev: 39.96472

second angle mean: 101.182045

second angle stdev: 13.153857

108.7 48.02

90.25 123.32

left shoulder L\_shoulder -213.47768 -186.7123 1921.0082

right shoulder R\_shoulder -438.04935 -56.963894 2136.0

224.57167

first angle mean: 55.344162

first angle stdev: 40.027782

second angle mean: 101.13832

second angle stdev: 13.145645

121.19 49.95

89.9 123.71

left shoulder L\_shoulder -225.81985 -192.5249 1927.1536

right shoulder R\_shoulder -433.47644 -54.45157 2163.3005

207.65659

first angle mean: 55.606495

first angle stdev: 40.16273

second angle mean: 101.093544

second angle stdev: 13.13852

128.8 49.72

89.29 123.2

left shoulder L\_shoulder -240.202 -197.40431 1925.7794

right shoulder R\_shoulder -438.5087 -53.4844 2167.8892

198.3067

first angle mean: 55.896946

first angle stdev: 40.346237

second angle mean: 101.04671

second angle stdev: 13.133408

142.58 49.93

82.97 122.96

left shoulder L\_shoulder -254.35513 -187.56415 1917.4551

right shoulder R\_shoulder -445.21176 -42.12006 2167.7551

190.85663

first angle mean: 56.239567

first angle stdev: 40.632088

second angle mean: 100.97526

second angle stdev: 13.156408

150.74 52.44

83.87 126.59

left shoulder L\_shoulder -270.6204 -165.06993 1922.5688

right shoulder R\_shoulder -458.06128 -13.791562 2172.0713

187.44089

first angle mean: 56.611618

first angle stdev: 40.98155

second angle mean: 100.90791

second angle stdev: 13.174105

152.11 54.27

85.74 129.3

left shoulder L\_shoulder -277.82864 -156.51572 1930.5566

right shoulder R\_shoulder -466.29257 0.5247742 2176.2183

188.46393

first angle mean: 56.98612

first angle stdev: 41.33431

second angle mean: 100.84843

second angle stdev: 13.182377

150.64 54.41

87.31 129.66

left shoulder L\_shoulder -282.0493 -161.49828 1944.7871

right shoulder R\_shoulder -471.18695 2.9646978 2188.8354

189.13766

first angle mean: 57.35195

first angle stdev: 41.665085

second angle mean: 100.79555

second angle stdev: 13.1836815

146.68 53.31

85.28 129.16

left shoulder L\_shoulder -272.3924 -164.41919 1949.858

right shoulder R\_shoulder -469.63184 2.316728 2185.6802

197.23944

first angle mean: 57.69953

first angle stdev: 41.954166

second angle mean: 100.735176

second angle stdev: 13.193415

142.96 50.72

83.33 126.47

left shoulder L\_shoulder -261.5087 -168.80501 1952.4781

right shoulder R\_shoulder -466.96213 -3.0153542 2181.849

205.45343

first angle mean: 58.029995

first angle stdev: 42.206593

second angle mean: 100.66771

second angle stdev: 13.21216

142.7 50.56

84.66 126.27

left shoulder L\_shoulder -259.2751 -172.87756 1954.8301

right shoulder R\_shoulder -468.7602 -5.4251328 2179.3032

209.4851

first angle mean: 58.35691

first angle stdev: 42.451046

second angle mean: 100.6059

second angle stdev: 13.223946

146.02 50.84

87.1 126.41

left shoulder L\_shoulder -255.82385 -175.90099 1956.3975

right shoulder R\_shoulder -468.91797 -10.152274 2178.7317

213.09412

first angle mean: 58.694073

first angle stdev: 42.715378

second angle mean: 100.553955

second angle stdev: 13.224938

149.66 51.35

89.02 126.94

left shoulder L\_shoulder -252.54562 -170.85735 1958.879

right shoulder R\_shoulder -469.43362 -6.9236155 2179.5415

216.888

first angle mean: 59.042603

first angle stdev: 43.002274

second angle mean: 100.509766

second angle stdev: 13.218799

150.18 51.01

89.69 126.84

left shoulder L\_shoulder -249.31241 -167.01173 1966.1885

right shoulder R\_shoulder -471.31363 -7.5785246 2185.063

222.00122

first angle mean: 59.390453

first angle stdev: 43.286472

second angle mean: 100.46847

second angle stdev: 13.210406

146.31 49.88

86.93 125.82

left shoulder L\_shoulder -235.07803 -167.93864 1958.7067

right shoulder R\_shoulder -463.4194 -16.798344 2176.1228

228.34137

first angle mean: 59.720947

first angle stdev: 43.534027

second angle mean: 100.41699

second angle stdev: 13.211569

133.82 46.27

79.41 122.2

left shoulder L\_shoulder -208.88818 -173.84105 1950.1053

right shoulder R\_shoulder -452.6634 -33.528603 2157.647

243.7752

first angle mean: 60.00163

first angle stdev: 43.689262

second angle mean: 100.337425

second angle stdev: 13.249514

93.58 43.38

84.73 120.45

left shoulder L\_shoulder -184.852 -180.543 1965.8174

right shoulder R\_shoulder -449.5928 -47.69902 2151.6418

264.74078

first angle mean: 60.128338

first angle stdev: 43.655327

second angle mean: 100.27853

second angle stdev: 13.259069

69.35 40.12

88.39 117.15

left shoulder L\_shoulder -165.50397 -181.38737 1971.2548

right shoulder R\_shoulder -452.78268 -57.815475 2128.1877

287.27872

first angle mean: 60.163006

first angle stdev: 43.576847

second angle mean: 100.23383

second angle stdev: 13.2541065

50.32 39.17

87.6 115.71

left shoulder L\_shoulder -150.05925 -165.78006 1999.4989

right shoulder R\_shoulder -451.11374 -47.211395 2131.2092

301.0545

first angle mean: 60.12614

first angle stdev: 43.49932

second angle mean: 100.18652

second angle stdev: 13.251755

33.68 37.33

93.19 113.09

left shoulder L\_shoulder -125.1269 -143.96643 2013.3962

right shoulder R\_shoulder -437.41153 -41.317978 2124.3906

312.28464

first angle mean: 60.027462

first angle stdev: 43.44802

second angle mean: 100.16041

second angle stdev: 13.233885

31.5 35.74

102.18 108.93

left shoulder L\_shoulder -94.15521 -122.00694 2021.7507

right shoulder R\_shoulder -419.53293 -42.707973 2111.8079

325.37772

first angle mean: 59.92141

first angle stdev: 43.401924

second angle mean: 100.167915

second angle stdev: 13.209835

35.48 35.52

108.88 105.28

left shoulder L\_shoulder -60.87721 -104.4478 2035.163

right shoulder R\_shoulder -398.6292 -50.83279 2092.8193

337.752

first angle mean: 59.830887

first angle stdev: 43.34691

second angle mean: 100.20019

second angle stdev: 13.195966

37.71 36.34

112.47 102.65

left shoulder L\_shoulder -36.65364 -93.0009 2051.147

right shoulder R\_shoulder -381.11734 -60.1753 2074.0708

344.46368

first angle mean: 59.749256

first angle stdev: 43.287643

second angle mean: 100.24546

second angle stdev: 13.19259

40.37 38.96

115.91 98.32

left shoulder L\_shoulder -19.71516 -93.873535 2077.3362

right shoulder R\_shoulder -364.1207 -66.402275 2047.9164

344.40555

first angle mean: 59.678013

first angle stdev: 43.223915

second angle mean: 100.30305

second angle stdev: 13.2024

41.33 44.25

118.34 91.68

left shoulder L\_shoulder -9.866923 -97.71066 2098.577

right shoulder R\_shoulder -348.64865 -83.24475 2026.1881

338.78174

first angle mean: 59.610806

first angle stdev: 43.158913

second angle mean: 100.36912

second angle stdev: 13.223169

43.52 53.44

121.03 88.65

left shoulder L\_shoulder -2.630502 -95.99864 2119.3008

right shoulder R\_shoulder -327.5184 -104.73564 2005.6465

324.8879

first angle mean: 59.552086

first angle stdev: 43.09101

second angle mean: 100.44453

second angle stdev: 13.2576885

44.53 55.37

122.51 88.36

left shoulder L\_shoulder 2.4607182 -89.40625 2136.0498

right shoulder R\_shoulder -309.48376 -120.23704 1996.7218

311.9445

first angle mean: 59.497456

first angle stdev: 43.022095

second angle mean: 100.52476

second angle stdev: 13.300046

41.28 54.55

120.56 88.97

left shoulder L\_shoulder 16.080336 -109.09865 2050.0056

right shoulder R\_shoulder -307.67386 -127.93794 1958.4144

323.75418

first angle mean: 59.43145

first angle stdev: 42.95803

second angle mean: 100.59735

second angle stdev: 13.330396

39.63 83.41

118.38 70.64

left shoulder L\_shoulder 18.984602 -117.34801 2038.6248

right shoulder R\_shoulder -287.44482 -148.75183 1960.9371

306.4294

first angle mean: 59.359966

first angle stdev: 42.896862

second angle mean: 100.66155

second angle stdev: 13.348985

41.03 108.36

119.98 58.02

left shoulder L\_shoulder 27.763702 -102.91757 2003.5071

right shoulder R\_shoulder -261.2183 -152.45901 1941.2919

288.982

first angle mean: 59.29403

first angle stdev: 42.8337

second angle mean: 100.73105

second angle stdev: 13.375052

41.64 118.54

121.84 63.16

left shoulder L\_shoulder 29.646204 -90.24989 2029.0203

right shoulder R\_shoulder -243.79236 -151.9787 1939.9854

273.43857

first angle mean: 59.230755

first angle stdev: 42.769882

second angle mean: 100.8067

second angle stdev: 13.410525

40.17 127.64

120.41 71.17

left shoulder L\_shoulder 21.83894 -78.697395 2083.9768

right shoulder R\_shoulder -225.39084 -148.17194 1936.2948

247.22978

first angle mean: 59.16268

first angle stdev: 42.70858

second angle mean: 100.87672

second angle stdev: 13.437539

39.62 133.26

115.64 77.31

left shoulder L\_shoulder 13.842218 -65.45391 2146.2942

right shoulder R\_shoulder -205.31326 -148.64027 1950.8966

219.15549

first angle mean: 59.093132

first angle stdev: 42.648396

second angle mean: 100.92926

second angle stdev: 13.442387

38.8 136.49

112.51 78.87

left shoulder L\_shoulder 6.1649466 -55.619747 2176.7305

right shoulder R\_shoulder -196.27132 -143.59943 1958.1086

202.43626

first angle mean: 59.02117

first angle stdev: 42.589798

second angle mean: 100.970314

second angle stdev: 13.436177

38.47 137.74

111.75 78.47

left shoulder L\_shoulder 1.4923066 -50.578953 2185.7383

right shoulder R\_shoulder -196.27525 -140.71768 1959.3607

197.76756

first angle mean: 58.948555

first angle stdev: 42.53197

second angle mean: 101.00841

second angle stdev: 13.427663

38.09 135.98

111.96 76.26

left shoulder L\_shoulder -2.8622148 -51.99788 2182.8538

right shoulder R\_shoulder -201.93362 -140.64732 1955.4146

199.07141

first angle mean: 58.87511

first angle stdev: 42.475

second angle mean: 101.046974

second angle stdev: 13.41969

36.91 133.05

111.15 74.73

left shoulder L\_shoulder -6.107792 -54.87691 2177.5532

right shoulder R\_shoulder -210.34134 -140.93506 1951.9607

204.23355

first angle mean: 58.79804

first angle stdev: 42.420307

second angle mean: 101.08241

second angle stdev: 13.409441

36.03 127.11

112.06 73.21

left shoulder L\_shoulder -14.823317 -63.790573 2170.4592

right shoulder R\_shoulder -231.10406 -145.66031 1952.794

216.28075

first angle mean: 58.71843

first angle stdev: 42.367397

second angle mean: 101.120804

second angle stdev: 13.40165

36.05 117.39

113.91 73.11

left shoulder L\_shoulder -19.413174 -74.2728 2158.1055

right shoulder R\_shoulder -254.74083 -150.88826 1954.6462

235.32765

first angle mean: 58.639442

first angle stdev: 42.314613

second angle mean: 101.16537

second angle stdev: 13.399491

36.2 107.68

114.99 72.48

left shoulder L\_shoulder -14.66976 -78.58056 2132.5422

right shoulder R\_shoulder -269.17322 -148.02054 1950.3086

254.50346

first angle mean: 58.561523

first angle stdev: 42.261703

second angle mean: 101.21336

second angle stdev: 13.400905

35.76 84.95

114.88 76.96

left shoulder L\_shoulder -13.460905 -89.40146 2136.8875

right shoulder R\_shoulder -290.12314 -148.87842 1985.4254

276.66223

first angle mean: 58.48263

first angle stdev: 42.209763

second angle mean: 101.26065

second angle stdev: 13.40175

35.98 73.82

115.13 81.33

left shoulder L\_shoulder -12.917742 -85.7227 2135.1516

right shoulder R\_shoulder -301.55917 -141.74431 1998.0996

288.64142

first angle mean: 58.405037

first angle stdev: 42.15757

second angle mean: 101.30848

second angle stdev: 13.403305

35.85 53.29

115.39 94.35

left shoulder L\_shoulder -26.404844 -78.07605 2137.4548

right shoulder R\_shoulder -314.16638 -128.19714 1994.8535

287.76154

first angle mean: 58.327522

first angle stdev: 42.105762

second angle mean: 101.356865

second angle stdev: 13.405607

34.51 40.8

113.82 101.31

left shoulder L\_shoulder -37.950085 -71.325966 2137.3237

right shoulder R\_shoulder -329.24445 -105.846504 1996.0461

291.29437

first angle mean: 58.24596

first angle stdev: 42.056625

second angle mean: 101.39955

second angle stdev: 13.402424

32.24 33.49

111.45 102.12

left shoulder L\_shoulder -46.34236 -73.18933 2126.7197

right shoulder R\_shoulder -346.72952 -88.9922 1999.102

300.38715

first angle mean: 58.157196

first angle stdev: 42.012184

second angle mean: 101.43385

second angle stdev: 13.392367

31.07 31.19

109.31 103.31

left shoulder L\_shoulder -53.664433 -76.522675 2106.0488

right shoulder R\_shoulder -363.84683 -73.65779 2003.1984

310.1824

first angle mean: 58.065063

first angle stdev: 41.970314

second angle mean: 101.46065

second angle stdev: 13.377434

30.1 29.22

106.8 104.44

left shoulder L\_shoulder -61.97597 -84.51695 2083.655

right shoulder R\_shoulder -380.51733 -65.76792 2012.8474

318.54135

first angle mean: 57.970272

first angle stdev: 41.930634

second angle mean: 101.478745

second angle stdev: 13.358345

30.93 30.68

104.88 105.97

left shoulder L\_shoulder -73.650375 -99.392235 2058.2622

right shoulder R\_shoulder -397.48666 -68.26733 2025.7513

323.8363

first angle mean: 57.878918

first angle stdev: 41.889137

second angle mean: 101.490234

second angle stdev: 13.337223

35.54 32.46

103.06 109.63

left shoulder L\_shoulder -84.60348 -105.92706 2032.5532

right shoulder R\_shoulder -408.4267 -74.6254 2039.6636

323.8232

first angle mean: 57.8037

first angle stdev: 41.838577

second angle mean: 101.49552

second angle stdev: 13.315061

47.77 33.4

101.46 110.9

left shoulder L\_shoulder -94.36811 -109.5645 2013.009

right shoulder R\_shoulder -413.9965 -74.67463 2056.1301

319.6284

first angle mean: 57.77003

first angle stdev: 41.772346

second angle mean: 101.4954

second angle stdev: 13.292702

58.14 32.93

103.29 110.65

left shoulder L\_shoulder -112.76462 -120.42004 1998.4819

right shoulder R\_shoulder -419.71115 -68.62234 2092.0317

306.94653

first angle mean: 57.771267

first angle stdev: 41.702442

second angle mean: 101.5014

second angle stdev: 13.270859

58.03 32.17

105.9 109.95

left shoulder L\_shoulder -128.9011 -129.14818 1991.5176

right shoulder R\_shoulder -421.4067 -60.915962 2121.106

292.5056

first angle mean: 57.772137

first angle stdev: 41.632885

second angle mean: 101.51607

second angle stdev: 13.251147

69.95 31.46

108.03 109.24

left shoulder L\_shoulder -155.51585 -158.62202 1984.0577

right shoulder R\_shoulder -426.3076 -67.94875 2145.742

270.79175

first angle mean: 57.81259

first angle stdev: 41.569576

second angle mean: 101.53771

second angle stdev: 13.2344265

88.86 31.88

105.75 108.83

left shoulder L\_shoulder -180.65184 -179.06201 1966.1033

right shoulder R\_shoulder -431.55203 -59.050327 2165.6978

250.90019

first angle mean: 57.915394

first angle stdev: 41.539005

second angle mean: 101.55166

second angle stdev: 13.214713

104.07 33.37

97.57 109.91

left shoulder L\_shoulder -193.65727 -184.41866 1954.2487

right shoulder R\_shoulder -432.49948 -51.352695 2170.9604

238.84221

first angle mean: 58.067722

first angle stdev: 41.554802

second angle mean: 101.53852

second angle stdev: 13.194864

118.8 34.4

85.88 111.32

left shoulder L\_shoulder -203.51796 -190.52538 1963.755

right shoulder R\_shoulder -436.71887 -48.17905 2184.067

233.20091

first angle mean: 58.2675

first angle stdev: 41.631893

second angle mean: 101.48701

second angle stdev: 13.203622

129.41 36.24

80.57 112.98

left shoulder L\_shoulder -216.86774 -181.93636 1939.5876

right shoulder R\_shoulder -437.41208 -35.415585 2171.3884

220.54434

first angle mean: 58.500755

first angle stdev: 41.76208

second angle mean: 101.41843

second angle stdev: 13.236081

138.59 37.52

81.87 113.96

left shoulder L\_shoulder -233.54005 -169.87718 1929.9487

right shoulder R\_shoulder -441.87164 -21.092463 2172.2922

208.33159

first angle mean: 58.762486

first angle stdev: 41.943596

second angle mean: 101.354546

second angle stdev: 13.26145

144.05 38.49

83.54 115.16

left shoulder L\_shoulder -244.00623 -156.87718 1936.337

right shoulder R\_shoulder -449.8041 -3.586032 2175.11

205.79788

first angle mean: 59.04029

first angle stdev: 42.15627

second angle mean: 101.29652

second angle stdev: 13.278688

147.38 39.94

85.24 116.5

left shoulder L\_shoulder -256.53162 -149.97018 1943.8737

right shoulder R\_shoulder -457.14557 9.902971 2181.156

200.61395

first angle mean: 59.32711

first angle stdev: 42.38675

second angle mean: 101.244385

second angle stdev: 13.288546

146.79 40.24

89.5 116.3

left shoulder L\_shoulder -274.4902 -150.41267 1958.1882

right shoulder R\_shoulder -470.65692 18.336082 2192.1992

196.16672

first angle mean: 59.610157

first angle stdev: 42.608665

second angle mean: 101.206375

second angle stdev: 13.283783

150.06 39.47

87.44 114.91

left shoulder L\_shoulder -285.3363 -154.1579 1965.7319

right shoulder R\_shoulder -480.15314 18.698328 2197.889

194.81683

first angle mean: 59.901936

first angle stdev: 42.847958

second angle mean: 101.16197

second angle stdev: 13.285294

150.5 38.29

87.33 112.99

left shoulder L\_shoulder -293.50455 -156.0314 1971.2397

right shoulder R\_shoulder -486.57 19.193783 2203.8733

193.06546

first angle mean: 60.193245

first angle stdev: 43.0854

second angle mean: 101.11749

second angle stdev: 13.287013

148.43 40.5

85.77 116.3

left shoulder L\_shoulder -283.6203 -156.46216 1962.0869

right shoulder R\_shoulder -481.38632 16.322151 2192.5706

197.76602

first angle mean: 60.476063

first angle stdev: 43.30446

second angle mean: 101.0683

second angle stdev: 13.294037

145.08 41.51

85.95 117.9

left shoulder L\_shoulder -274.23416 -154.73735 1963.3551

right shoulder R\_shoulder -479.735 16.107174 2187.404

205.50082

first angle mean: 60.746357

first angle stdev: 43.49805

second angle mean: 101.02

second angle stdev: 13.300175

136.14 41.51

87.6 118.68

left shoulder L\_shoulder -260.2463 -158.73529 1974.3265

right shoulder R\_shoulder -476.80862 10.464289 2187.464

216.56232

first angle mean: 60.986465

first angle stdev: 43.635986

second angle mean: 100.97726

second angle stdev: 13.300489

126.93 40.71

83.83 118.29

left shoulder L\_shoulder -241.33655 -169.6263 1983.7623

right shoulder R\_shoulder -468.7866 -4.6468606 2187.7903

227.45004

first angle mean: 61.19581

first angle stdev: 43.724316

second angle mean: 100.92282

second angle stdev: 13.314349

107.83 37.88

81.78 115.64

left shoulder L\_shoulder -217.73015 -185.38943 1997.4474

right shoulder R\_shoulder -461.36963 -27.281412 2188.5515

243.63948

first angle mean: 61.34339

first angle stdev: 43.733578

second angle mean: 100.86224

second angle stdev: 13.336675

105.49 36.26

88.01 114.08

left shoulder L\_shoulder -199.35045 -191.4522 1987.8342

right shoulder R\_shoulder -459.75656 -46.92241 2167.5466

260.40613

first angle mean: 61.48265

first angle stdev: 43.73467

second angle mean: 100.82171

second angle stdev: 13.335112

84.67 36.46

101.33 114.02

left shoulder L\_shoulder -191.07523 -190.68661 1981.0964

right shoulder R\_shoulder -458.92435 -54.057114 2158.4905

267.84912

first angle mean: 61.555573

first angle stdev: 43.685143

second angle mean: 100.823296

second angle stdev: 13.314159

56.21 37.57

104.06 115.18

left shoulder L\_shoulder -177.74187 -183.11504 1975.0824

right shoulder R\_shoulder -458.58405 -50.13892 2143.8962

280.84216

first angle mean: 61.53881

first angle stdev: 43.617638

second angle mean: 100.83344

second angle stdev: 13.294506

42.73 38.89

95.77 116.89

left shoulder L\_shoulder -145.33208 -164.92163 1983.6179

right shoulder R\_shoulder -441.72302 -43.742996 2131.7979

296.39093

first angle mean: 61.48003

first angle stdev: 43.562088

second angle mean: 100.81763

second angle stdev: 13.276724

32.87 36.42

98.04 113.9

left shoulder L\_shoulder -108.50898 -139.47821 1986.7677

right shoulder R\_shoulder -423.13733 -44.73041 2115.1418

314.62836

first angle mean: 61.390903

first angle stdev: 43.52339

second angle mean: 100.80897

second angle stdev: 13.256932

30.85 34.77

103.24 111.16

left shoulder L\_shoulder -75.73415 -118.12651 1991.4756

right shoulder R\_shoulder -406.4439 -52.629578 2093.2249

330.70975

first angle mean: 61.296055

first angle stdev: 43.48897

second angle mean: 100.81653

second angle stdev: 13.237021

32.52 34.64

107.71 106.7

left shoulder L\_shoulder -37.617725 -98.63723 2013.3126

right shoulder R\_shoulder -383.32727 -67.18404 2060.192

345.70953

first angle mean: 61.20697

first angle stdev: 43.451015

second angle mean: 100.83787

second angle stdev: 13.222062

32.42 36.21

109.08 101.96

left shoulder L\_shoulder -21.622494 -98.98166 2036.851

right shoulder R\_shoulder -369.96027 -71.709694 2032.453

348.33777

first angle mean: 61.118114

first angle stdev: 43.413284

second angle mean: 100.863304

second angle stdev: 13.209557

31.39 42.88

109.56 97.44

left shoulder L\_shoulder -9.142428 -98.34762 2082.2334

right shoulder R\_shoulder -343.1053 -86.06925 1987.1971

333.96286

first angle mean: 61.026646

first angle stdev: 43.377705

second angle mean: 100.890076

second angle stdev: 13.19801

31.65 50.5

110.03 95.46

left shoulder L\_shoulder -14.425695 -92.72816 2115.7358

right shoulder R\_shoulder -321.33264 -106.13463 1956.1642

306.90695

first angle mean: 60.93653

first angle stdev: 43.341583

second angle mean: 100.9181

second angle stdev: 13.187442

31.03 63.41

109.64 86.36

left shoulder L\_shoulder -18.032343 -87.983894 2128.14

right shoulder R\_shoulder -300.8252 -122.84167 1941.0084

282.79285

first angle mean: 60.845078

first angle stdev: 43.30675

second angle mean: 100.94476

second angle stdev: 13.176066

31.1 76.95

111.21 64.85

left shoulder L\_shoulder -17.236742 -88.924225 2116.6514

right shoulder R\_shoulder -280.61548 -135.88481 1938.3737

263.37872

first angle mean: 60.754395

first angle stdev: 43.27177

second angle mean: 100.97606

second angle stdev: 13.168133

30.21 91.16

110.92 39.17

left shoulder L\_shoulder -16.055874 -96.08009 2117.4429

right shoulder R\_shoulder -253.41194 -153.20187 1930.2782

237.35606

first angle mean: 60.661545

first angle stdev: 43.23866

second angle mean: 101.006294

second angle stdev: 13.159494

30.2 robot count: 4

97.0

111.04 50.59

left shoulder L\_shoulder -18.902771 -104.85059 2118.1824

right shoulder R\_shoulder -244.38982 -161.93921 1924.0

225.48705

first angle mean: 60.56925

first angle stdev: 43.20555

second angle mean: 101.0367

second angle stdev: 13.15111

29.75 101.56

109.91 57.47

left shoulder L\_shoulder -24.453104 -111.26743 2129.6545

right shoulder R\_shoulder -231.79439 -167.89355 1916.987

207.34128

first angle mean: 60.47614

first angle stdev: 43.17338

second angle mean: 101.063515

second angle stdev: 13.140256

29.2 102.86

107.98 56.75

left shoulder L\_shoulder -30.40489 -112.653625 2140.682

right shoulder R\_shoulder -218.41121 -167.8363 1910.4038

188.00632

first angle mean: 60.38193

first angle stdev: 43.142372

second angle mean: 101.084335

second angle stdev: 13.125925

28.96 102.86

106.6 53.7

left shoulder L\_shoulder -33.74995 -111.909355 2144.7395

right shoulder R\_shoulder -213.06046 -163.90451 1904.4299

179.3105

first angle mean: 60.28757

first angle stdev: 43.111843

second angle mean: 101.10091

second angle stdev: 13.109676

29.48 101.56

106.63 52.66

left shoulder L\_shoulder -42.95249 -106.70503 2148.9495

right shoulder R\_shoulder -217.57722 -157.77222 1900.2355

174.62473

first angle mean: 60.19533

first angle stdev: 43.08015

second angle mean: 101.117455

second angle stdev: 13.093521

29.0 97.59

107.0 53.06

left shoulder L\_shoulder -45.232513 -100.278625 2150.9792

right shoulder R\_shoulder -229.00696 -151.50075 1907.2388

183.77444

first angle mean: 60.10221

first angle stdev: 43.049454

second angle mean: 101.13502

second angle stdev: 13.077902

29.69 92.54

108.98 43.93

left shoulder L\_shoulder -38.925804 -94.58487 2139.6287

right shoulder R\_shoulder -242.30708 -145.50784 1912.2587

203.38129

first angle mean: 60.011696

first angle stdev: 43.017254

second angle mean: 101.15836

second angle stdev: 13.065417

30.04 85.14

110.02 30.46

left shoulder L\_shoulder -30.136974 -93.388985 2123.0613

right shoulder R\_shoulder -256.75504 -143.76985 1917.5394

226.61806

first angle mean: 59.92276

first angle stdev: 42.98431

second angle mean: 101.18466

second angle stdev: 13.054919

29.06 70.78

109.16 39.93

left shoulder L\_shoulder -29.17549 -91.35985 2099.12

right shoulder R\_shoulder -291.40475 -135.3974 1935.745

262.22928

first angle mean: 59.831455

first angle stdev: 42.953396

second angle mean: 101.20826

second angle stdev: 13.042788

29.12 52.47

109.5 70.83

left shoulder L\_shoulder -35.263386 -86.346886 2073.5925

right shoulder R\_shoulder -325.20425 -116.483765 1961.9008

289.94086

first angle mean: 59.740856

first angle stdev: 42.92232

second angle mean: 101.23272

second angle stdev: 13.031297

27.74 48.56

108.09 91.11

left shoulder L\_shoulder -45.32532 -85.413994 2062.789

right shoulder R\_shoulder -343.34488 -95.92223 1970.018

298.01956

first angle mean: 59.646736

first angle stdev: 42.894176

second angle mean: 101.252884

second angle stdev: 13.017417

26.93 42.86

107.07 101.57

left shoulder L\_shoulder -57.11971 -83.02597 2063.0464

right shoulder R\_shoulder -357.41617 -80.88125 1969.8724

300.29645

first angle mean: 59.550793

first angle stdev: 42.867756

second angle mean: 101.26994

second angle stdev: 13.002121

28.61 39.29

105.08 105.08

left shoulder L\_shoulder -70.28428 -84.6287 2054.3318

right shoulder R\_shoulder -379.4504 -66.34104 1975.9543

309.16614

first angle mean: 59.460327

first angle stdev: 42.837627

second angle mean: 101.28109

second angle stdev: 12.984729

33.3 37.24

103.98 105.69

left shoulder L\_shoulder -86.80829 -92.63433 2036.7649

right shoulder R\_shoulder -402.52118 -56.828426 1999.3993

315.7129

first angle mean: 59.384052

first angle stdev: 42.798386

second angle mean: 101.28895

second angle stdev: 12.966603

37.86 37.37

103.0 107.47

left shoulder L\_shoulder -97.676025 -94.82672 2019.9966

right shoulder R\_shoulder -415.7046 -58.302242 2016.3057

318.02856

first angle mean: 59.321484

first angle stdev: 42.75184

second angle mean: 101.29392

second angle stdev: 12.948071

47.37 35.83

101.7 108.99

left shoulder L\_shoulder -116.548195 -97.18612 2001.3663

right shoulder R\_shoulder -431.98804 -57.573006 2040.2026

315.43985

first angle mean: 59.286842

first angle stdev: 42.69467

second angle mean: 101.295105

second angle stdev: 12.92931

53.91 34.28

99.73 110.71

left shoulder L\_shoulder -138.70587 -107.6872 1980.3534

right shoulder R\_shoulder -444.23746 -54.091717 2072.569

305.5316

first angle mean: 59.271305

first angle stdev: 42.633907

second angle mean: 101.29057

second angle stdev: 12.910886

60.6 34.59

85.28 112.79

left shoulder L\_shoulder -165.7726 -127.462715 1978.5114

right shoulder R\_shoulder -452.91382 -52.77996 2108.5928

287.14124

first angle mean: 59.27513

first angle stdev: 42.572487

second angle mean: 101.24444

second angle stdev: 12.920805

74.01 37.14

81.82 115.87

left shoulder L\_shoulder -193.29099 -148.52065 1954.1875

right shoulder R\_shoulder -458.63043 -51.253075 2119.7366

265.33945

first angle mean: 59.317474

first angle stdev: 42.518593

second angle mean: 101.18862

second angle stdev: 12.944055

90.45 37.12

40.45 114.34

left shoulder L\_shoulder -214.24472 -167.25784 1918.9573

right shoulder R\_shoulder -457.1458 -58.244415 2126.684

242.9011

first angle mean: 59.40668

first angle stdev: 42.490234

second angle mean: 101.014595

second angle stdev: 13.326999

102.37 36.65

57.04 113.64

left shoulder L\_shoulder -238.5731 -173.7159 1901.0948

right shoulder R\_shoulder -458.11542 -56.003147 2131.1787

219.54231

first angle mean: 59.52943

first angle stdev: 42.491417

second angle mean: 100.888954

second angle stdev: 13.513352

112.62 36.74

61.08 113.89

left shoulder L\_shoulder -261.85532 -177.02872 1902.0237

right shoulder R\_shoulder -458.58414 -53.998444 2149.9285

196.72882

first angle mean: 59.68069

first angle stdev: 42.525093

second angle mean: 100.77553

second angle stdev: 13.659888

118.2 35.96

57.97 113.48

left shoulder L\_shoulder -280.50107 -179.65793 1909.3219

right shoulder R\_shoulder -464.69492 -53.486855 2163.1028

184.19385

first angle mean: 59.846935

first angle stdev: 42.57872

second angle mean: 100.65392

second angle stdev: 13.82943

124.81 35.16

62.25 112.86

left shoulder L\_shoulder -293.74884 -181.6468 1927.6737

right shoulder R\_shoulder -478.31284 -46.672234 2176.6704

184.564

first angle mean: 60.030964

first angle stdev: 42.65833

second angle mean: 100.54513

second angle stdev: 13.959854

127.84 34.66

65.36 112.75

left shoulder L\_shoulder -298.02426 -184.37837 1944.8654

right shoulder R\_shoulder -491.9368 -40.167694 2178.6348

193.91254

first angle mean: 60.22251

first angle stdev: 42.74979

second angle mean: 100.44573

second angle stdev: 14.064648

127.35 34.43

65.37 113.04

left shoulder L\_shoulder -294.0513 -184.1226 1951.1423

right shoulder R\_shoulder -496.86072 -33.256294 2168.7805

202.80942

first angle mean: 60.41161

first angle stdev: 42.837532

second angle mean: 100.34693

second angle stdev: 14.167321

119.64 34.14

64.32 113.05

left shoulder L\_shoulder -283.93765 -183.64517 1961.6249

right shoulder R\_shoulder -496.75632 -28.543718 2161.8083

212.81866

first angle mean: 60.577976

first angle stdev: 42.892025

second angle mean: 100.245735

second angle stdev: 14.275323

111.16 33.8

56.37 112.72

left shoulder L\_shoulder -270.28082 -181.45442 1968.7739

right shoulder R\_shoulder -493.47327 -28.600021 2157.478

223.19244

first angle mean: 60.719666

first angle stdev: 42.915257

second angle mean: 100.12283

second angle stdev: 14.44269

97.43 33.14

38.3 112.2

left shoulder L\_shoulder -257.06616 -185.3949 1979.2162

right shoulder R\_shoulder -498.9987 -39.2982 2149.793

241.93253

first angle mean: 60.822212

first angle stdev: 42.89905

second angle mean: 99.950134

second angle stdev: 14.786986

81.87 31.75

4.58 105.28

left shoulder L\_shoulder -213.67972 -184.51202 1879.7394

right shoulder R\_shoulder -474.656 -54.260887 2082.936

260.9763

first angle mean: 60.880833

first angle stdev: 42.853622

second angle mean: 99.68449

second angle stdev: 15.598426

82.05 38.61

0.84 111.98

left shoulder L\_shoulder -154.01392 -108.94679 1818.2811

right shoulder R\_shoulder -455.81915 -6.4709477 1988.6294

301.80524

first angle mean: 60.939636

first angle stdev: 42.80856

second angle mean: 99.40992

second angle stdev: 16.422522

37.85 44.05

73.47 120.96

left shoulder L\_shoulder -154.65175 -107.96022 1910.2728

right shoulder R\_shoulder -470.02197 2.5871382 2024.1318

315.37024

first angle mean: 60.875683

first angle stdev: 42.766453

second angle mean: 99.33806

second angle stdev: 16.456331

28.66 38.9

95.89 113.35

left shoulder L\_shoulder -143.27353 -116.33437 1997.3695

right shoulder R\_shoulder -471.23926 -20.561172 2058.9973

327.96573

first angle mean: 60.78669

first angle stdev: 42.740803

second angle mean: 99.32854

second angle stdev: 16.434584

24.82 40.52

99.29 102.58

left shoulder L\_shoulder -116.444595 -117.691574 2040.4095

right shoulder R\_shoulder -454.3208 -45.15606 2048.7722

337.87622

first angle mean: 60.687603

first angle stdev: 42.7235

second angle mean: 99.32842

second angle stdev: 16.41193

28.51 45.85

104.36 96.49

left shoulder L\_shoulder -98.083405 -122.74408 2066.0515

right shoulder R\_shoulder -434.44348 -56.634605 2032.0104

336.36008

first angle mean: 60.5992

first angle stdev: 42.698006

second angle mean: 99.34225

second angle stdev: 16.391485

29.96 55.48

107.73 83.42

left shoulder L\_shoulder -81.10843 -134.01057 2093.8267

right shoulder R\_shoulder -414.25592 -82.3831 2023.6444

333.1475

first angle mean: 60.515263

first angle stdev: 42.66954

second angle mean: 99.36524

second angle stdev: 16.374887

31.34 69.21

109.65 74.0

left shoulder L\_shoulder -64.572655 -136.78311 2092.1814

right shoulder R\_shoulder -394.447 -101.49413 2012.8386

329.87433

first angle mean: 60.435547

first angle stdev: 42.638416

second angle mean: 99.39333

second angle stdev: 16.361313

32.31 96.2

111.7 62.7

left shoulder L\_shoulder -46.47579 -135.28468 2083.7554

right shoulder R\_shoulder -357.64346 -123.63093 2004.1292

311.16766

first angle mean: 60.358906

first angle stdev: 42.60552

second angle mean: 99.42688

second angle stdev: 16.351595

33.49 119.28

114.57 66.03

left shoulder L\_shoulder -42.719975 -128.21065 2060.5588

right shoulder R\_shoulder -323.6347 -131.34581 1958.3552

280.91473

first angle mean: 60.285892

first angle stdev: 42.570576

second angle mean: 99.46802

second angle stdev: 16.348381

33.11 136.83

114.81 77.97

left shoulder L\_shoulder -37.861526 -124.02415 2060.2234

right shoulder R\_shoulder -297.31885 -137.28583 1918.9023

259.45734

first angle mean: 60.21225

first angle stdev: 42.536324

second angle mean: 99.50959

second angle stdev: 16.345684

31.92 152.02

113.01 85.56

left shoulder L\_shoulder -22.147245 -106.58844 2085.4253

right shoulder R\_shoulder -261.0777 -139.48679 1901.7004

238.93045

first angle mean: 60.13578

first angle stdev: 42.50419

second angle mean: 99.546074

second angle stdev: 16.338621

31.01 157.95

111.17 89.84

left shoulder L\_shoulder -7.9419985 -91.02759 2116.768

right shoulder R\_shoulder -237.60101 -141.37773 1911.9069

229.65901

first angle mean: 60.057278

first angle stdev: 42.47372

second angle mean: 99.57741

second angle stdev: 16.327713

31.1 164.29

109.29 91.47

left shoulder L\_shoulder 4.785166 -73.75943 2147.2456

right shoulder R\_shoulder -219.65509 -142.6386 1929.5334

224.44026

first angle mean: 59.979435

first angle stdev: 42.443085

second angle mean: 99.603516

second angle stdev: 16.313507

32.54 167.8

108.7 90.12

left shoulder L\_shoulder 6.7982073 -71.2423 2166.4795

right shoulder R\_shoulder -216.10654 -153.73268 1944.4026

222.90474

first angle mean: 59.90587

first angle stdev: 42.409897

second angle mean: 99.627914

second angle stdev: 16.298412

32.38 166.29

107.91 88.28

left shoulder L\_shoulder -2.2433329 -73.746925 2178.117

right shoulder R\_shoulder -226.93152 -165.34476 1955.4635

224.68819

first angle mean: 59.83227

first angle stdev: 42.377007

second angle mean: 99.65005

second angle stdev: 16.282227

30.67 160.92

107.52 85.7

left shoulder L\_shoulder -19.871937 -73.84093 2182.329

right shoulder R\_shoulder -248.86842 -165.6952 1960.7809

228.99649

first angle mean: 59.754505

first angle stdev: 42.347176

second angle mean: 99.67104

second angle stdev: 16.265568

29.69 155.27

107.46 85.75

left shoulder L\_shoulder -34.219658 -75.130356 2182.6975

right shoulder R\_shoulder -264.24 -161.15977 1958.6539

230.02032

first angle mean: 59.674545

first angle stdev: 42.319164

second angle mean: 99.69176

second angle stdev: 16.248875

28.16 144.96

106.65 85.36

left shoulder L\_shoulder -45.48827 -73.531044 2177.122

right shoulder R\_shoulder -281.9926 -145.6828 1954.6504

236.50435

first angle mean: 59.590954

first angle stdev: 42.29407

second angle mean: 99.71021

second angle stdev: 16.231256

25.25 128.47

103.9 86.43

left shoulder L\_shoulder -52.723164 -72.55332 2175.0374

right shoulder R\_shoulder -300.17776 -126.47252 1959.4099

247.4546

first angle mean: 59.500103

first angle stdev: 42.27491

second angle mean: 99.72129

second angle stdev: 16.2112

24.33 110.16

103.33 83.12

left shoulder L\_shoulder -51.77325 -85.6958 2154.2715

right shoulder R\_shoulder -320.5342 -124.24164 1962.0957

268.76096

first angle mean: 59.407307

first angle stdev: 42.25763

second angle mean: 99.73082

second angle stdev: 16.190859

24.0 81.92

103.57 70.63

left shoulder L\_shoulder -46.017628 -107.89581 2129.4841

right shoulder R\_shoulder -352.72635 -128.40323 2006.2688

306.7087

first angle mean: 59.31413

first angle stdev: 42.24096

second angle mean: 99.74092

second angle stdev: 16.170736

24.77 58.0

104.59 71.01

left shoulder L\_shoulder -44.125156 -104.43323 2099.275

right shoulder R\_shoulder -367.45944 -118.16853 2027.37

323.3343

first angle mean: 59.223465

first angle stdev: 42.2225

second angle mean: 99.75365

second angle stdev: 16.151407

24.44 39.6

104.3 83.05

left shoulder L\_shoulder -42.636032 -95.56402 2065.5127

right shoulder R\_shoulder -372.43347 -96.78673 2034.62

329.79742

first angle mean: 59.13241

first angle stdev: 42.20464

second angle mean: 99.76556

second angle stdev: 16.131926

24.6 34.21

104.39 86.12

left shoulder L\_shoulder -38.731472 -90.84717 2052.469

right shoulder R\_shoulder -369.1093 -86.20525 2037.6525

330.37784

first angle mean: 59.042244

first angle stdev: 42.186325

second angle mean: 99.77762

second angle stdev: 16.11258

26.31 33.95

100.73 100.03

left shoulder L\_shoulder -58.339676 -94.97942 2030.88

right shoulder R\_shoulder -388.052 -69.045876 2034.4929

329.71234

first angle mean: 58.957

first angle stdev: 42.16437

second angle mean: 99.78011

second angle stdev: 16.09166

45.14 36.37

98.48 109.56

left shoulder L\_shoulder -77.36776 -100.3911 2007.1769

right shoulder R\_shoulder -404.5364 -67.869385 2042.4192

327.16864

first angle mean: 58.921116

first angle stdev: 42.11545

second angle mean: 99.776726

second angle stdev: 16.070883

57.54 37.88

98.87 114.2

left shoulder L\_shoulder -102.03999 -121.55152 1989.9596

right shoulder R\_shoulder -420.06726 -71.597694 2069.487

318.02728

first angle mean: 58.917538

first angle stdev: 42.06092

second angle mean: 99.77439

second angle stdev: 16.05012

71.6 40.32

97.84 116.61

left shoulder L\_shoulder -126.86692 -146.46436 1972.0693

right shoulder R\_shoulder -432.05627 -73.00271 2092.8093

305.18936

first angle mean: 58.95031

first angle stdev: 42.011475

second angle mean: 99.76938

second angle stdev: 16.02967

97.15 44.42

94.75 121.9

left shoulder L\_shoulder -152.63258 -157.66302 1977.0498

right shoulder R\_shoulder -441.6854 -59.96954 2120.9094

289.0528

first angle mean: 59.048763

first angle stdev: 42.00198

second angle mean: 99.75645

second angle stdev: 16.011023

120.23 47.33

95.15 124.76

left shoulder L\_shoulder -176.34889 -160.6978 1985.0378

right shoulder R\_shoulder -441.4823 -44.65341 2160.9038

265.13342

first angle mean: 59.206036

first angle stdev: 42.062206

second angle mean: 99.7446

second angle stdev: 15.99213

136.98 48.43

97.83 125.13

left shoulder L\_shoulder -204.68561 -161.53677 1969.5214

right shoulder R\_shoulder -447.08902 -29.523935 2167.515

242.40341

first angle mean: 59.40546

first angle stdev: 42.191975

second angle mean: 99.7397

second angle stdev: 15.971909

150.92 49.52

98.96 126.61

left shoulder L\_shoulder -228.86604 -165.9641 1938.0681

right shoulder R\_shoulder -458.0316 -22.612658 2144.4307

229.16554

first angle mean: 59.63951

first angle stdev: 42.39073

second angle mean: 99.7377

second angle stdev: 15.95152

162.69 49.08

99.2 126.25

left shoulder L\_shoulder -249.21642 -171.9491 1933.7344

right shoulder R\_shoulder -467.91843 -14.888979 2142.5337

218.70201

first angle mean: 59.902393

first angle stdev: 42.65456

second angle mean: 99.73633

second angle stdev: 15.931184

170.45 50.34

100.23 127.29

left shoulder L\_shoulder -262.49045 -166.20076 1942.437

right shoulder R\_shoulder -472.92416 5.367667 2154.5012

210.43372

first angle mean: 60.18369

first angle stdev: 42.96276

second angle mean: 99.73758

second angle stdev: 15.910921

176.71 49.1

99.37 125.6

left shoulder L\_shoulder -267.68356 -158.51956 1949.0217

right shoulder R\_shoulder -475.8516 21.428707 2158.6047

208.16803

first angle mean: 60.47944

first angle stdev: 43.30692

second angle mean: 99.73666

second angle stdev: 15.890727

176.64 45.34

99.0 120.84

left shoulder L\_shoulder -265.998 -155.55254 1959.409

right shoulder R\_shoulder -476.57648 28.476372 2163.1675

210.57849

first angle mean: 60.773518

first angle stdev: 43.644188

second angle mean: 99.73479

second angle stdev: 15.870644

169.31 42.17

98.21 116.8

left shoulder L\_shoulder -258.16913 -163.73283 1966.0768

right shoulder R\_shoulder -473.72205 20.622486 2165.178

215.55292

first angle mean: 61.0476

first angle stdev: 43.928097

second angle mean: 99.73094

second angle stdev: 15.850777

154.0 41.24

96.24 115.74

left shoulder L\_shoulder -237.32816 -171.26003 1980.9818

right shoulder R\_shoulder -459.84055 6.0080495 2178.968

222.51239

first angle mean: 61.28174

first angle stdev: 44.11945

second angle mean: 99.72214

second angle stdev: 15.831768

143.27 43.25

91.31 118.46

left shoulder L\_shoulder -217.66507 -179.45967 1965.3184

right shoulder R\_shoulder -443.00122 -14.0693245 2170.5957

225.33615

first angle mean: 61.487736

first angle stdev: 44.25474

second angle mean: 99.701004

second angle stdev: 15.817474

125.03 44.36

87.53 120.82

left shoulder L\_shoulder -195.25537 -181.2816 1969.5414

right shoulder R\_shoulder -427.1281 -26.98731 2176.184

231.87274

first angle mean: 61.646988

first angle stdev: 44.31329

second angle mean: 99.6705

second angle stdev: 15.809357

105.82 43.52

88.17 120.8

left shoulder L\_shoulder -184.35986 -185.26938 1978.9058

right shoulder R\_shoulder -426.97195 -40.589287 2180.374

242.61209

first angle mean: 61.757423

first angle stdev: 44.3128

second angle mean: 99.64175

second angle stdev: 15.800024

76.13 46.0

90.79 124.96

left shoulder L\_shoulder -165.45966 -198.781 1965.9554

right shoulder R\_shoulder -438.69556 -73.589485 2138.7332

273.2359

first angle mean: 61.793262

first angle stdev: 44.26332

second angle mean: 99.61968

second angle stdev: 15.786485

55.92 49.59

89.74 127.92

left shoulder L\_shoulder -151.58543 -183.44601 1964.6449

right shoulder R\_shoulder -443.96844 -66.8244 2109.8333

292.383

first angle mean: 61.778656

first angle stdev: 44.2092

second angle mean: 99.59509

second angle stdev: 15.774516

31.07 54.38

87.47 131.02

left shoulder L\_shoulder -117.89791 -158.84859 1975.7098

right shoulder R\_shoulder -431.87842 -57.04591 2079.6296

313.9805

first angle mean: 61.702457

first angle stdev: 44.18074

second angle mean: 99.56501

second angle stdev: 15.766478

20.56 54.94

92.85 129.2

left shoulder L\_shoulder -83.50102 -127.306786 1996.1012

right shoulder R\_shoulder -415.74146 -52.94769 2055.896

332.24042

first angle mean: 61.600616

first angle stdev: 44.17336

second angle mean: 99.548386

second angle stdev: 15.750487

25.12 47.82

99.67 123.77

left shoulder L\_shoulder -53.353146 -107.446075 2024.4531

right shoulder R\_shoulder -393.84506 -48.287384 2030.2219

340.4919

first angle mean: 61.510544

first angle stdev: 44.155926

second angle mean: 99.54869

second angle stdev: 15.73103

32.2 38.27

108.21 112.75

left shoulder L\_shoulder -24.139837 -89.73405 2057.7969

right shoulder R\_shoulder -365.26337 -53.674416 2015.4178

341.12354

first angle mean: 61.438347

first angle stdev: 44.12544

second angle mean: 99.57002

second angle stdev: 15.717511

36.35 42.93

112.97 102.36

left shoulder L\_shoulder -7.2044287 -79.97597 2077.87

right shoulder R\_shoulder -341.91498 -68.49864 1992.8291

334.71054

first angle mean: 61.37671

first angle stdev: 44.088696

second angle mean: 99.60294

second angle stdev: 15.712201

40.0 54.25

117.32 90.08

left shoulder L\_shoulder 2.7516036 -75.755424 2094.0833

right shoulder R\_shoulder -306.482 -96.92876 1952.9076

309.2336

first angle mean: 61.324314

first angle stdev: 44.047318

second angle mean: 99.64637

second angle stdev: 15.717367

39.79 70.44

115.86 78.98

left shoulder L\_shoulder 18.620237 -70.60437 2075.1267

right shoulder R\_shoulder -276.2947 -112.30034 1918.0612

294.91495

first angle mean: 61.27166

first angle stdev: 44.006287

second angle mean: 99.68601

second angle stdev: 15.71855

35.38 80.01

113.16 57.53

left shoulder L\_shoulder 31.051905 -89.27905 2051.6738

right shoulder R\_shoulder -260.4832 -141.85674 1919.3839

291.5351

first angle mean: 61.208508

first angle stdev: 43.971138

second angle mean: 99.71888

second angle stdev: 15.713431

32.05 90.81

112.37 47.35

left shoulder L\_shoulder 38.459663 -108.79657 2039.7559

right shoulder R\_shoulder -243.0019 -164.30682 1932.8031

281.46158

first angle mean: 61.137566

first angle stdev: 43.9411

second angle mean: 99.74966

second angle stdev: 15.706676

33.67 111.37

114.24 57.26

left shoulder L\_shoulder 39.73688 -113.712776 2044.9359

right shoulder R\_shoulder -227.88179 -173.18622 1929.7369

267.61868

first angle mean: 61.0709

first angle stdev: 43.90855

second angle mean: 99.784836

second angle stdev: 15.703797

robot count: 5

34.94 127.88

114.19 65.35

left shoulder L\_shoulder 38.75356 -113.48275 2047.8838

right shoulder R\_shoulder -218.94908 -172.73389 1912.3745

257.70264

first angle mean: 61.00762

first angle stdev: 43.87416

second angle mean: 99.81971

second angle stdev: 15.700744

35.23 147.64

112.83 75.42

left shoulder L\_shoulder 31.93719 -96.43635 2091.3208

right shoulder R\_shoulder -199.34665 -165.28613 1902.4514

231.28384

first angle mean: 60.94536

first angle stdev: 43.839405

second angle mean: 99.85115

second angle stdev: 15.694769

35.36 157.7

109.85 80.51

left shoulder L\_shoulder 28.444736 -79.02861 2127.5388

right shoulder R\_shoulder -178.98729 -155.70863 1903.3479

207.43202

first angle mean: 60.883705

first angle stdev: 43.80452

second angle mean: 99.87523

second angle stdev: 15.683512

35.07 162.34

106.9 83.03

left shoulder L\_shoulder 25.247047 -67.6134 2155.821

right shoulder R\_shoulder -165.38945 -150.45834 1910.1119

190.6365

first angle mean: 60.821655

first angle stdev: 43.770096

second angle mean: 99.89212

second angle stdev: 15.6684265

34.74 162.15

105.37 83.25

left shoulder L\_shoulder 21.514908 -62.391376 2169.7002

right shoulder R\_shoulder -163.07744 -149.77953 1912.2438

184.59235

first angle mean: 60.759113

first angle stdev: 43.736195

second angle mean: 99.90526

second angle stdev: 15.651922

33.29 155.48

105.04 80.2

left shoulder L\_shoulder 9.988679 -63.765102 2171.7224

right shoulder R\_shoulder -175.55554 -151.3193 1908.7567

185.54422

first angle mean: 60.693398

first angle stdev: 43.70445

second angle mean: 99.91754

second angle stdev: 15.635201

31.9 144.33

106.33 74.87

left shoulder L\_shoulder -1.4932231 -68.88166 2156.7585

right shoulder R\_shoulder -197.69525 -150.2302 1898.992

196.20203

first angle mean: 60.62468

first angle stdev: 43.67487

second angle mean: 99.93284

second angle stdev: 15.619666

32.05 131.73

107.94 67.39

left shoulder L\_shoulder -7.825359 -65.2572 2129.75

right shoulder R\_shoulder -227.68332 -135.35574 1888.6519

219.85796

first angle mean: 60.55664

first angle stdev: 43.64507

second angle mean: 99.951904

second angle stdev: 15.605941

32.02 116.16

109.57 62.79

left shoulder L\_shoulder -7.833682 -73.15493 2101.785

right shoulder R\_shoulder -257.0943 -128.27794 1897.0935

249.26062

first angle mean: 60.488857

first angle stdev: 43.61533

second angle mean: 99.974754

second angle stdev: 15.594426

32.0 92.99

110.84 58.98

left shoulder L\_shoulder -2.4517922 -89.20598 2092.0576

right shoulder R\_shoulder -291.83856 -131.5789 1951.46

289.38678

first angle mean: 60.42135

first angle stdev: 43.58564

second angle mean: 100.0005

second angle stdev: 15.584894

31.56 74.32

110.99 58.42

left shoulder L\_shoulder -1.7721655 -92.10262 2082.5103

right shoulder R\_shoulder -309.81436 -126.06105 1990.7195

308.0422

first angle mean: 60.35312

first angle stdev: 43.556644

second angle mean: 100.02648

second angle stdev: 15.575607

31.31 49.86

110.72 69.14

left shoulder L\_shoulder -3.1851532 -80.18156 2072.0005

right shoulder R\_shoulder -320.47098 -107.71546 2012.1067

317.28583

first angle mean: 60.284622

first angle stdev: 43.528057

second angle mean: 100.0517

second angle stdev: 15.565874

30.5 40.92

109.42 91.38

left shoulder L\_shoulder -10.349587 -75.25815 2055.9346

right shoulder R\_shoulder -329.73383 -89.95703 2003.18

319.38425

first angle mean: 60.21454

first angle stdev: 43.50076

second angle mean: 100.07374

second angle stdev: 15.554175

27.79 43.69

106.97 106.89

left shoulder L\_shoulder -23.347809 -72.57346 2042.3248

right shoulder R\_shoulder -344.0957 -73.07872 1989.0206

320.7479

first angle mean: 60.138424

first angle stdev: 43.477997

second angle mean: 100.08993

second angle stdev: 15.539492

25.44 40.68

102.7 116.67

left shoulder L\_shoulder -41.533867 -76.40837 2018.3033

right shoulder R\_shoulder -370.2626 -58.676296 1989.4945

328.72873

first angle mean: 60.057167

first angle stdev: 43.45943

second angle mean: 100.09604

second angle stdev: 15.521797

28.75 40.97

103.22 119.24

left shoulder L\_shoulder -63.55595 -76.6507 2000.3772

right shoulder R\_shoulder -395.0939 -59.369305 2009.4427

331.53796

first angle mean: 59.98402

first angle stdev: 43.43494

second angle mean: 100.10333

second angle stdev: 15.504389

32.06 42.35

105.03 120.19

left shoulder L\_shoulder -95.15489 -82.71305 1976.8866

right shoulder R\_shoulder -422.6099 -59.950443 2046.1003

327.45502

first angle mean: 59.918926

first angle stdev: 43.405178

second angle mean: 100.11482

second angle stdev: 15.488129

38.71 44.38

103.88 122.53

left shoulder L\_shoulder -124.506195 -98.15706 1946.8787

right shoulder R\_shoulder -431.5869 -57.5628 2080.7834

307.08072

first angle mean: 59.869602

first angle stdev: 43.366714

second angle mean: 100.12358

second angle stdev: 15.471172

52.97 46.55

101.58 124.78

left shoulder L\_shoulder -155.25662 -118.72088 1918.5269

right shoulder R\_shoulder -433.44867 -50.950565 2103.7224

278.19205

first angle mean: 59.853596

first angle stdev: 43.31765

second angle mean: 100.12696

second angle stdev: 15.453373

68.09 48.83

98.68 127.18

left shoulder L\_shoulder -179.7601 -133.83066 1897.2009

right shoulder R\_shoulder -434.3106 -38.162045 2106.949

254.5505

first angle mean: 59.872658

first angle stdev: 43.269295

second angle mean: 100.123604

second angle stdev: 15.435634

90.02 46.77

56.63 125.79

left shoulder L\_shoulder -191.01167 -162.3598 1907.7021

right shoulder R\_shoulder -443.43436 -42.293064 2100.4722

252.42268

first angle mean: 59.942287

first angle stdev: 43.24352

second angle mean: 100.02317

second angle stdev: 15.558511

111.16 39.76

50.14 119.12

left shoulder L\_shoulder -205.47653 -177.58293 1915.1857

right shoulder R\_shoulder -442.8902 -55.90379 2119.9868

237.41367

first angle mean: 60.0603

first angle stdev: 43.26342

second angle mean: 99.90823

second angle stdev: 15.723541

130.26 37.31

70.22 115.9

left shoulder L\_shoulder -214.26048 -178.94733 1896.9198

right shoulder R\_shoulder -440.7215 -58.166214 2113.303

226.46101

first angle mean: 60.221676

first angle stdev: 43.344246

second angle mean: 99.83998

second angle stdev: 15.769684

146.14 35.34

84.06 112.98

left shoulder L\_shoulder -226.72446 -173.00275 1880.3564

right shoulder R\_shoulder -441.45914 -46.93544 2107.9814

214.73468

first angle mean: 60.41874

first angle stdev: 43.48916

second angle mean: 99.80378

second angle stdev: 15.769667

156.99 29.63

93.63 102.67

left shoulder L\_shoulder -240.946 -156.63034 1883.7611

right shoulder R\_shoulder -452.54623 -18.159166 2117.4946

211.60023

first angle mean: 60.63972

first angle stdev: 43.68376

second angle mean: 99.78965

second angle stdev: 15.754375

159.3 28.17

95.89 97.67

left shoulder L\_shoulder -257.95493 -149.46863 1885.368

right shoulder R\_shoulder -468.24792 -2.2377386 2123.811

210.293

first angle mean: 60.864975

first angle stdev: 43.887207

second angle mean: 99.780754

second angle stdev: 15.73748

162.99 30.85

95.89 102.81

left shoulder L\_shoulder -263.42004 -125.08377 1897.6755

right shoulder R\_shoulder -475.73996 14.3752775 2136.3936

212.31992

first angle mean: 61.097607

first angle stdev: 44.10672

second angle mean: 99.77189

second angle stdev: 15.72064

152.68 36.8

86.77 112.09

left shoulder L\_shoulder -239.08823 -144.60762 1896.5026

right shoulder R\_shoulder -456.30746 -2.470415 2132.4934

217.21924

first angle mean: 61.305748

first angle stdev: 44.27189

second angle mean: 99.74235

second angle stdev: 15.714967

134.57 38.53

88.44 115.33

left shoulder L\_shoulder -208.38531 -177.67427 1909.1381

right shoulder R\_shoulder -438.85986 -30.796524 2139.0344

230.47455

first angle mean: 61.47188

first angle stdev: 44.35876

second angle mean: 99.71671

second angle stdev: 15.706343

114.05 38.39

95.4 115.73

left shoulder L\_shoulder -182.34535 -181.01895 1931.6638

right shoulder R\_shoulder -430.24377 -40.948875 2148.1292

247.89842

first angle mean: 61.59083

first angle stdev: 44.378914

second angle mean: 99.706955

second angle stdev: 15.689906

102.72 39.89

95.64 117.92

left shoulder L\_shoulder -164.76201 -186.6031 1964.7163

right shoulder R\_shoulder -433.90024 -54.30792 2160.09

269.13824

first angle mean: 61.683678

first angle stdev: 44.371754

second angle mean: 99.69776

second angle stdev: 15.673376

78.56 43.58

97.37 121.98

left shoulder L\_shoulder -147.63661 -191.4384 1976.0586

right shoulder R\_shoulder -442.4459 -72.74612 2137.9822

294.80927

first angle mean: 61.721687

first angle stdev: 44.328976

second angle mean: 99.69252

second angle stdev: 15.656104

45.55 50.61

99.42 128.05

left shoulder L\_shoulder -130.1455 -174.59555 1975.0382

right shoulder R\_shoulder -441.526 -62.983433 2104.0676

311.3805

first angle mean: 61.685345

first angle stdev: 44.28576

second angle mean: 99.69192

second angle stdev: 15.638509

40.28 53.0

98.63 129.19

left shoulder L\_shoulder -105.76863 -144.82071 1980.2128

right shoulder R\_shoulder -431.32352 -52.6498 2066.85

325.55487

first angle mean: 61.63735

first angle stdev: 44.24767

second angle mean: 99.68953

second angle stdev: 15.621047

28.59 49.76

101.45 125.6

left shoulder L\_shoulder -72.868195 -112.41534 2003.6346

right shoulder R\_shoulder -413.8054 -51.64246 2038.8336

340.9372

first angle mean: 61.56342

first angle stdev: 44.225716

second angle mean: 99.69347

second angle stdev: 15.6037855

29.69 42.05

105.32 119.0

left shoulder L\_shoulder -40.41949 -96.80257 2034.0526

right shoulder R\_shoulder -385.13757 -51.362766 2007.1652

344.71808

first angle mean: 61.492275

first angle stdev: 44.20193

second angle mean: 99.70603

second angle stdev: 15.588623

31.21 35.01

107.86 113.55

left shoulder L\_shoulder -22.943037 -89.93745 2058.0332

right shoulder R\_shoulder -366.7775 -59.685925 2003.6816

343.83447

first angle mean: 61.42483

first angle stdev: 44.17575

second angle mean: 99.72419

second angle stdev: 15.575998

34.26 33.02

112.35 106.03

left shoulder L\_shoulder -12.900965 -79.308014 2085.0005

right shoulder R\_shoulder -346.41074 -66.7014 1985.2888

333.50977

first angle mean: 61.364468

first angle stdev: 44.145172

second angle mean: 99.75225

second angle stdev: 15.570037

36.18 41.51

114.79 100.19

left shoulder L\_shoulder -12.778997 -74.215126 2109.9907

right shoulder R\_shoulder -327.80078 -75.3762 1968.8314

315.0218

first angle mean: 61.308624

first angle stdev: 44.112118

second angle mean: 99.78559

second angle stdev: 15.56884

38.92 49.66

117.58 91.91

left shoulder L\_shoulder -18.303904 -75.9183 2122.4333

right shoulder R\_shoulder -317.89304 -94.26817 1952.4337

299.58914

first angle mean: 61.25909

first angle stdev: 44.075844

second angle mean: 99.82496

second angle stdev: 15.574065

39.32 63.35

117.77 80.05

left shoulder L\_shoulder -16.781914 -89.56675 2115.553

right shoulder R\_shoulder -302.92786 -122.89647 1928.1893

286.14594

first angle mean: 61.210663

first angle stdev: 44.03921

second angle mean: 99.86456

second angle stdev: 15.579646

37.01 77.8

115.52 54.41

left shoulder L\_shoulder -8.220242 -106.37025 2122.034

right shoulder R\_shoulder -292.62054 -156.56892 1938.926

284.4003

first angle mean: 61.157356

first angle stdev: 44.00531

second angle mean: 99.899055

second angle stdev: 15.579776

36.24 91.96

115.22 46.07

left shoulder L\_shoulder -7.481307 -109.82166 2129.887

right shoulder R\_shoulder -282.058 -169.47015 1947.7996

274.57672

first angle mean: 61.102592

first angle stdev: 43.97241

second angle mean: 99.932724

second angle stdev: 15.579174

36.09 111.66

115.77 53.67

left shoulder L\_shoulder 0.65837866 -106.057915 2111.7935

right shoulder R\_shoulder -265.65198 -169.69572 1939.2117

266.31036

first angle mean: 61.04774

first angle stdev: 43.93975

second angle mean: 99.96745

second angle stdev: 15.579707

35.63 128.66

115.37 62.79

left shoulder L\_shoulder 12.362861 -93.58452 2098.0479

right shoulder R\_shoulder -247.70076 -160.40573 1918.3545

260.06363

first angle mean: 60.99212

first angle stdev: 43.907715

second angle mean: 100.00116

second angle stdev: 15.579286

33.49 142.54

113.17 71.6

left shoulder L\_shoulder 19.904903 -80.512405 2108.4185

right shoulder R\_shoulder -231.82394 -151.77759 1918.0667

251.72885

first angle mean: 60.932076

first angle stdev: 43.878532

second angle mean: 100.02992

second angle stdev: 15.574402

32.13 149.36

111.63 75.81

left shoulder L\_shoulder 23.200489 -70.983635 2120.275

right shoulder R\_shoulder -220.03217 -147.42813 1919.931

243.23265

first angle mean: 60.869324

first angle stdev: 43.85128

second angle mean: 100.05519

second angle stdev: 15.566826

29.83 154.42

108.91 78.83

left shoulder L\_shoulder 22.12614 -64.09447 2134.0176

right shoulder R\_shoulder -213.04092 -143.85968 1924.6366

235.16707

first angle mean: 60.801846

first angle stdev: 43.827435

second angle mean: 100.07444

second angle stdev: 15.555364

29.54 153.25

108.43 78.44

left shoulder L\_shoulder 15.354783 -63.134724 2136.977

right shoulder R\_shoulder -216.82446 -144.79291 1921.8589

232.17924

first angle mean: 60.734035

first angle stdev: 43.804028

second angle mean: 100.09257

second angle stdev: 15.543345

29.45 147.92

108.49 74.75

left shoulder L\_shoulder 6.5063915 -64.09711 2134.6233

right shoulder R\_shoulder -230.66525 -141.25029 1922.1156

237.17165

first angle mean: 60.66632

first angle stdev: 43.780743

second angle mean: 100.11073

second angle stdev: 15.531418

29.2 134.5

108.57 65.52

left shoulder L\_shoulder -8.535892 -70.99677 2115.3965

right shoulder R\_shoulder -260.5011 -137.02261 1916.5094

251.96521

first angle mean: 60.59836

first angle stdev: 43.757824

second angle mean: 100.129005

second angle stdev: 15.519606

28.62 123.95

108.17 58.55

left shoulder L\_shoulder -11.68716 -79.741646 2089.7485

right shoulder R\_shoulder -281.23813 -132.69818 1913.7229

269.55096

first angle mean: 60.52944

first angle stdev: 43.735798

second angle mean: 100.14633

second angle stdev: 15.507358

29.49 119.57

107.95 56.09

left shoulder L\_shoulder 45.816994 -18.133371 2045.5477

right shoulder R\_shoulder -241.88898 -70.069496 1900.7012

287.70596

first angle mean: 60.46269

first angle stdev: 43.7124

second angle mean: 100.163124

second angle stdev: 15.494891

28.79 91.92

107.89 56.02

left shoulder L\_shoulder 19.251766 -59.550697 2078.992

right shoulder R\_shoulder -283.36288 -99.76773 1985.2302

302.61465

first angle mean: 60.394726

first angle stdev: 43.690063

second angle mean: 100.1797

second angle stdev: 15.482387

29.21 69.33

108.21 56.91

left shoulder L\_shoulder -8.15165 -89.87283 2080.3628

right shoulder R\_shoulder -318.4415 -124.82269 2003.7844

310.28986

first angle mean: 60.327946

first angle stdev: 43.66706

second angle mean: 100.19689

second angle stdev: 15.470255

28.46 56.69

107.03 63.57

left shoulder L\_shoulder -14.585838 -97.12096 2065.4739

right shoulder R\_shoulder -339.4908 -123.11549 2004.5896

324.90497

first angle mean: 60.25985

first angle stdev: 43.645195

second angle mean: 100.211494

second angle stdev: 15.456939

27.09 47.51

105.36 75.84

left shoulder L\_shoulder -13.859406 -84.045006 2055.1719

right shoulder R\_shoulder -345.8174 -100.36434 2011.167

331.958

first angle mean: 60.189125

first angle stdev: 43.62548

second angle mean: 100.22247

second angle stdev: 15.442278

28.15 32.04

105.49 84.56

left shoulder L\_shoulder -16.786886 -66.59517 2042.4812

right shoulder R\_shoulder -355.2839 -82.439125 2042.6016

338.497

first angle mean: 60.120956

first angle stdev: 43.604042

second angle mean: 100.23369

second angle stdev: 15.42775

32.22 29.7

105.92 91.14

left shoulder L\_shoulder -30.627401 -67.53007 2014.9581

right shoulder R\_shoulder -368.79684 -76.75544 2065.7705

338.16943

first angle mean: 60.06172

first angle stdev: 43.576656

second angle mean: 100.24575

second angle stdev: 15.413587

40.54 33.65

103.43 101.58

left shoulder L\_shoulder -47.765026 -75.00415 1986.8131

right shoulder R\_shoulder -379.4638 -70.478004 2070.928

331.6988

first angle mean: 60.02036

first angle stdev: 43.539726

second angle mean: 100.2525

second angle stdev: 15.397945

52.0 35.71

101.42 108.59

left shoulder L\_shoulder -63.88297 -86.92782 1967.888

right shoulder R\_shoulder -386.64337 -67.50517 2080.0205

322.7604

first angle mean: 60.003403

first angle stdev: 43.49523

second angle mean: 100.254974

second angle stdev: 15.381753

71.48 38.56

100.0 113.23

left shoulder L\_shoulder -89.406204 -105.78207 1948.5096

right shoulder R\_shoulder -394.83914 -65.77797 2098.9932

305.43292

first angle mean: 60.027615

first angle stdev: 43.45252

second angle mean: 100.25443

second angle stdev: 15.365523

89.73 39.66

99.98 115.54

left shoulder L\_shoulder -118.49171 -133.3439 1935.384

right shoulder R\_shoulder -404.4504 -76.72994 2117.9219

285.9587

first angle mean: 60.09015

first angle stdev: 43.4281

second angle mean: 100.25386

second angle stdev: 15.349346

112.83 39.72

93.89 116.52

left shoulder L\_shoulder -140.15674 -151.91609 1930.6931

right shoulder R\_shoulder -407.4804 -76.861465 2133.8904

267.32367

first angle mean: 60.200947

first angle stdev: 43.449615

second angle mean: 100.240486

second angle stdev: 15.335982

127.72 40.7

85.77 117.86

left shoulder L\_shoulder -165.40742 -171.4203 1906.8555

right shoulder R\_shoulder -403.78284 -74.54989 2135.291

238.37541

first angle mean: 60.3425

first angle stdev: 43.51377

second angle mean: 100.21015

second angle stdev: 15.334189

138.68 43.11

84.5 120.57

left shoulder L\_shoulder -197.63425 -175.966 1889.4058

right shoulder R\_shoulder -407.1537 -54.148388 2134.9841

209.51944

first angle mean: 60.506382

first angle stdev: 43.615353

second angle mean: 100.177284

second angle stdev: 15.3349495

148.02 44.22

85.26 121.75

left shoulder L\_shoulder -220.9581 -170.79988 1884.2882

right shoulder R\_shoulder -417.78564 -34.86859 2135.1223

196.82755

first angle mean: 60.689083

first angle stdev: 43.752518

second angle mean: 100.14614

second angle stdev: 15.334059

158.66 41.41

88.2 118.72

left shoulder L\_shoulder -252.4235 -167.77075 1903.558

right shoulder R\_shoulder -437.7861 -14.379203 2153.095

185.36261

first angle mean: 60.89319

first angle stdev: 43.934605

second angle mean: 100.12125

second angle stdev: 15.327759

162.43 40.21

91.09 117.22

left shoulder L\_shoulder -265.97125 -166.57803 1925.9174

right shoulder R\_shoulder -451.62854 0.84383225 2168.0896

185.65729

first angle mean: 61.104282

first angle stdev: 44.131916

second angle mean: 100.10247

second angle stdev: 15.317342

161.72 41.48

93.35 118.76

left shoulder L\_shoulder -270.20612 -162.08626 1949.2227

right shoulder R\_shoulder -459.8474 17.539062 2179.9172

189.6413

first angle mean: 61.31303

first angle stdev: 44.32318

second angle mean: 100.08846

second angle stdev: 15.304529

160.53 44.64

94.78 122.06

left shoulder L\_shoulder -265.38303 -160.73985 1962.2908

right shoulder R\_shoulder -462.15 26.920216 2182.8052

196.76697

first angle mean: 61.518448

first angle stdev: 44.50636

second angle mean: 100.07748

second angle stdev: 15.290582

157.59 46.66

93.43 124.04

left shoulder L\_shoulder -255.17705 -163.0354 1975.3274

right shoulder R\_shoulder -460.6773 25.948326 2188.5327

205.50026

first angle mean: 61.71694

first angle stdev: 44.673862

second angle mean: 100.06374

second angle stdev: 15.27776

152.02 45.83

91.07 123.06

left shoulder L\_shoulder -241.92252 -171.34145 1986.2687

right shoulder R\_shoulder -458.85995 14.876587 2192.1772

216.93744

first angle mean: 61.903133

first angle stdev: 44.815376

second angle mean: 100.0452

second angle stdev: 15.267452

140.37 44.53

89.21 121.62

left shoulder L\_shoulder -219.81804 -176.58409 1989.9736

right shoulder R\_shoulder -451.22693 -0.42765588 2189.525

231.40889

first angle mean: 62.06459

first angle stdev: 44.91022

second angle mean: 100.022896

second angle stdev: 15.259638

113.75 47.52

88.19 125.67

left shoulder L\_shoulder -189.67683 -183.7985 2024.5907

right shoulder R\_shoulder -447.60367 -15.51068 2197.3403

257.92682

first angle mean: 62.17072

first angle stdev: 44.925056

second angle mean: 99.998604

second angle stdev: 15.25337

102.82 49.39

88.81 127.17

left shoulder L\_shoulder -166.26025 -186.68874 2027.9963

right shoulder R\_shoulder -443.341 -31.739935 2182.8196

277.08075

first angle mean: 62.254017

first angle stdev: 44.916637

second angle mean: 99.97568

second angle stdev: 15.246132

82.54 47.72

89.88 125.0

left shoulder L\_shoulder -154.92908 -195.80022 2030.2646

right shoulder R\_shoulder -450.2644 -62.143856 2159.296

295.33533

first angle mean: 62.2955

first angle stdev: 44.88004

second angle mean: 99.955025

second angle stdev: 15.237363

62.28 47.92

88.77 124.96

left shoulder L\_shoulder -146.41847 -187.60985 2030.9501

right shoulder R\_shoulder -451.25497 -65.8513 2149.5242

304.8365

first angle mean: 62.29547

first angle stdev: 44.83422

second angle mean: 99.932205

second angle stdev: 15.230174

38.06 49.25

85.8 125.88

left shoulder L\_shoulder -130.90083 -172.17244 2035.0747

right shoulder R\_shoulder -445.5952 -59.10057 2135.613

314.6944

first angle mean: 62.24611

first angle stdev: 44.80187

second angle mean: 99.90342

second angle stdev: 15.22799

22.39 50.45

90.99 125.55

left shoulder L\_shoulder -99.2289 -144.62315 2034.9899

right shoulder R\_shoulder -428.4563 -57.464443 2108.7961

329.22742

first angle mean: 62.165104

first angle stdev: 44.792297

second angle mean: 99.88531

second angle stdev: 15.217803

26.03 50.07

98.23 124.61

left shoulder L\_shoulder -69.49441 -120.10141 2039.3157

right shoulder R\_shoulder -409.38315 -57.796135 2084.065

339.88873

first angle mean: 62.09181

first angle stdev: 44.776367

second angle mean: 99.88195

second angle stdev: 15.202544

30.55 47.76

104.86 122.94

left shoulder L\_shoulder -42.22593 -106.291176 2052.2874

right shoulder R\_shoulder -386.50214 -52.28293 2057.906

344.2762

first angle mean: 62.027954

first angle stdev: 44.753487

second angle mean: 99.89202

second angle stdev: 15.188797

robot count: 633.1

43.9

109.15 120.63

left shoulder L\_shoulder -23.820417 -97.36222 2066.0466

right shoulder R\_shoulder -369.1649 -55.445454 2038.9517

345.34448

first angle mean: 61.969517

first angle stdev: 44.727123

second angle mean: 99.91072

second angle stdev: 15.17914

36.43 38.64

113.78 116.53

left shoulder L\_shoulder -9.057328 -89.80453 2077.9678

right shoulder R\_shoulder -350.44833 -61.646122 2011.4844

341.391

first angle mean: 61.918026

first angle stdev: 44.696693

second angle mean: 99.93869

second angle stdev: 15.176586

40.23 31.91

117.91 107.06

left shoulder L\_shoulder 4.2634163 -80.922585 2093.3945

right shoulder R\_shoulder -329.0702 -70.941574 1993.3882

333.33362

first angle mean: 61.874386

first angle stdev: 44.66228

second angle mean: 99.974846

second angle stdev: 15.182684

41.34 38.12

119.05 98.59

left shoulder L\_shoulder 10.845288 -76.28432 2100.6355

right shoulder R\_shoulder -314.7676 -79.99049 1983.7998

325.61288

first angle mean: 61.833153

first angle stdev: 44.626884

second angle mean: 100.01315

second angle stdev: 15.191451

43.36 53.55

121.53 79.09

left shoulder L\_shoulder 15.621351 -78.84549 2090.1538

right shoulder R\_shoulder -301.417 -97.586716 1963.3964

317.03833

first angle mean: 61.796135

first angle stdev: 44.5898

second angle mean: 100.05627

second angle stdev: 15.206697

42.05 65.87

120.67 65.82

left shoulder L\_shoulder 19.725695 -80.62682 2070.3752

right shoulder R\_shoulder -291.44394 -107.8315 1947.2762

311.16965

first angle mean: 61.75664

first angle stdev: 44.553925

second angle mean: 100.0975

second angle stdev: 15.219373

39.51 78.36

118.73 40.9

left shoulder L\_shoulder 23.877502 -92.48577 2072.836

right shoulder R\_shoulder -273.4121 -129.88924 1953.2765

297.2896

first angle mean: 61.712234

first angle stdev: 44.52051

second angle mean: 100.13469

second angle stdev: 15.226902

36.16 96.79

116.1 41.7

left shoulder L\_shoulder 19.884325 -118.9748 2082.961

right shoulder R\_shoulder -251.90253 -163.96347 1965.7421

271.78687

first angle mean: 61.661335

first angle stdev: 44.490734

second angle mean: 100.16649

second angle stdev: 15.228375

34.22 115.2

114.82 52.78

left shoulder L\_shoulder 18.874556 -127.7823 2067.1257

right shoulder R\_shoulder -241.09653 -173.62657 1948.8406

259.97107

first angle mean: 61.60678

first angle stdev: 44.463295

second angle mean: 100.195625

second angle stdev: 15.227225

32.24 133.24

112.84 61.73

left shoulder L\_shoulder 25.885313 -123.80626 2060.0625

right shoulder R\_shoulder -227.23761 -172.85117 1932.3085

253.12292

first angle mean: 61.548515

first angle stdev: 44.438377

second angle mean: 100.22072

second angle stdev: 15.222514

30.97 145.9

111.89 70.28

left shoulder L\_shoulder 32.716293 -105.990776 2082.1738

right shoulder R\_shoulder -210.00218 -163.54492 1930.7963

242.71848

first angle mean: 61.48796

first angle stdev: 44.415165

second angle mean: 100.24383

second angle stdev: 15.216281

30.8 154.6

110.89 75.56

left shoulder L\_shoulder 40.123924 -89.13818 2118.0327

right shoulder R\_shoulder -191.70682 -157.99142 1932.4852

231.83075

first angle mean: 61.427315

first angle stdev: 44.39218

second angle mean: 100.26486

second angle stdev: 15.208589

30.45 156.37

109.65 76.99

left shoulder L\_shoulder 38.884426 -77.128334 2142.0679

right shoulder R\_shoulder -181.19206 -153.73573 1932.9318

220.07649

first angle mean: 61.366215

first angle stdev: 44.369675

second angle mean: 100.28338

second angle stdev: 15.199287

29.75 152.98

108.07 74.64

left shoulder L\_shoulder 31.602554 -72.66596 2152.9932

right shoulder R\_shoulder -181.99261 -152.0808 1930.2275

213.59517

first angle mean: 61.303978

first angle stdev: 44.348125

second angle mean: 100.298706

second angle stdev: 15.188243

29.43 147.21

107.16 70.63

left shoulder L\_shoulder 20.103367 -77.0224 2148.643

right shoulder R\_shoulder -191.0293 -152.36963 1918.0659

211.13266

first angle mean: 61.24136

first angle stdev: 44.327015

second angle mean: 100.31219

second angle stdev: 15.176357

29.67 139.62

107.85 65.23

left shoulder L\_shoulder 9.314136 -86.98032 2130.5679

right shoulder R\_shoulder -208.37889 -153.90714 1903.3097

217.69302

first angle mean: 61.179455

first angle stdev: 44.305557

second angle mean: 100.32696

second angle stdev: 15.165136

29.91 128.94

108.43 58.26

left shoulder L\_shoulder 2.9474125 -87.7042 2110.534

right shoulder R\_shoulder -233.36734 -144.71553 1899.6315

236.31476

first angle mean: 61.118263

first angle stdev: 44.28375

second angle mean: 100.34282

second angle stdev: 15.154522

30.57 114.68

109.5 55.01

left shoulder L\_shoulder 6.275945 -84.64928 2105.2388

right shoulder R\_shoulder -254.76044 -139.35469 1925.0056

261.03638

first angle mean: 61.05859

first angle stdev: 44.261036

second angle mean: 100.3607

second angle stdev: 15.145114

28.14 83.48

107.5 51.64

left shoulder L\_shoulder 17.44123 -107.70292 2091.877

right shoulder R\_shoulder -283.33517 -152.39339 1986.2546

300.7764

first angle mean: 60.994423

first angle stdev: 44.24171

second angle mean: 100.37462

second angle stdev: 15.133622

28.21 78.07

107.84 55.76

left shoulder L\_shoulder 15.449551 -105.3111 2076.3755

right shoulder R\_shoulder -295.8255 -141.44421 2003.1766

311.27505

first angle mean: 60.93064

first angle stdev: 44.222256

second angle mean: 100.389145

second angle stdev: 15.122472

27.23 69.43

107.49 63.5

left shoulder L\_shoulder 16.70669 -82.104416 2037.1837

right shoulder R\_shoulder -298.718 -110.91904 1980.2583

315.42468

first angle mean: 60.865204

first angle stdev: 44.204205

second angle mean: 100.40293

second angle stdev: 15.111015

27.65 57.69

105.13 77.44

left shoulder L\_shoulder 13.760968 -63.035004 2015.9714

right shoulder R\_shoulder -302.04758 -86.19273 1954.3838

315.80853

first angle mean: 60.80083

first angle stdev: 44.185505

second angle mean: 100.412094

second angle stdev: 15.097797

26.09 50.18

103.43 94.69

left shoulder L\_shoulder 2.7728379 -51.593132 2033.4637

right shoulder R\_shoulder -311.7131 -64.87826 1951.178

314.48593

first angle mean: 60.733692

first angle stdev: 44.169086

second angle mean: 100.41793

second angle stdev: 15.083773

26.37 45.47

102.82 103.67

left shoulder L\_shoulder -13.81503 -51.587116 2046.8635

right shoulder R\_shoulder -333.4886 -55.889732 1972.7664

319.67355

first angle mean: 60.667355

first angle stdev: 44.152206

second angle mean: 100.42257

second angle stdev: 15.069573

30.51 41.35

102.98 110.75

left shoulder L\_shoulder -31.321808 -62.2876 2035.155

right shoulder R\_shoulder -361.75998 -55.564926 2000.5671

330.43817

first angle mean: 60.609245

first angle stdev: 44.12947

second angle mean: 100.4275

second angle stdev: 15.055467

36.44 40.03

102.18 116.86

left shoulder L\_shoulder -54.19364 -76.26549 2011.2343

right shoulder R\_shoulder -386.43823 -63.988277 2026.4716

332.2446

first angle mean: 60.562767

first angle stdev: 44.09973

second angle mean: 100.43087

second angle stdev: 15.04118

43.2 41.94

101.34 121.32

left shoulder L\_shoulder -81.16091 -89.8611 1988.5704

right shoulder R\_shoulder -406.31418 -61.814552 2059.5667

325.15326

first angle mean: 60.529438

first angle stdev: 44.063946

second angle mean: 100.43261

second angle stdev: 15.026791

50.28 44.71

99.45 123.96

left shoulder L\_shoulder -110.37463 -108.970184 1960.2924

right shoulder R\_shoulder -419.73273 -55.907444 2085.4197

309.3581

first angle mean: 60.509808

first angle stdev: 44.024

second angle mean: 100.430725

second angle stdev: 15.012451

53.16 45.39

98.57 124.59

left shoulder L\_shoulder -143.69135 -71.60934 1888.0192

right shoulder R\_shoulder -419.11584 -19.725286 2054.3398

275.4245

first angle mean: 60.495754

first angle stdev: 43.983063

second angle mean: 100.42717

second angle stdev: 14.998313

53.95 48.89

98.33 125.61

left shoulder L\_shoulder -92.61368 -30.187056 1892.7739

right shoulder R\_shoulder -370.4191 23.421272 2067.8938

277.80542

first angle mean: 60.48326

first angle stdev: 43.942

second angle mean: 100.423164

second angle stdev: 14.984274

84.69 49.52

87.72 127.39

left shoulder L\_shoulder -145.99294 -117.968506 1919.5961

right shoulder R\_shoulder -401.33722 -17.549599 2102.345

255.34428

first angle mean: 60.529373

first angle stdev: 43.91282

second angle mean: 100.39897

second angle stdev: 14.98024

114.16 46.15

81.4 124.55

left shoulder L\_shoulder -189.86952 -181.064 1952.6074

right shoulder R\_shoulder -439.0422 -48.292377 2122.879

249.17268

first angle mean: 60.631332

first angle stdev: 43.933216

second angle mean: 100.362854

second angle stdev: 14.988859

128.74 45.39

82.1 123.98

left shoulder L\_shoulder -204.21568 -188.11586 1927.3428

right shoulder R\_shoulder -446.0613 -40.82243 2096.5088

241.84563

first angle mean: 60.760567

first angle stdev: 43.99148

second angle mean: 100.3282

second angle stdev: 14.995708

142.11 40.02

86.48 119.15

left shoulder L\_shoulder -224.15016 -179.49475 1914.4344

right shoulder R\_shoulder -449.1452 -25.27939 2105.6138

224.99504

first angle mean: 60.91464

first angle stdev: 44.091892

second angle mean: 100.30196

second angle stdev: 14.993595

151.57 38.43

88.65 115.96

left shoulder L\_shoulder -239.32968 -168.83327 1900.2468

right shoulder R\_shoulder -450.5344 -13.314792 2115.4011

211.20471

first angle mean: 61.08601

first angle stdev: 44.225857

second angle mean: 100.27994

second angle stdev: 14.987965

155.17 37.54

88.99 114.14

left shoulder L\_shoulder -247.97012 -161.90765 1899.6353

right shoulder R\_shoulder -453.989 -4.8559823 2127.9382

206.01889

first angle mean: 61.263523

first angle stdev: 44.372356

second angle mean: 100.25864

second angle stdev: 14.9818325

147.38 38.0

84.65 114.38

left shoulder L\_shoulder -239.22977 -164.48946 1906.7377

right shoulder R\_shoulder -448.72205 -11.216976 2142.414

209.49228

first angle mean: 61.425705

first angle stdev: 44.487503

second angle mean: 100.22924

second angle stdev: 14.983008

139.35 39.83

80.17 116.47

left shoulder L\_shoulder -219.60172 -165.11385 1904.4493

right shoulder R\_shoulder -439.21637 -21.063105 2139.744

219.61465

first angle mean: 61.572178

first angle stdev: 44.57365

second angle mean: 100.191536

second angle stdev: 14.994115

124.37 39.46

81.73 116.89

left shoulder L\_shoulder -197.13506 -175.18639 1934.6063

right shoulder R\_shoulder -438.52026 -35.677666 2151.1182

241.38521

first angle mean: 61.69

first angle stdev: 44.614655

second angle mean: 100.156906

second angle stdev: 15.00133

100.73 42.61

87.82 120.68

left shoulder L\_shoulder -180.11674 -185.8044 1985.9563

right shoulder R\_shoulder -448.55624 -44.275833 2165.454

268.4395

first angle mean: 61.763107

first angle stdev: 44.60481

second angle mean: 100.1338

second angle stdev: 14.996765

91.33 45.8

97.44 123.08

left shoulder L\_shoulder -163.45515 -189.64484 2006.9077

right shoulder R\_shoulder -454.64453 -55.5636 2152.3855

291.1894

first angle mean: 61.81837

first angle stdev: 44.581398

second angle mean: 100.12877

second angle stdev: 14.983194

69.65 49.53

97.65 126.68

left shoulder L\_shoulder -144.47572 -182.60551 1992.9006

right shoulder R\_shoulder -448.36295 -58.291416 2119.8398

303.8872

first angle mean: 61.832985

first angle stdev: 44.541073

second angle mean: 100.12414

second angle stdev: 14.969593

26.84 51.89

102.15 129.04

left shoulder L\_shoulder -130.16792 -166.70764 1986.0586

right shoulder R\_shoulder -439.8045 -46.857445 2102.937

309.6366

first angle mean: 61.767822

first angle stdev: 44.525146

second angle mean: 100.12791

second angle stdev: 14.955904

3.89 52.33

108.68 129.78

left shoulder L\_shoulder -116.450935 -148.6478 1971.0231

right shoulder R\_shoulder -428.65887 -37.70802 2091.284

312.20795

first angle mean: 61.660244

first angle stdev: 44.553547

second angle mean: 100.143814

second angle stdev: 14.946539

35.86 45.38

109.95 123.9

left shoulder L\_shoulder -92.47162 -124.374985 1978.982

right shoulder R\_shoulder -416.00613 -38.601143 2089.5334

323.53452

first angle mean: 61.612377

first angle stdev: 44.526043

second angle mean: 100.162

second angle stdev: 14.938628

31.73 39.03

110.18 117.12

left shoulder L\_shoulder -57.20401 -96.244865 1989.0309

right shoulder R\_shoulder -395.27994 -43.7956 2074.0618

338.07593

first angle mean: 61.557037

first angle stdev: 44.503345

second angle mean: 100.18056

second angle stdev: 14.931004

31.4 35.78

109.88 112.93

left shoulder L\_shoulder -33.2167 -80.530396 2005.4264

right shoulder R\_shoulder -380.66034 -52.942642 2058.3882

347.44363

first angle mean: 61.501293

first angle stdev: 44.48106

second angle mean: 100.19849

second angle stdev: 14.923015

31.92 34.58

109.93 109.68

left shoulder L\_shoulder -16.846134 -72.75784 2019.4359

right shoulder R\_shoulder -368.6193 -61.11675 2038.4617

351.77316

first angle mean: 61.446716

first angle stdev: 44.458138

second angle mean: 100.216446

second angle stdev: 14.91509

34.04 34.8

111.55 104.45

left shoulder L\_shoulder -2.512157 -70.60837 2034.2152

right shoulder R\_shoulder -349.73315 -58.01558 2010.827

347.221

first angle mean: 61.396244

first angle stdev: 44.43272

second angle mean: 100.23731

second angle stdev: 14.909269

36.92 42.78

113.53 93.09

left shoulder L\_shoulder 7.6237464 -66.80119 2044.0562

right shoulder R\_shoulder -323.76105 -61.74986 1986.8212

331.3848

first angle mean: 61.351246

first angle stdev: 44.404243

second angle mean: 100.26175

second angle stdev: 14.906439

38.76 53.24

116.64 81.9

left shoulder L\_shoulder 12.759789 -69.422585 2050.414

right shoulder R\_shoulder -305.2473 -81.308 1955.767

318.0071

first angle mean: 61.3098

first angle stdev: 44.37402

second angle mean: 100.2918

second angle stdev: 14.909243

37.69 65.88

116.18 72.76

left shoulder L\_shoulder 20.485283 -73.09231 2055.8787

right shoulder R\_shoulder -290.6532 -96.88915 1943.2448

311.1385

first angle mean: 61.26654

first angle stdev: 44.344864

second angle mean: 100.3209

second angle stdev: 14.911066

35.0 83.33

114.42 63.3

left shoulder L\_shoulder 28.382822 -90.72663 2058.382

right shoulder R\_shoulder -269.3326 -126.117645 1925.6863

297.71542

first angle mean: 61.21852

first angle stdev: 44.318516

second angle mean: 100.34667

second angle stdev: 14.909598

34.62 95.11

114.44 58.06

left shoulder L\_shoulder 26.434109 -100.30786 2067.5337

right shoulder R\_shoulder -259.63156 -142.77434 1925.3365

286.06567

first angle mean: 61.16998

first angle stdev: 44.292614

second angle mean: 100.37239

second angle stdev: 14.908128

33.74 108.48

113.21 51.14

left shoulder L\_shoulder 22.64552 -98.683304 2074.8923

right shoulder R\_shoulder -259.38956 -150.60124 1928.5264

282.03506

first angle mean: 61.120018

first angle stdev: 44.267708

second angle mean: 100.395775

second angle stdev: 14.904599

33.29 112.41

112.59 48.26

left shoulder L\_shoulder 25.725435 -93.91399 2075.6885

right shoulder R\_shoulder -253.5629 -152.32466 1927.0442

279.28833

first angle mean: 61.069416

first angle stdev: 44.243336

second angle mean: 100.41794

second angle stdev: 14.900103

33.96 136.48

113.63 63.34

left shoulder L\_shoulder 27.702497 -69.265724 2088.6145

right shoulder R\_shoulder -238.7391 -134.3704 1921.6779

266.4416

first angle mean: 61.020218

first angle stdev: 44.218227

second angle mean: 100.441925

second angle stdev: 14.897193

34.09 151.24

113.61 76.7

left shoulder L\_shoulder 25.628016 -51.69884 2107.1018

right shoulder R\_shoulder -229.54224 -121.30908 1921.8599

255.17026

first angle mean: 60.97143

first angle stdev: 44.192997

second angle mean: 100.465775

second angle stdev: 14.894222

33.4 152.24

112.54 77.09

left shoulder L\_shoulder 20.200201 -49.6956 2117.1228

right shoulder R\_shoulder -229.99399 -119.36055 1921.2825

250.19418

first angle mean: 60.921577

first angle stdev: 44.168556

second angle mean: 100.48761

second angle stdev: 14.889589

32.67 145.42

111.49 73.79

left shoulder L\_shoulder 2.6877897 -49.344654 2127.2332

right shoulder R\_shoulder -242.81801 -117.840485 1920.1965

245.5058

first angle mean: 60.87058

first angle stdev: 44.144966

second angle mean: 100.50748

second angle stdev: 14.883473

31.23 135.82

109.9 67.72

left shoulder L\_shoulder -9.902493 -63.75408 2129.8254

right shoulder R\_shoulder -260.14246 -127.2697 1922.3035

250.23996

first angle mean: 60.817173

first angle stdev: 44.12309

second angle mean: 100.52439

second angle stdev: 14.875394

29.67 119.21

108.43 61.03

left shoulder L\_shoulder -23.13289 -80.90626 2112.0798

right shoulder R\_shoulder -288.44766 -131.68604 1923.461

265.31476

first angle mean: 60.761158

first angle stdev: 44.10314

second angle mean: 100.53861

second angle stdev: 14.865785

28.96 98.92

108.2 62.77

left shoulder L\_shoulder -28.423328 -92.884605 2110.264

right shoulder R\_shoulder -310.2547 -133.56424 1949.7528

281.83136

first angle mean: 60.70406

first angle stdev: 44.084095

second angle mean: 100.55237

second angle stdev: 14.855974

28.6 77.1

108.21 61.48

left shoulder L\_shoulder -34.054443 -102.057785 2104.4963

right shoulder R\_shoulder -333.94373 -129.29356 1977.3687

299.88928

first angle mean: 60.64652

first angle stdev: 44.0655

second angle mean: 100.56609

second angle stdev: 14.846191

29.57 56.25

109.08 72.49

left shoulder L\_shoulder -35.717865 -94.91077 2087.883

right shoulder R\_shoulder -350.49973 -109.37788 1994.0059

314.78186

first angle mean: 60.590927

first angle stdev: 44.04565

second angle mean: 100.58132

second angle stdev: 14.837268

29.73 10.17

109.29 87.8

left shoulder L\_shoulder -43.047024 -85.983406 2080.6191

right shoulder R\_shoulder -363.74133 -89.853676 1995.9253

320.6943

first angle mean: 60.535828

first angle stdev: 44.025593

second angle mean: 100.59688

second angle stdev: 14.828574

28.03 24.87

106.97 101.47

left shoulder L\_shoulder -57.64128 -80.457504 2064.9546

right shoulder R\_shoulder -387.65955 -65.528496 2008.247

330.01825

first angle mean: 60.47788

first angle stdev: 44.0077

second angle mean: 100.60823

second angle stdev: 14.817791

30.46 37.54

106.06 109.35

left shoulder L\_shoulder -71.90275 -80.04729 2041.753

right shoulder R\_shoulder -406.50815 -62.077534 2028.903

334.6054

first angle mean: 60.42447

first angle stdev: 43.986725

second angle mean: 100.617935

second angle stdev: 14.806385

34.83 42.96

106.31 116.74

left shoulder L\_shoulder -86.58742 -84.3201 2013.883

right shoulder R\_shoulder -419.0768 -61.251743 2050.8145

332.48938

first angle mean: 60.37901

first angle stdev: 43.960857

second angle mean: 100.628044

second angle stdev: 14.795171

42.48 50.35

105.8 124.85

left shoulder L\_shoulder -115.70872 -99.90209 1965.25

right shoulder R\_shoulder -428.85342 -63.869774 2079.8425

313.1447

first angle mean: 60.347267

first angle stdev: 43.92832

second angle mean: 100.637215

second angle stdev: 14.783649

51.87 53.19

105.84 129.44

left shoulder L\_shoulder -142.57951 -116.44735 1934.3682

right shoulder R\_shoulder -429.14 -61.14073 2101.5981

286.5605

first angle mean: 60.332268

first angle stdev: 43.890877

second angle mean: 100.64642

second angle stdev: 14.77218

61.81 55.68

100.4 132.68

left shoulder L\_shoulder -173.30861 -133.67622 1890.8079

right shoulder R\_shoulder -426.55887 -60.13063 2110.674

253.25026

first angle mean: 60.334873

first angle stdev: 43.85213

second angle mean: 100.64599

second angle stdev: 14.759128

76.97 52.31

45.22 128.45

left shoulder L\_shoulder -195.79039 -156.35059 1863.0543

right shoulder R\_shoulder -429.0149 -72.91663 2118.3713

233.2245

first angle mean: 60.36422

first angle stdev: 43.819004

second angle mean: 100.54824

second angle stdev: 14.928369

111.17 49.04

85.12 126.35

left shoulder L\_shoulder -218.70427 -174.57207 1875.488

right shoulder R\_shoulder -425.50446 -71.44475 2137.1465

206.80019

first angle mean: 60.453663

first angle stdev: 43.83219

second angle mean: 100.52107

second angle stdev: 14.929239

128.66 48.91

101.37 126.77

left shoulder L\_shoulder -232.01566 -187.90569 1880.6842

right shoulder R\_shoulder -427.05948 -67.48688 2143.7607

195.04382

first angle mean: 60.573532

first angle stdev: 43.88674

second angle mean: 100.52257

second angle stdev: 14.916156

140.79 46.84

91.88 124.75

left shoulder L\_shoulder -246.82956 -183.115 1898.5834

right shoulder R\_shoulder -440.20392 -46.425167 2154.8425

193.37436

first angle mean: 60.714268

first angle stdev: 43.97654

second angle mean: 100.5074

second angle stdev: 14.9074545

148.42 43.95

90.83 121.89

left shoulder L\_shoulder -254.76637 -173.10454 1924.4677

right shoulder R\_shoulder -458.4234 -26.554657 2166.1184

203.65703

first angle mean: 60.867867

first angle stdev: 44.090782

second angle mean: 100.490456

second angle stdev: 14.89989

155.74 42.82

89.4 120.8

left shoulder L\_shoulder -256.85577 -166.80846 1935.4928

right shoulder R\_shoulder -470.4597 -16.003496 2165.1726

213.60391

first angle mean: 61.033722

first angle stdev: 44.230152

second angle mean: 100.47106

second angle stdev: 14.894068

153.59 44.03

93.63 122.41

left shoulder L\_shoulder -250.06651 -167.7286 1960.4323

right shoulder R\_shoulder -476.9165 -6.578368 2166.7788

226.84999

first angle mean: 61.19525

first angle stdev: 44.36008

second angle mean: 100.45913

second angle stdev: 14.883805

146.01 45.12

92.86 123.27

left shoulder L\_shoulder -235.46788 -171.6951 1965.5024

right shoulder R\_shoulder -467.9251 -9.477176 2164.3552

232.45723

first angle mean: 61.343014

first angle stdev: 44.46233

second angle mean: 100.44589

second angle stdev: 14.87421

136.83 45.0

90.13 122.44

left shoulder L\_shoulder -216.17232 -177.81306 1965.6688

right shoulder R\_shoulder -451.40485 -22.065159 2166.325

235.23253

first angle mean: 61.474293

first angle stdev: 44.534863

second angle mean: 100.42795

second angle stdev: 14.867486

119.95 43.2

88.34 120.6

left shoulder L\_shoulder -187.86696 -183.50203 1974.2041

right shoulder R\_shoulder -435.84036 -41.4423 2170.494

247.9734

first angle mean: 61.575813

first angle stdev: 44.56273

second angle mean: 100.40696

second angle stdev: 14.863095

robot count: 7

103.42 42.79

94.03 120.77

left shoulder L\_shoulder -167.4838 -180.0769 1979.8877

right shoulder R\_shoulder -429.37836 -51.169693 2166.8606

261.89456

first angle mean: 61.64833

first angle stdev: 44.5581

second angle mean: 100.395905

second angle stdev: 14.852579

80.4 42.85

106.74 120.93

left shoulder L\_shoulder -161.37917 -192.10919 1988.217

right shoulder R\_shoulder -429.09094 -70.378006 2176.156

267.7118

first angle mean: 61.680775

first angle stdev: 44.52636

second angle mean: 100.40688

second angle stdev: 14.842068

39.06 45.42

122.22 121.82

left shoulder L\_shoulder -148.68608 -183.22649 1967.1841

right shoulder R\_shoulder -424.50488 -63.26577 2176.2327

275.8188

first angle mean: 61.641705

first angle stdev: 44.497803

second angle mean: 100.44456

second angle stdev: 14.856879

47.45 48.0

114.03 124.97

left shoulder L\_shoulder -126.884384 -167.63208 1970.3918

right shoulder R\_shoulder -414.92145 -57.790844 2169.1365

288.03705

first angle mean: 61.61724

first angle stdev: 44.46333

second angle mean: 100.46798

second angle stdev: 14.854762

39.38 54.52

109.34 131.9

left shoulder L\_shoulder -85.54002 -140.03348 1986.7509

right shoulder R\_shoulder -407.08798 -55.12126 2130.7712

321.54797

first angle mean: 61.578964

first angle stdev: 44.43461

second angle mean: 100.48325

second angle stdev: 14.846528

39.48 58.47

112.67 133.99

left shoulder L\_shoulder -47.44071 -115.00326 2007.9226

right shoulder R\_shoulder -394.52872 -56.331867 2084.8665

347.088

first angle mean: 61.540997

first angle stdev: 44.40585

second angle mean: 100.50419

second angle stdev: 14.842353

41.69 55.42

117.52 130.61

left shoulder L\_shoulder -16.61928 -97.32985 2043.9584

right shoulder R\_shoulder -373.9 -56.893723 2026.8271

357.2807

first angle mean: 61.506943

first angle stdev: 44.375355

second angle mean: 100.53338

second angle stdev: 14.846324

43.67 50.08

120.92 126.44

left shoulder L\_shoulder -5.2028003 -83.51261 2071.0234

right shoulder R\_shoulder -356.3301 -64.16385 1994.5312

351.12732

first angle mean: 61.476402

first angle stdev: 44.343475

second angle mean: 100.56828

second angle stdev: 14.857535

46.1 40.41

123.77 116.71

left shoulder L\_shoulder 11.542172 -71.63547 2090.606

right shoulder R\_shoulder -326.78836 -74.42062 1973.7384

338.33054

first angle mean: 61.45012

first angle stdev: 44.310116

second angle mean: 100.60795

second angle stdev: 14.875741

46.7 44.74

124.67 107.55

left shoulder L\_shoulder 19.066242 -65.79627 2100.899

right shoulder R\_shoulder -300.1074 -81.631035 1945.7695

319.17365

first angle mean: 61.42495

first angle stdev: 44.276478

second angle mean: 100.64901

second angle stdev: 14.896187

46.82 53.3

124.81 99.26

left shoulder L\_shoulder 20.362871 -62.499702 2118.5454

right shoulder R\_shoulder -273.30176 -89.25479 1922.409

293.66464

first angle mean: 61.400066

first angle stdev: 44.242844

second angle mean: 100.69017

second angle stdev: 14.916807

46.24 61.15

124.46 85.6

left shoulder L\_shoulder 22.952177 -64.52536 2123.7468

right shoulder R\_shoulder -256.1056 -103.2988 1916.6409

279.05777

first angle mean: 61.374283

first angle stdev: 44.20962

second angle mean: 100.7306

second angle stdev: 14.936263

43.23 73.58

121.18 74.14

left shoulder L\_shoulder 23.004286 -80.16546 2126.5305

right shoulder R\_shoulder -238.99284 -125.274506 1913.194

261.99713

first angle mean: 61.34348

first angle stdev: 44.17839

second angle mean: 100.76531

second angle stdev: 14.947306

39.4 84.45

117.28 42.61

left shoulder L\_shoulder 30.526049 -103.83456 2115.704

right shoulder R\_shoulder -228.49152 -153.0897 1919.4532

259.01758

first angle mean: 61.30629

first angle stdev: 44.150166

second angle mean: 100.7933

second angle stdev: 14.950075

38.38 100.68

117.46 45.4

left shoulder L\_shoulder 32.199795 -115.86377 2117.4724

right shoulder R\_shoulder -217.338 -170.46107 1940.4456

249.5378

first angle mean: 61.267494

first angle stdev: 44.12286

second angle mean: 100.8215

second angle stdev: 14.95312

38.93 121.75

118.03 56.9

left shoulder L\_shoulder 30.234676 -120.658226 2108.3408

right shoulder R\_shoulder -208.29768 -172.44032 1931.3527

238.53236

first angle mean: 61.229763

first angle stdev: 44.09512

second angle mean: 100.85057

second angle stdev: 14.957189

38.75 140.72

116.87 68.38

left shoulder L\_shoulder 31.02997 -119.88234 2106.5637

right shoulder R\_shoulder -197.40154 -172.94412 1917.5366

228.4315

first angle mean: 61.191853

first angle stdev: 44.067577

second angle mean: 100.87759

second angle stdev: 14.959019

38.66 150.66

116.09 73.32

left shoulder L\_shoulder 32.16701 -111.3633 2118.4062

right shoulder R\_shoulder -185.79456 -172.11998 1915.2435

217.96156

first angle mean: 61.153923

first angle stdev: 44.040157

second angle mean: 100.9032

second angle stdev: 14.959427

38.17 153.26

114.62 75.33

left shoulder L\_shoulder 31.325779 -104.93136 2136.1448

right shoulder R\_shoulder -180.31738 -173.13916 1923.3448

211.64316

first angle mean: 61.115295

first angle stdev: 44.013203

second angle mean: 100.92625

second angle stdev: 14.957408

37.37 150.68

112.62 73.68

left shoulder L\_shoulder 23.109064 -98.92578 2148.6184

right shoulder R\_shoulder -186.71124 -169.31082 1927.1621

209.82031

first angle mean: 61.07545

first angle stdev: 43.987

second angle mean: 100.94587

second angle stdev: 14.952516

35.99 145.75

110.86 70.55

left shoulder L\_shoulder 14.6374035 -92.82645 2143.0625

right shoulder R\_shoulder -197.61961 -159.77544 1919.0968

212.25702

first angle mean: 61.033436

first angle stdev: 43.962112

second angle mean: 100.96248

second angle stdev: 14.945487

34.49 137.6

110.61 65.57

left shoulder L\_shoulder 9.304277 -86.995056 2123.8533

right shoulder R\_shoulder -218.1339 -144.60645 1912.4497

227.43817

first angle mean: 60.98905

first angle stdev: 43.93873

second angle mean: 100.978615

second angle stdev: 14.938188

33.64 124.69

111.15 60.8

left shoulder L\_shoulder 7.55246 -82.96321 2110.2876

right shoulder R\_shoulder -245.90062 -131.9398 1929.826

253.45308

first angle mean: 60.94339

first angle stdev: 43.91623

second angle mean: 100.99559

second angle stdev: 14.931487

31.8 104.33

110.34 60.07

left shoulder L\_shoulder 12.305349 -93.67086 2101.37

right shoulder R\_shoulder -267.758 -133.68732 1963.0825

280.06335

first angle mean: 60.894817

first angle stdev: 43.895718

second angle mean: 101.01116

second angle stdev: 14.923907

29.89 82.68

109.73 61.85

left shoulder L\_shoulder 13.561038 -98.18047 2093.328

right shoulder R\_shoulder -284.18954 -127.94635 1994.9597

297.75058

first angle mean: 60.84323

first angle stdev: 43.877388

second angle mean: 101.02567

second angle stdev: 14.915721

29.44 62.54

110.3 72.32

left shoulder L\_shoulder 13.9358635 -84.27788 2073.3508

right shoulder R\_shoulder -292.69223 -108.61658 2002.7189

306.62808

first angle mean: 60.79106

first angle stdev: 43.859577

second angle mean: 101.041084

second angle stdev: 14.908113

28.34 47.31

109.1 90.48

left shoulder L\_shoulder 8.953185 -69.884964 2063.309

right shoulder R\_shoulder -302.21277 -86.43972 2002.6426

311.16595

first angle mean: 60.737244

first angle stdev: 43.84308

second angle mean: 101.05444

second angle stdev: 14.899354

25.26 45.4

105.43 96.43

left shoulder L\_shoulder 0.27397293 -64.20589 2069.6287

right shoulder R\_shoulder -317.27295 -67.09052 2009.093

317.54694

first angle mean: 60.67851

first angle stdev: 43.83051

second angle mean: 101.06168

second angle stdev: 14.888078

24.07 48.71

102.07 102.67

left shoulder L\_shoulder -3.4095943 -64.11655 2087.1794

right shoulder R\_shoulder -322.343 -56.526936 2010.6151

318.93338

first angle mean: 60.618

first angle stdev: 43.819515

second angle mean: 101.063354

second angle stdev: 14.875825

33.08 44.75

104.46 121.74

left shoulder L\_shoulder -49.822105 -58.08108 2046.5493

right shoulder R\_shoulder -367.70447 -44.1303 2015.6832

317.88235

first angle mean: 60.572556

first angle stdev: 43.79761

second angle mean: 101.06896

second angle stdev: 14.864185

43.85 49.53

103.97 129.21

left shoulder L\_shoulder -77.825745 -78.64798 2027.0273

right shoulder R\_shoulder -395.75793 -55.72727 2074.815

317.9322

first angle mean: 60.54501

first angle stdev: 43.76677

second angle mean: 101.07374

second angle stdev: 14.852403

49.37 51.22

102.8 130.58

left shoulder L\_shoulder -97.536606 -108.26307 1999.2728

right shoulder R\_shoulder -400.8592 -64.98316 2120.4019

303.32257

first angle mean: 60.52663

first angle stdev: 43.733112

second angle mean: 101.076584

second angle stdev: 14.840348

62.35 55.99

100.46 133.15

left shoulder L\_shoulder -126.67686 -137.72203 1964.2859

right shoulder R\_shoulder -412.32394 -57.401047 2167.788

285.6471

first angle mean: 60.52962

first angle stdev: 43.69725

second angle mean: 101.07557

second angle stdev: 14.828179

75.33 56.44

86.46 134.1

left shoulder L\_shoulder -155.35101 -175.26495 1977.5488

right shoulder R\_shoulder -435.19998 -61.845303 2173.2224

279.84897

first angle mean: 60.553886

first angle stdev: 43.665524

second angle mean: 101.051605

second angle stdev: 14.827815

101.05 51.55

45.85 130.01

left shoulder L\_shoulder -181.82709 -199.06258 1974.9696

right shoulder R\_shoulder -438.31268 -72.45039 2161.044

256.4856

first angle mean: 60.620167

first angle stdev: 43.660477

second angle mean: 100.961266

second angle stdev: 14.982768

112.98 47.18

56.55 126.76

left shoulder L\_shoulder -192.50768 -197.71573 1951.5488

right shoulder R\_shoulder -427.55637 -77.34688 2155.8828

235.04869

first angle mean: 60.705723

first angle stdev: 43.676018

second angle mean: 100.888695

second angle stdev: 15.077601

130.43 45.82

75.02 125.04

left shoulder L\_shoulder -203.8406 -188.43587 1933.1171

right shoulder R\_shoulder -416.3089 -69.62371 2161.101

212.46829

first angle mean: 60.819466

first angle stdev: 43.731003

second angle mean: 100.84649

second angle stdev: 15.101428

145.22 44.15

85.59 123.07

left shoulder L\_shoulder -223.61464 -177.49768 1923.6206

right shoulder R\_shoulder -419.01312 -53.984608 2166.5886

195.39848

first angle mean: 60.956924

first angle stdev: 43.827713

second angle mean: 100.82164

second angle stdev: 15.101661

151.78 43.4

84.05 121.83

left shoulder L\_shoulder -236.47737 -173.03387 1921.8772

right shoulder R\_shoulder -427.14023 -44.9886 2173.0815

190.66286

first angle mean: 61.104607

first angle stdev: 43.944695

second angle mean: 100.79437

second angle stdev: 15.104502

149.86 43.34

79.57 120.85

left shoulder L\_shoulder -236.34436 -173.22893 1916.2529

right shoulder R\_shoulder -427.25653 -43.74106 2175.1235

190.91217

first angle mean: 61.248688

first angle stdev: 44.054157

second angle mean: 100.75992

second angle stdev: 15.116405

140.75 41.56

74.35 118.05

left shoulder L\_shoulder -219.48882 -180.57523 1914.7898

right shoulder R\_shoulder -414.0236 -52.368782 2176.6257

194.53477

first angle mean: 61.37754

first angle stdev: 44.134457

second angle mean: 100.71712

second angle stdev: 15.141465

130.96 42.04

69.32 118.09

left shoulder L\_shoulder -195.0581 -180.8064 1904.6681

right shoulder R\_shoulder -401.71805 -59.257893 2166.9087

206.65994

first angle mean: 61.490128

first angle stdev: 44.187332

second angle mean: 100.66631

second angle stdev: 15.181749

116.61 44.89

76.94 122.31

left shoulder L\_shoulder -171.24797 -178.40167 1922.2394

right shoulder R\_shoulder -403.91077 -60.06617 2164.038

232.6628

first angle mean: 61.579178

first angle stdev: 44.20708

second angle mean: 100.62798

second angle stdev: 15.199378

104.89 46.12

96.94 123.7

left shoulder L\_shoulder -156.56659 -183.54927 1953.008

right shoulder R\_shoulder -412.48898 -71.541504 2174.411

255.9224

first angle mean: 61.64903

first angle stdev: 44.205597

second angle mean: 100.62203

second angle stdev: 15.187838

77.3 45.76

98.13 123.35

left shoulder L\_shoulder -144.02701 -183.3496 1987.7455

right shoulder R\_shoulder -425.2224 -79.546425 2180.752

281.1954

first angle mean: 61.674232

first angle stdev: 44.17445

second angle mean: 100.61803

second angle stdev: 15.175933

59.77 48.49

99.22 126.05

left shoulder L\_shoulder -127.14861 -167.72469 1999.4528

right shoulder R\_shoulder -423.95163 -68.50893 2170.709

296.803

first angle mean: 61.671173

first angle stdev: 44.13899

second angle mean: 100.615776

second angle stdev: 15.163833

41.49 48.86

104.16 126.25

left shoulder L\_shoulder -102.45609 -142.68118 1994.3124

right shoulder R\_shoulder -411.91928 -62.523582 2152.8816

309.4632

first angle mean: 61.638783

first angle stdev: 44.110954

second angle mean: 100.62146

second angle stdev: 15.152322

35.55 48.13

110.12 125.24

left shoulder L\_shoulder -73.11453 -113.57704 1998.1946

right shoulder R\_shoulder -395.86584 -56.895176 2140.099

322.7513

first angle mean: 61.596973

first angle stdev: 44.087944

second angle mean: 100.63668

second angle stdev: 15.144943

37.45 46.07

114.66 123.07

left shoulder L\_shoulder -37.39151 -90.52678 2004.6714

right shoulder R\_shoulder -375.6845 -58.989594 2110.031

338.293

first angle mean: 61.55834

first angle stdev: 44.06323

second angle mean: 100.65912

second angle stdev: 15.143197

43.55 41.16

119.57 117.98

left shoulder L\_shoulder -5.413548 -86.31297 2034.8591

right shoulder R\_shoulder -357.03418 -60.44791 2068.3147

351.62064

first angle mean: 61.52957

first angle stdev: 44.033897

second angle mean: 100.68933

second angle stdev: 15.149933

49.36 37.34

125.92 111.9

left shoulder L\_shoulder 13.892159 -78.24186 2065.0398

right shoulder R\_shoulder -334.01114 -67.74695 2031.7971

347.9033

first angle mean: 61.510162

first angle stdev: 44.001446

second angle mean: 100.72957

second angle stdev: 15.171291

54.99 41.47

133.04 103.96

left shoulder L\_shoulder 17.58112 -69.93103 2106.4158

right shoulder R\_shoulder -302.01706 -80.63782 1985.6414

319.59818

first angle mean: 61.499775

first angle stdev: 43.967167

second angle mean: 100.78102

second angle stdev: 15.213852

53.95 51.17

135.17 81.99

left shoulder L\_shoulder -28.959452 -60.183155 2034.9548

right shoulder R\_shoulder -302.1955 -56.53607 1942.1879

273.23605

first angle mean: 61.487778

first angle stdev: 43.93323

second angle mean: 100.835686

second angle stdev: 15.26337

46.42 67.31

126.74 75.87

left shoulder L\_shoulder -21.526205 -80.0566 2011.9352

right shoulder R\_shoulder -261.7831 -70.04523 1899.4282

240.25691

first angle mean: 61.46386

first angle stdev: 43.90245

second angle mean: 100.87681

second angle stdev: 15.286076

35.03 79.52

111.21 29.73

left shoulder L\_shoulder 9.496369 -104.73227 2051.05

right shoulder R\_shoulder -224.0558 -119.846855 1929.3301

233.55217

first angle mean: 61.421967

first angle stdev: 43.880245

second angle mean: 100.89319

second angle stdev: 15.279488

36.79 98.36

111.21 37.38

left shoulder L\_shoulder 18.128841 -122.626434 2068.3586

right shoulder R\_shoulder -209.18474 -161.58188 1951.8868

227.31358

first angle mean: 61.38299

first angle stdev: 43.856445

second angle mean: 100.90951

second angle stdev: 15.2729

40.23 117.51

125.66 63.12

left shoulder L\_shoulder -1.7354414 -129.05147 2111.9348

right shoulder R\_shoulder -211.63486 -185.1915 1961.6917

209.89941

first angle mean: 61.349575

first angle stdev: 43.82984

second angle mean: 100.94861

second angle stdev: 15.292456

47.68 135.06

128.87 69.59

left shoulder L\_shoulder -0.839002 -114.35381 2132.6238

right shoulder R\_shoulder -207.00801 -186.87747 1928.7218

206.169

first angle mean: 61.328014

first angle stdev: 43.798622

second angle mean: 100.99265

second angle stdev: 15.320511

49.48 145.26

128.31 71.47

left shoulder L\_shoulder 2.9359238 -101.011635 2154.7563

right shoulder R\_shoulder -196.50168 -181.35992 1911.5724

199.4376

first angle mean: 61.309357

first angle stdev: 43.766644

second angle mean: 101.03567

second angle stdev: 15.346718

50.44 148.79

127.51 71.84

left shoulder L\_shoulder -0.2613143 -84.130135 2166.0012

right shoulder R\_shoulder -192.63345 -166.67186 1900.9346

192.37215

first angle mean: 61.292267

first angle stdev: 43.734344

second angle mean: 101.07729

second angle stdev: 15.370482

50.39 148.01

126.51 71.17

left shoulder L\_shoulder -9.848551 -72.89026 2169.4712

right shoulder R\_shoulder -203.68341 -149.91502 1896.8037

193.83485

first angle mean: 61.275154

first angle stdev: 43.702133

second angle mean: 101.11722

second angle stdev: 15.391382

49.2 139.89

125.19 68.7

left shoulder L\_shoulder -33.79158 -65.49355 2165.829

right shoulder R\_shoulder -235.34088 -135.05219 1893.6443

201.5493

first angle mean: 61.256226

first angle stdev: 43.670483

second angle mean: 101.15495

second angle stdev: 15.4087715

45.31 125.59

121.57 62.48

left shoulder L\_shoulder -45.811153 -81.84816 2143.5396

right shoulder R\_shoulder -271.60052 -132.98518 1886.7866

225.78937

first angle mean: 61.23127

first angle stdev: 43.64085

second angle mean: 101.1869

second angle stdev: 15.417844

43.0 108.84

119.85 64.73

left shoulder L\_shoulder -48.708054 -96.13045 2157.7986

right shoulder R\_shoulder -301.26025 -140.0917 1927.468

252.5522

first angle mean: 61.20278

first angle stdev: 43.612686

second angle mean: 101.216064

second angle stdev: 15.423418

39.69 88.13

117.6 66.11

left shoulder L\_shoulder -44.68345 -119.40715 2143.8235

right shoulder R\_shoulder -331.69302 -142.669 1969.773

287.00958

first angle mean: 61.169216

first angle stdev: 43.586926

second angle mean: 101.24163

second angle stdev: 15.424943

39.15 74.25

117.24 70.3

left shoulder L\_shoulder -34.007904 -111.86614 2109.1506

right shoulder R\_shoulder -341.2645 -121.88339 1972.4785

307.2566

first angle mean: 61.13492

first angle stdev: 43.561623

second angle mean: 101.26654

second angle stdev: 15.425833

34.33 53.86

112.89 86.91

left shoulder L\_shoulder -40.216095 -84.657265 2086.0125

right shoulder R\_shoulder -360.62552 -74.077385 1971.7476

320.40942

first angle mean: 61.093235

first angle stdev: 43.54055

second angle mean: 101.284615

second angle stdev: 15.420636

30.69 43.28

109.5 100.91

left shoulder L\_shoulder -49.68329 -72.638435 2082.5378

right shoulder R\_shoulder -374.6755 -49.714886 1983.0107

324.99222

first angle mean: 61.046024

first angle stdev: 43.523197

second angle mean: 101.29737

second angle stdev: 15.412054

29.31 37.51

106.76 110.79

left shoulder L\_shoulder -58.35086 -71.75462 2069.9194

right shoulder R\_shoulder -393.08722 -36.815327 2012.2871

334.73636

first angle mean: 60.996822

first angle stdev: 43.507366

second angle mean: 101.30585

second angle stdev: 15.401601

30.9 41.23

104.39 119.51

left shoulder L\_shoulder -79.874855 -75.72807 2043.0818

right shoulder R\_shoulder -420.134 -40.20798 2053.2783

340.25916

first angle mean: 60.95023

first angle stdev: 43.48978

second angle mean: 101.31062

second angle stdev: 15.390154

35.09 44.68

104.82 123.4

left shoulder L\_shoulder -101.89462 -83.112045 2017.6754

right shoulder R\_shoulder -436.94077 -45.932106 2083.8347

335.04614

first angle mean: 60.91026

first angle stdev: 43.46803

second angle mean: 101.31605

second angle stdev: 15.378874

43.45 51.28

105.6 129.51

left shoulder L\_shoulder -130.5658 -98.12701 1975.5051

right shoulder R\_shoulder -440.7243 -56.48942 2126.8103

310.1585

first angle mean: 60.88332

first angle stdev: 43.439884

second angle mean: 101.322655

second angle stdev: 15.367923

64.0 46.89

92.38 122.91

left shoulder L\_shoulder -158.45708 -108.90088 1909.6694

right shoulder R\_shoulder -429.39233 -67.376236 2084.8975

270.93524

first angle mean: 60.888123

first angle stdev: 43.406574

second angle mean: 101.308876

second angle stdev: 15.360084

76.84 41.66

48.14 117.37

left shoulder L\_shoulder -172.83495 -127.13596 1906.1

right shoulder R\_shoulder -433.0233 -81.37094 2096.1184

260.18835

first angle mean: 60.912663

first angle stdev: 43.377678

second angle mean: 101.22708

second angle stdev: 15.489081

101.41 43.65

47.7 121.83

left shoulder L\_shoulder -194.37949 -155.76851 1900.0225

right shoulder R\_shoulder -432.66223 -96.2099 2113.6047

238.28275

first angle mean: 60.97487

first angle stdev: 43.373356

second angle mean: 101.14486

second angle stdev: 15.618499

121.38 46.5

62.48 125.59

left shoulder L\_shoulder -212.77489 -173.6485 1915.0653

right shoulder R\_shoulder -430.2428 -97.62991 2140.1729

217.46791

first angle mean: 61.067516

first angle stdev: 43.404495

second angle mean: 101.085556

second angle stdev: 15.679693

133.3 47.77

79.74 127.24

left shoulder L\_shoulder -220.98477 -181.95305 1903.4363

right shoulder R\_shoulder -425.28012 -92.15652 2136.7048

204.29535

first angle mean: 61.17813

first angle stdev: 43.463123

second angle mean: 101.05287

second angle stdev: 15.689899

145.27 50.63

77.87 129.51

left shoulder L\_shoulder -227.8878 -181.79129 1893.1514

right shoulder R\_shoulder -427.02145 -73.43418 2142.547

199.13365

first angle mean: 61.306713

first angle stdev: 43.553997

second angle mean: 101.01742

second angle stdev: 15.704046

150.64 54.34

81.99 133.35

left shoulder L\_shoulder -229.34834 -179.12816 1904.1104

right shoulder R\_shoulder -439.88638 -53.86755 2136.0815

210.53804

first angle mean: 61.4431

first angle stdev: 43.660282

second angle mean: 100.98837

second angle stdev: 15.709628

148.91 58.05

90.16 136.53

left shoulder L\_shoulder -224.96458 -178.29848 1932.2036

right shoulder R\_shoulder -449.4375 -34.48222 2138.9348

224.47292

first angle mean: 61.576435

first angle stdev: 43.760242

second angle mean: 100.971855

second angle stdev: 15.703334

137.18 57.56

91.05 136.45

left shoulder L\_shoulder -207.80017 -178.81413 1952.7306

right shoulder R\_shoulder -451.25845 -29.828005 2131.1

243.45828

first angle mean: 61.691505

first angle stdev: 43.82614

second angle mean: 100.956764

second angle stdev: 15.696145

120.76 56.59

90.34 135.79

left shoulder L\_shoulder -186.67578 -175.76135 1977.692

right shoulder R\_shoulder -451.45935 -34.446114 2127.7246

264.78357

first angle mean: 61.78128

first angle stdev: 43.853233

second angle mean: 100.94062

second angle stdev: 15.689665

robot count: 8

ROBOT: Exercise 106.5 56.97

89.75 136.09

left shoulder L\_shoulder -170.15575 -173.23643 2005.3296

right shoulder R\_shoulder -453.67313 -44.43875 2127.1897

283.5174

first angle mean: 61.849136raising\_hands\_diagonally\_notool

done

first angle stdev: TRAINING: Exercise 43.854507

raising\_hands\_diagonally\_notoolsecond angle mean: 100.923645

second angle stdev: done

15.683806

C:\Users\yaels\יעל פרוייקט גמר\zedcheck\Excel.py:287: UserWarning: Starting a Matplotlib GUI outside of the main thread will likely fail.

plt.plot(plot\_data['x'], plot\_data['y'])

Directory created or already exists: Patients/1111/Graphs/raising\_hands\_diagonally\_notool/28-06-2024 16-02-12

C:\Users\yaels\יעל פרוייקט גמר\zedcheck\Excel.py:287: UserWarning: Starting a Matplotlib GUI outside of the main thread will likely fail.

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Directory created or already exists: Patients/1111/Graphs/raising\_hands\_diagonally\_notool/28-06-2024 16-02-12

CAMERA: Exercise raising\_hands\_diagonally\_notool done