orb path analysis test 4

2023-05-08

```r
library(ggplot2)
library(dplyr)
```

```
##
## Attaching package: 'dplyr'
```

```
## The following objects are masked from 'package:stats':
##
##     filter, lag
```

```
## The following objects are masked from 'package:base':
##
##     intersect, setdiff, setequal, union
```

```r
#read in data
orbpath <- read.csv("orb_path.csv")
eyepath <- read.csv("cleaned.csv")

orbpath <- orbpath %>%
  rename(time = time..seconds.)
eyepath <- eyepath %>%
  rename(time = time..milliseconds.)

combined <- eyepath %>%
  inner_join(orbpath, by = "time", suffix = c("_eye", "_orb"))

combined <- combined %>%
  mutate(time = time - 1683076323472)

combined
```

```
##     time        x_eye          y_eye  z          x_orb       y_orb
## 1     65 -12.6773648   0.8767583385 36 -11.543530000    0.000000
## 2     75 -12.4728408   0.9233437014 36 -11.435630000    0.000000
## 3    155 -13.3407231   0.2536647648 36 -10.637880000    0.000000
## 4    165 -13.3625100   0.1632203431 36 -10.539830000    0.000000
## 5    220 -13.2906471  -0.3404498373 36  -9.990326000    0.000000
## 6    275 -13.2001791  -0.6849152958 36  -9.440666000    0.000000
## 7    330 -12.3815169  -0.6027442932 36  -8.884743000    0.000000
## 8    375 -11.6508226  -0.3023351689 36  -8.440127000    0.000000
## 9    420 -11.1679914  -0.1311702079 36  -7.986686000    0.000000
## 10   430 -11.0806420  -0.0811025814 36  -7.884455000    0.000000
## 11   475 -10.5826801   0.0626771181 36  -7.440002000    0.000000
```

```
## 12  520 -10.0425600  0.0657570751 36  -6.997579000  0.000000
## 13  530  -9.9061440  0.0633784990 36  -6.892639000  0.000000
## 14  540  -9.7698907  0.0595749312 36  -6.790591000  0.000000
## 15  585  -9.0804795  0.0914766749 36  -6.339866000  0.000000
## 16  595  -8.9377670  0.0857900254 36  -6.240160000  0.000000
## 17  640  -8.3842287  0.0552762993 36  -5.793255000  0.000000
## 18  740  -7.2826406  0.0225097188 36  -4.791699000  0.000000
## 19  785  -6.7233060  0.0007510395 36  -4.337853000  0.000000
## 20  795  -6.5616746  0.0026143272 36  -4.239283000  0.000000
## 21  885  -5.6736097 -0.1371065513 36  -3.338565000  0.000000
## 22  940  -5.1792944 -0.0305757359 36  -2.791332000  0.000000
## 23  985  -4.4821497  0.0505353332 36  -2.339314000  0.000000
## 24  995  -4.3218440  0.0680665724 36  -2.237078000  0.000000
## 25 1085  -2.9636138  0.0894418616 36  -1.339339000  0.000000
## 26 1095  -2.8203904  0.0888275264 36  -1.235107000  0.000000
## 27 1140  -2.1756874  0.1256195597 36  -0.794115300  0.000000
## 28 1220  -1.2838779  0.1636831332 36   0.006989673  0.000000
## 29 1240  -1.1152097  0.1712394021 36   0.207716700  0.000000
## 30 1285  -0.5752175  0.1722875367 36   0.654377700  0.000000
## 31 1295  -0.4460832  0.1759326412 36   0.761342700  0.000000
## 32 1340   0.1788605  0.1805619323 36   1.206132000  0.000000
## 33 1440   1.4643150  0.1689685136 36   1.330239000  0.880511
## 34 1495   2.0689158  0.1695481761 36   1.330239000  1.435442
## 35 1520   2.3351931  0.1623862058 36   1.330239000  1.674320
## 36 1540   2.5295336  0.1597340740 36   1.330239000  1.877999
## 37 1595   2.9110608  0.1618841560 36   1.330239000  2.434932
## 38 1640   2.0887695  2.4991037235 36   1.330239000  2.880705
## 39 1695   1.4935652  3.0854260425 36   1.330239000  3.433792
## 40 1720   1.4285580  3.1884607094 36   1.330239000  3.671790
## 41 1840   1.2084657  5.7218623576 36   1.330239000  4.880062
## 42 1940   1.0313932  6.6585354986 36   1.330239000  5.884378
## 43 1986   1.0092550  7.1576134999 36   1.330239000  6.342009
## 44 1996   1.0134640  7.3054578028 36   1.330239000  6.443461
## 45 2041   1.0252263  7.6410273626 36   1.330239000  6.882800
## 46 2096   1.0405648  7.9029095061 36   1.330239000  7.438388
## 47 2186   0.7789446  9.6266716311 36   1.330239000  8.342498
## 48 2196   0.7676334  9.7231366301 36   1.330239000  8.444845
## 49 2286   0.7389165 10.2634485950 36   1.330239000  9.341666
## 50 2341   0.7114803 10.5281442925 36   1.330239000  9.885980
## 51 2386   0.7325684 11.4410864806 36   1.330239000 10.339630
## 52 2396   0.7555881 11.6910677600 36   1.330239000 10.438870
## 53 2441   0.8373557 12.1621164806 36   1.330239000 10.883850
## 54 2496   0.9114072 12.5219948495 36   1.330239000 11.437810
## 55 2586   0.9445070 13.4771954193 36   1.330239000 12.337780
## 56 2596   0.9681568 13.7371539531 36   1.330239000 12.439080
## 57 2686   1.0559480 14.4957885155 36   1.330239000 13.342490
## 58 2696   1.0555371 14.5410260083 36   1.330239000 13.439030
## 59 2751   1.0579669 14.8219662346 36   1.330239000 13.994000
## 60 2796   1.0476998 14.9762456137 36   1.330239000 14.438960
## 61 2886   1.0506558 15.3943993984 36   1.330239000 15.333770
## 62 2896   1.0514940 15.4466821886 36   1.330239000 15.439030
## 63 2941   1.0865522 15.8117456797 36   1.330239000 15.886570
## 64 2986   1.0884485 15.9128595390 36   1.330239000 16.338670
## 65 2996   1.0829603 15.9287273019 36   1.330239000 16.438540
```
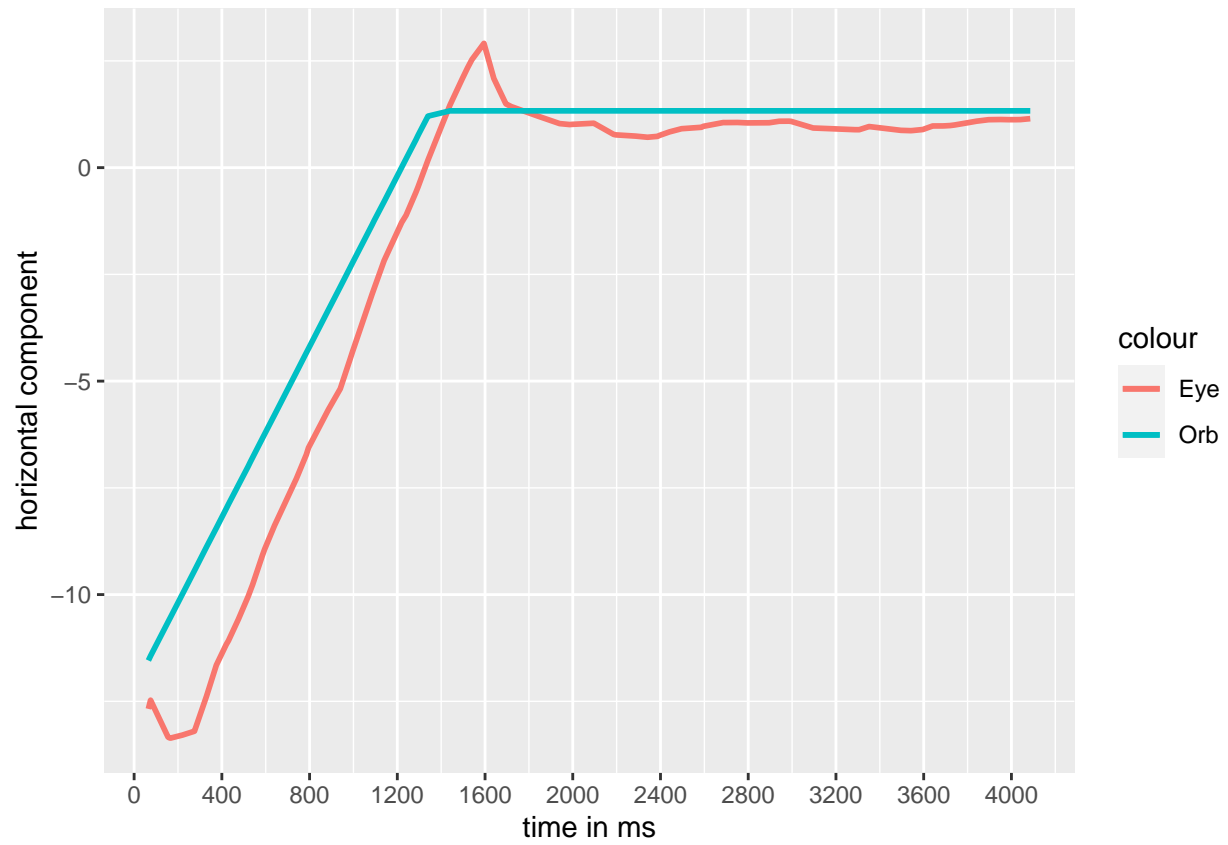
```
## 66 3096   0.9287741 15.9913337826 36   1.330239000 17.443310
## 67 3286   0.8888865 17.0620595535 36   1.330239000 19.332740
## 68 3306   0.8885500 17.3548416866 36   1.330239000 19.544490
## 69 3351   0.9624587 17.3809471477 36   1.330239000 19.994660
## 70 3496   0.8735262 17.2391808868 36   1.330239000 21.438950
## 71 3541   0.8657694 17.2380050519 36   1.330239000 21.883130
## 72 3551   0.8700808 17.2384279783 36   1.330239000 21.994540
## 73 3596   0.8928633 17.2318312638 36   1.330239000 22.441560
## 74 3641   0.9759098 17.2598553798 36   1.330239000 22.884670
## 75 3686   0.9766304 17.2529663356 36   1.330239000 23.333770
## 76 3696   0.9784509 17.2492386205 36   1.330239000 23.438930
## 77 3721   0.9857640 17.2453314721 36   1.330239000 23.682990
## 78 3741   0.9990936 17.2383321665 36   1.330239000 23.886650
## 79 3786   1.0382094 17.2108295740 36   1.330239000 24.341700
## 80 3796   1.0471112 17.2080074600 36   1.330239000 24.443450
## 81 3841   1.0875551 17.1879939321 36   1.330239000 24.888850
## 82 3896   1.1225455 17.1420235895 36   1.330239000 25.443740
## 83 3951   1.1268483 17.1112990183 36   1.330239000 25.997540
## 84 3986   1.1236624 17.0953995492 36   1.330239000 26.344780
## 85 3996   1.1236539 17.0878752416 36   1.330239000 26.443100
## 86 4021   1.1231205 17.0657346840 36   1.330239000 26.684040
## 87 4041   1.1250850 17.0514286027 36   1.330239000 26.889980
## 88 4086   1.1470015 17.0258524871 36   1.330239000 27.336400
```

```r
xComp <- ggplot(combined, aes(x = time, y = x_orb)) +
  geom_line(aes(x = time, y = x_eye, color = "Eye"), size = 1) +
  geom_line(aes(x = time, y = x_orb, color = "Orb"), size = 1) +
  labs(x = "time in ms", y = "horizontal component") +
  scale_x_continuous(breaks = seq(0, 4000, by = 400))
```

```
## Warning: Using 'size' aesthetic for lines was deprecated in ggplot2 3.4.0.
## i Please use 'linewidth' instead.
## This warning is displayed once every 8 hours.
## Call 'lifecycle::last_lifecycle_warnings()' to see where this warning was
## generated.
```

```r
yComp <- ggplot(combined, aes(x = time, y = y_orb)) +
  geom_line(aes(x = time, y = y_eye, color = "Eye"), size = 1) +
  geom_line(aes(x = time, y = y_orb, color = "Orb"), size = 1) +
  labs(x = "time in ms", y = "vertical component") +
  scale_x_continuous(breaks = seq(0, 4000, by = 400))

xComp
```

yComp