C:\Users\whitn\Anaconda2\envs\ml4qs2\python.exe C:/Users/whitn/OneDrive/Documenten/Groupwork\_TommyErik/ML4QS/ML4QS-master/PythonCode/crowdsignals\_ch8\_REGRESSION\_question2.py

Training set length is: 482

Test set length is: 231

#basic features: 8

#PCA features: 7

#time features: 300

#frequency features: 405

#cluster features: 1

These were the selected\_feautures returned by Forward Selection:

['pca\_2', 'pca\_7', 'pca\_1', 'acc\_phone\_x\_freq\_0.2\_Hz\_ws\_10', 'gyr\_phone\_y\_freq\_0.5\_Hz\_ws\_10', 'pca\_4\_temp\_mean\_ws\_30\_freq\_0.3\_Hz\_ws\_10', 'pca\_2\_pse', 'pca\_2\_temp\_std\_ws\_30\_freq\_0.4\_Hz\_ws\_10', 'pca\_2\_temp\_mean\_ws\_30\_freq\_0.4\_Hz\_ws\_10', 'acc\_phone\_x\_pse']

These were the ordered\_feautures returned by Forward Selection:

['pca\_2', 'pca\_7', 'pca\_1', 'acc\_phone\_x\_freq\_0.2\_Hz\_ws\_10', 'gyr\_phone\_y\_freq\_0.5\_Hz\_ws\_10', 'pca\_4\_temp\_mean\_ws\_30\_freq\_0.3\_Hz\_ws\_10', 'pca\_2\_pse', 'pca\_2\_temp\_std\_ws\_30\_freq\_0.4\_Hz\_ws\_10', 'pca\_2\_temp\_mean\_ws\_30\_freq\_0.4\_Hz\_ws\_10', 'acc\_phone\_x\_pse']

These were the ordered\_scores returned by Forward Selection:

[0.27694005522521536, 0.15690780856707756, 0.019806518036515109, 0.013601482962805249, 0.010164817173966868, 0.0086026724530513903, 0.007690422716524984, 0.0069886147828219511, 0.0065537227439937092, 0.006378903256375675]

\_\_\_\_\_\_\_\_

We will go ahead with this top 10 of features, which we define as selected\_features in the remainder of this script

**['pca\_2', 'pca\_7', 'pca\_1', 'acc\_phone\_x\_freq\_0.2\_Hz\_ws\_10', 'gyr\_phone\_y\_freq\_0.5\_Hz\_ws\_10', 'pca\_4\_temp\_mean\_ws\_30\_freq\_0.3\_Hz\_ws\_10', 'pca\_2\_pse', 'pca\_2\_temp\_std\_ws\_30\_freq\_0.4\_Hz\_ws\_10', 'pca\_2\_temp\_mean\_ws\_30\_freq\_0.4\_Hz\_ws\_10', 'acc\_phone\_x\_pse']**

(nan, nan, 0L, 653L, {'5%': -2.8659762600625189, '1%': -3.4404038931945276, '10%': -2.5691324834372633}, nan)

---- 0

[0.6, 400]

[0.6, 700]

[0.6, 1000]

[0.8, 400]

[0.8, 700]

[0.8, 1000]

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[0.8, 1000]

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[50, True, 250]

[50, True, 500]

[100, True, 250]

[100, True, 500]

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[50, True, 250]

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---- 1

[0.6, 400]

[0.6, 700]

[0.6, 1000]

[0.8, 400]

[0.8, 700]

[0.8, 1000]

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[0.8, 700]

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[50, True, 250]

[50, True, 500]

[100, True, 250]

[100, True, 500]

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[50, True, 250]

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---- 2

[0.6, 400]

[0.6, 700]

[0.6, 1000]

[0.8, 400]

[0.8, 700]

[0.8, 1000]

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[0.8, 1000]

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[50, True, 250]

[50, True, 500]

[100, True, 250]

[100, True, 500]

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[100, True, 500]

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---- 3

[0.6, 400]

[0.6, 700]

[0.6, 1000]

[0.8, 400]

[0.8, 700]

[0.8, 1000]

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[0.8, 1000]

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[50, True, 250]

[50, True, 500]

[100, True, 250]

[100, True, 500]

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[100, True, 250]

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---- 4

[0.6, 400]

[0.6, 700]

[0.6, 1000]

[0.8, 400]

[0.8, 700]

[0.8, 1000]

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[0.6, 1000]

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[50, True, 250]

[50, True, 500]

[100, True, 250]

[100, True, 500]

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[50, True, 250]

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[0, 0, 1]

Normal ARIMAX(0,0,0)

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Dependent Variable: gyr\_phone\_x Method: MLE

Start Date: 1970-01-01 00:00:00 Log Likelihood: -419.2667

End Date: 1970-01-01 00:05:00 AIC: 858.5334

Number of observations: 337 BIC: 896.7342

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Latent Variable Estimate Std Error z P>|z| 95% C.I.

======================================== ========== ========== ======== ======== =========================

Beta 1 0.2395 0.3097 0.7732 0.4394 (-0.3676 | 0.8466)

Beta acc\_phone\_x 0.0528 0.0226 2.3428 0.0191 (0.0086 | 0.0971)

Beta acc\_phone\_y -0.0145 0.014 -1.0389 0.2989 (-0.0419 | 0.0129)

Beta acc\_phone\_z 0.1335 0.0211 6.3349 0.0 (0.0922 | 0.1748)

Beta gyr\_phone\_y 0.7894 0.0667 11.8321 0.0 (0.6587 | 0.9202)

Beta gyr\_phone\_z 0.3399 0.1995 1.7034 0.0885 (-0.0512 | 0.731)

Beta mag\_phone\_x 0.0018 0.0041 0.4443 0.6568 (-0.0062 | 0.0099)

Beta mag\_phone\_y 0.0088 0.0072 1.2275 0.2196 (-0.0053 | 0.0229)

Beta mag\_phone\_z -0.0111 0.0033 -3.3399 0.0008 (-0.0175 | -0.0046)

Normal Scale 0.8396

==========================================================================================================

[0, 5, 1]

Normal ARIMAX(0,0,5)

======================================================= ==================================================

Dependent Variable: gyr\_phone\_x Method: MLE

Start Date: 1970-01-01 00:00:00 Log Likelihood: -328.906

End Date: 1970-01-01 00:05:00 AIC: 687.812

Number of observations: 332 BIC: 744.889

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Latent Variable Estimate Std Error z P>|z| 95% C.I.

======================================== ========== ========== ======== ======== =========================

MA(1) 0.3455 0.0376 9.2007 0.0 (0.2719 | 0.4192)

MA(2) -0.0458 0.0292 -1.5709 0.1162 (-0.103 | 0.0113)

MA(3) -0.4692 0.0532 -8.8223 0.0 (-0.5734 | -0.3649)

MA(4) -0.5266 0.0331 -15.9141 0.0 (-0.5914 | -0.4617)

MA(5) -0.3769 0.0339 -11.1062 0.0 (-0.4434 | -0.3104)

Beta 1 0.0128 0.1798 0.0712 0.9432 (-0.3396 | 0.3652)

Beta acc\_phone\_x -0.0202 0.0059 -3.4178 0.0006 (-0.0317 | -0.0086)

Beta acc\_phone\_y 0.0125 0.0093 1.3498 0.1771 (-0.0057 | 0.0307)

Beta acc\_phone\_z 0.0342 0.0166 2.0578 0.0396 (0.0016 | 0.0668)

Beta gyr\_phone\_y 0.7419 0.0448 16.5697 0.0 (0.6541 | 0.8297)

Beta gyr\_phone\_z 0.0528 0.0762 0.6922 0.4888 (-0.0966 | 0.2022)

Beta mag\_phone\_x -0.0003 0.0011 -0.2725 0.7853 (-0.0024 | 0.0018)

Beta mag\_phone\_y 0.0045 0.0036 1.2411 0.2146 (-0.0026 | 0.0115)

Beta mag\_phone\_z -0.0014 0.0007 -1.9733 0.0485 (-0.0028 | 0.0)

Normal Scale 0.6727

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[5, 0, 1]

Normal ARIMAX(5,0,0)

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Dependent Variable: gyr\_phone\_x Method: MLE

Start Date: 1970-01-01 00:00:00 Log Likelihood: -311.1799

End Date: 1970-01-01 00:05:00 AIC: 652.3599

Number of observations: 332 BIC: 709.4369

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Latent Variable Estimate Std Error z P>|z| 95% C.I.

======================================== ========== ========== ======== ======== =========================

AR(1) 0.3922 0.04 9.8 0.0 (0.3137 | 0.4706)

AR(2) 0.0639 0.0384 1.6626 0.0964 (-0.0114 | 0.1392)

AR(3) -0.1031 0.0381 -2.7081 0.0068 (-0.1777 | -0.0285)

AR(4) -0.1235 0.0385 -3.2032 0.0014 (-0.199 | -0.0479)

AR(5) -0.0271 0.0382 -0.711 0.4771 (-0.1019 | 0.0477)

Beta 1 0.0147 0.239 0.0615 0.951 (-0.4538 | 0.4832)

Beta acc\_phone\_x -0.0162 0.0175 -0.9264 0.3543 (-0.0506 | 0.0181)

Beta acc\_phone\_y 0.0013 0.0104 0.1216 0.9032 (-0.0192 | 0.0217)

Beta acc\_phone\_z 0.0666 0.0163 4.0726 0.0 (0.0345 | 0.0986)

Beta gyr\_phone\_y 0.8642 0.0537 16.0904 0.0 (0.7589 | 0.9695)

Beta gyr\_phone\_z -0.1853 0.1621 -1.143 0.253 (-0.5029 | 0.1324)

Beta mag\_phone\_x 0.0002 0.0032 0.0726 0.9421 (-0.0061 | 0.0066)

Beta mag\_phone\_y 0.0037 0.0054 0.6788 0.4973 (-0.007 | 0.0144)

Beta mag\_phone\_z -0.0007 0.0027 -0.2482 0.804 (-0.0059 | 0.0046)

Normal Scale 0.6178

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[5, 5, 1]

Normal ARIMAX(5,0,5)

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Dependent Variable: gyr\_phone\_x Method: MLE

Start Date: 1970-01-01 00:00:00 Log Likelihood: -296.7829

End Date: 1970-01-01 00:05:00 AIC: 633.5658

Number of observations: 332 BIC: 709.6685

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Latent Variable Estimate Std Error z P>|z| 95% C.I.

======================================== ========== ========== ======== ======== =========================

AR(1) 0.3982 0.0335 11.88 0.0 (0.3325 | 0.4639)

AR(2) 0.1131 0.0355 3.188 0.0014 (0.0436 | 0.1826)

AR(3) 0.0054 0.0435 0.1247 0.9007 (-0.0798 | 0.0907)

AR(4) -0.0874 0.0417 -2.0948 0.0362 (-0.1691 | -0.0056)

AR(5) -0.0065 0.0459 -0.1413 0.8876 (-0.0965 | 0.0835)

MA(1) -0.0973 0.079 -1.231 0.2183 (-0.2521 | 0.0576)

MA(2) -0.2458 0.0148 -16.6093 0.0 (-0.2748 | -0.2168)

MA(3) -0.416 0.0555 -7.4955 0.0 (-0.5248 | -0.3073)

MA(4) -0.2187 0.0617 -3.5454 0.0004 (-0.3396 | -0.0978)

MA(5) -0.0662 0.0557 -1.1895 0.2342 (-0.1753 | 0.0429)

Beta 1 0.0154 0.0461 0.3337 0.7386 (-0.0749 | 0.1057)

Beta acc\_phone\_x -0.0055 0.0021 -2.5999 0.0093 (-0.0097 | -0.0014)

Beta acc\_phone\_y -0.0071 0.0065 -1.0864 0.2773 (-0.0199 | 0.0057)

Beta acc\_phone\_z 0.0534 0.017 3.1386 0.0017 (0.0201 | 0.0868)

Beta gyr\_phone\_y 0.9041 0.0441 20.5036 0.0 (0.8177 | 0.9905)

Beta gyr\_phone\_z -0.0506 0.1423 -0.3555 0.7222 (-0.3296 | 0.2284)

Beta mag\_phone\_x -0.0006 0.0004 -1.6739 0.0942 (-0.0014 | 0.0001)

Beta mag\_phone\_y 0.0018 0.001 1.831 0.0671 (-0.0001 | 0.0036)

Beta mag\_phone\_z -0.0005 0.0004 -1.3487 0.1774 (-0.0013 | 0.0002)

Normal Scale 0.5886

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[5, 0, 1]

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Normal ARIMAX(5,0,0)

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Dependent Variable: gyr\_phone\_x Method: MLE

Start Date: 1970-01-01 00:00:00 Log Likelihood: -448.2482

End Date: 1970-01-01 00:07:00 AIC: 926.4965

Number of observations: 477 BIC: 989.0092

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Latent Variable Estimate Std Error z P>|z| 95% C.I.

======================================== ========== ========== ======== ======== =========================

AR(1) 0.3718 0.0339 10.9737 0.0 (0.3054 | 0.4382)

AR(2) 0.0644 0.0318 2.0232 0.0431 (0.002 | 0.1267)

AR(3) -0.0896 0.0311 -2.8827 0.0039 (-0.1505 | -0.0287)

AR(4) -0.1591 0.0314 -5.0757 0.0 (-0.2206 | -0.0977)

AR(5) -0.0313 0.0317 -0.9875 0.3234 (-0.0933 | 0.0308)

Beta 1 -0.0023 0.1771 -0.0132 0.9895 (-0.3494 | 0.3447)

Beta acc\_phone\_x 0.002 0.0156 0.1302 0.8964 (-0.0285 | 0.0325)

Beta acc\_phone\_y -0.0007 0.0082 -0.0821 0.9346 (-0.0168 | 0.0155)

Beta acc\_phone\_z 0.0557 0.0136 4.0917 0.0 (0.029 | 0.0824)

Beta gyr\_phone\_y 0.8663 0.0454 19.0881 0.0 (0.7773 | 0.9552)

Beta gyr\_phone\_z -0.2136 0.1355 -1.5768 0.1148 (-0.4792 | 0.0519)

Beta mag\_phone\_x 0.002 0.0024 0.8283 0.4075 (-0.0027 | 0.0067)

Beta mag\_phone\_y 0.0026 0.0043 0.5952 0.5517 (-0.0059 | 0.011)

Beta mag\_phone\_z 0.0 0.0022 -0.0002 0.9999 (-0.0044 | 0.0044)

Normal Scale 0.6192

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[(3.1451179297896061, 3.8472382725089331, 2.0835104240195594, 2.2171244667317618), (5.3645999199606411, 5.9065821339893088, 0.5661667533651471, 1.1480857921565761), (2.7087860256436684, 3.3539574920981843, 0.42364515892344012, 1.0777516712310715)]

initial set & 3.1451 \emph{( 3.8472 )} & 2.0835 \emph{( 2.2171 )} & 5.3646 \emph{( 5.9066 )} & 0.5662 \emph{( 1.1481 )} & 2.7088 \emph{( 3.3540 )} & 0.4236 \emph{( 1.0778 )} \\\hline

---- 0

[0.6, 400]

[0.6, 700]

[0.6, 1000]

[0.8, 400]

[0.8, 700]

[0.8, 1000]

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[0.8, 1000]

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[50, True, 250]

[50, True, 500]

[100, True, 250]

[100, True, 500]

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[50, True, 500]

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---- 1

[0.6, 400]

[0.6, 700]

[0.6, 1000]

[0.8, 400]

[0.8, 700]

[0.8, 1000]

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[0.8, 700]

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[50, True, 250]

[50, True, 500]

[100, True, 250]

[100, True, 500]

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[100, True, 500]

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---- 2

[0.6, 400]

[0.6, 700]

[0.6, 1000]

[0.8, 400]

[0.8, 700]

[0.8, 1000]

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[0.8, 1000]

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[50, True, 250]

[50, True, 500]

[100, True, 250]

[100, True, 500]

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[50, True, 500]

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---- 3

[0.6, 400]

[0.6, 700]

[0.6, 1000]

[0.8, 400]

[0.8, 700]

[0.8, 1000]

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[0.8, 700]

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[50, True, 250]

[50, True, 500]

[100, True, 250]

[100, True, 500]

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[50, True, 500]

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---- 4

[0.6, 400]

[0.6, 700]

[0.6, 1000]

[0.8, 400]

[0.8, 700]

[0.8, 1000]

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[0.8, 1000]

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[50, True, 250]

[50, True, 500]

[100, True, 250]

[100, True, 500]

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[50, True, 500]

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[(3.0977172128184343, 3.7960624141217862, 0.50377231314547088, 1.2578649538777484), (6.1020390669647711, 6.3838399428643715, 0.48429819290377552, 1.2555621357400411), (0, 0, 0, 0)]

Chapter 3 & 3.0977 \emph{( 3.7961 )} & 0.5038 \emph{( 1.2579 )} & 6.1020 \emph{( 6.3838 )} & 0.4843 \emph{( 1.2556 )} & 0.0000 \emph{( 0.0000 )} & 0.0000 \emph{( 0.0000 )} \\\hline

---- 0

[0.6, 400]

[0.6, 700]

[0.6, 1000]

[0.8, 400]

[0.8, 700]

[0.8, 1000]

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[0.6, 400]

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[50, True, 250]

[50, True, 500]

[100, True, 250]

[100, True, 500]

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[50, True, 250]

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---- 1

[0.6, 400]

[0.6, 700]

[0.6, 1000]

[0.8, 400]

[0.8, 700]

[0.8, 1000]

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[0.8, 1000]

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[50, True, 250]

[50, True, 500]

[100, True, 250]

[100, True, 500]

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[50, True, 500]

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---- 2

[0.6, 400]

[0.6, 700]

[0.6, 1000]

[0.8, 400]

[0.8, 700]

[0.8, 1000]

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[0.6, 400]

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[50, True, 250]

[50, True, 500]

[100, True, 250]

[100, True, 500]

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[50, True, 500]

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---- 3

[0.6, 400]

[0.6, 700]

[0.6, 1000]

[0.8, 400]

[0.8, 700]

[0.8, 1000]

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[0.8, 400]

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[50, True, 250]

[50, True, 500]

[100, True, 250]

[100, True, 500]

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[50, True, 500]

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---- 4

[0.6, 400]

[0.6, 700]

[0.6, 1000]

[0.8, 400]

[0.8, 700]

[0.8, 1000]

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[0.6, 700]

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[50, True, 250]

[50, True, 500]

[100, True, 250]

[100, True, 500]

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[50, True, 250]

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[(3.0972667430892216, 3.7956941299038087, 1.5153432557523268, 1.7973400423265802), (5.4665060942632993, 5.9577224701814533, 2.926689190007822, 3.2230588988564279), (0, 0, 0, 0)]

Chapter 4 & 3.0973 \emph{( 3.7957 )} & 1.5153 \emph{( 1.7973 )} & 5.4665 \emph{( 5.9577 )} & 2.9267 \emph{( 3.2231 )} & 0.0000 \emph{( 0.0000 )} & 0.0000 \emph{( 0.0000 )} \\\hline

---- 0

[0.6, 400]

[0.6, 700]

[0.6, 1000]

[0.8, 400]

[0.8, 700]

[0.8, 1000]

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[0.6, 400]

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[50, True, 250]

[50, True, 500]

[100, True, 250]

[100, True, 500]

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[50, True, 250]

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---- 1

[0.6, 400]

[0.6, 700]

[0.6, 1000]

[0.8, 400]

[0.8, 700]

[0.8, 1000]

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[0.6, 400]

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[50, True, 250]

[50, True, 500]

[100, True, 250]

[100, True, 500]

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[50, True, 500]

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---- 2

[0.6, 400]

[0.6, 700]

[0.6, 1000]

[0.8, 400]

[0.8, 700]

[0.8, 1000]

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[0.6, 700]

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[50, True, 250]

[50, True, 500]

[100, True, 250]

[100, True, 500]

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[50, True, 250]

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---- 3

[0.6, 400]

[0.6, 700]

[0.6, 1000]

[0.8, 400]

[0.8, 700]

[0.8, 1000]

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[0.8, 1000]

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[50, True, 250]

[50, True, 500]

[100, True, 250]

[100, True, 500]

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[50, True, 500]

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---- 4

[0.6, 400]

[0.6, 700]

[0.6, 1000]

[0.8, 400]

[0.8, 700]

[0.8, 1000]

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[0.6, 400]

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[50, True, 250]

[50, True, 500]

[100, True, 250]

[100, True, 500]

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[50, True, 250]

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[(3.0974176217741927, 3.7957851475171678, 1.2385367265024358, 1.7338435594508994), (5.4970871344820793, 5.9755752202552799, 2.7678360864696945, 3.071050812431289), (0, 0, 0, 0)]

Chapter 5 & 3.0974 \emph{( 3.7958 )} & 1.2385 \emph{( 1.7338 )} & 5.4971 \emph{( 5.9756 )} & 2.7678 \emph{( 3.0711 )} & 0.0000 \emph{( 0.0000 )} & 0.0000 \emph{( 0.0000 )} \\\hline

---- 0

[0.6, 400]

[0.6, 700]

[0.6, 1000]

[0.8, 400]

[0.8, 700]

[0.8, 1000]

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[0.6, 1000]

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[50, True, 250]

[50, True, 500]

[100, True, 250]

[100, True, 500]

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[50, True, 250]

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---- 1

[0.6, 400]

[0.6, 700]

[0.6, 1000]

[0.8, 400]

[0.8, 700]

[0.8, 1000]

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[0.8, 1000]

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[50, True, 250]

[50, True, 500]

[100, True, 250]

[100, True, 500]

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[100, True, 250]

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---- 2

[0.6, 400]

[0.6, 700]

[0.6, 1000]

[0.8, 400]

[0.8, 700]

[0.8, 1000]

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[0.8, 1000]

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[50, True, 250]

[50, True, 500]

[100, True, 250]

[100, True, 500]

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[50, True, 250]

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---- 3

[0.6, 400]

[0.6, 700]

[0.6, 1000]

[0.8, 400]

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[0.6, 1000]

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[50, True, 250]

[50, True, 500]

[100, True, 250]

[100, True, 500]

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[50, True, 250]

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---- 4

[0.6, 400]

[0.6, 700]

[0.6, 1000]

[0.8, 400]

[0.8, 700]

[0.8, 1000]

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[0.8, 700]

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[50, True, 250]

[50, True, 500]

[100, True, 250]

[100, True, 500]

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[50, True, 250]

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[(3.1043882295113194, 3.8019535728479639, 3.5048823926970245, 2.9056052202287161), (6.1762370062070229, 6.5375147375066316, 0.52407074835479694, 1.2462975757451713), (0, 0, 0, 0)]

Selected features & 3.1044 \emph{( 3.8020 )} & 3.5049 \emph{( 2.9056 )} & 6.1762 \emph{( 6.5375 )} & 0.5241 \emph{( 1.2463 )} & 0.0000 \emph{( 0.0000 )} & 0.0000 \emph{( 0.0000 )} \\\hline

[0.6, 400]

[0.6, 700]

[0.6, 1000]

[0.8, 400]

[0.8, 700]

[0.8, 1000]

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[0.6, 1000]

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[50, True, 250]

[50, True, 500]

[100, True, 250]

[100, True, 500]

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[100, True, 250]

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[0, 0, 1]

Normal ARIMAX(0,0,0)

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Dependent Variable: gyr\_phone\_x Method: MLE

Start Date: 1970-01-01 00:00:00 Log Likelihood: -419.2667

End Date: 1970-01-01 00:05:00 AIC: 858.5334

Number of observations: 337 BIC: 896.7342

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Latent Variable Estimate Std Error z P>|z| 95% C.I.

======================================== ========== ========== ======== ======== =========================

Beta 1 0.2395 0.3097 0.7732 0.4394 (-0.3676 | 0.8466)

Beta acc\_phone\_x 0.0528 0.0226 2.3428 0.0191 (0.0086 | 0.0971)

Beta acc\_phone\_y -0.0145 0.014 -1.0389 0.2989 (-0.0419 | 0.0129)

Beta acc\_phone\_z 0.1335 0.0211 6.3349 0.0 (0.0922 | 0.1748)

Beta gyr\_phone\_y 0.7894 0.0667 11.8321 0.0 (0.6587 | 0.9202)

Beta gyr\_phone\_z 0.3399 0.1995 1.7034 0.0885 (-0.0512 | 0.731)

Beta mag\_phone\_x 0.0018 0.0041 0.4443 0.6568 (-0.0062 | 0.0099)

Beta mag\_phone\_y 0.0088 0.0072 1.2275 0.2196 (-0.0053 | 0.0229)

Beta mag\_phone\_z -0.0111 0.0033 -3.3399 0.0008 (-0.0175 | -0.0046)

Normal Scale 0.8396

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[0, 5, 1]

Normal ARIMAX(0,0,5)

======================================================= ==================================================

Dependent Variable: gyr\_phone\_x Method: MLE

Start Date: 1970-01-01 00:00:00 Log Likelihood: -328.906

End Date: 1970-01-01 00:05:00 AIC: 687.812

Number of observations: 332 BIC: 744.889

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Latent Variable Estimate Std Error z P>|z| 95% C.I.

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MA(1) 0.3455 0.0376 9.2007 0.0 (0.2719 | 0.4192)

MA(2) -0.0458 0.0292 -1.5709 0.1162 (-0.103 | 0.0113)

MA(3) -0.4692 0.0532 -8.8223 0.0 (-0.5734 | -0.3649)

MA(4) -0.5266 0.0331 -15.9141 0.0 (-0.5914 | -0.4617)

MA(5) -0.3769 0.0339 -11.1062 0.0 (-0.4434 | -0.3104)

Beta 1 0.0128 0.1798 0.0712 0.9432 (-0.3396 | 0.3652)

Beta acc\_phone\_x -0.0202 0.0059 -3.4178 0.0006 (-0.0317 | -0.0086)

Beta acc\_phone\_y 0.0125 0.0093 1.3498 0.1771 (-0.0057 | 0.0307)

Beta acc\_phone\_z 0.0342 0.0166 2.0578 0.0396 (0.0016 | 0.0668)

Beta gyr\_phone\_y 0.7419 0.0448 16.5697 0.0 (0.6541 | 0.8297)

Beta gyr\_phone\_z 0.0528 0.0762 0.6922 0.4888 (-0.0966 | 0.2022)

Beta mag\_phone\_x -0.0003 0.0011 -0.2725 0.7853 (-0.0024 | 0.0018)

Beta mag\_phone\_y 0.0045 0.0036 1.2411 0.2146 (-0.0026 | 0.0115)

Beta mag\_phone\_z -0.0014 0.0007 -1.9733 0.0485 (-0.0028 | 0.0)

Normal Scale 0.6727

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[5, 0, 1]

Normal ARIMAX(5,0,0)

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Dependent Variable: gyr\_phone\_x Method: MLE

Start Date: 1970-01-01 00:00:00 Log Likelihood: -311.1799

End Date: 1970-01-01 00:05:00 AIC: 652.3599

Number of observations: 332 BIC: 709.4369

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Latent Variable Estimate Std Error z P>|z| 95% C.I.

======================================== ========== ========== ======== ======== =========================

AR(1) 0.3922 0.04 9.8 0.0 (0.3137 | 0.4706)

AR(2) 0.0639 0.0384 1.6626 0.0964 (-0.0114 | 0.1392)

AR(3) -0.1031 0.0381 -2.7081 0.0068 (-0.1777 | -0.0285)

AR(4) -0.1235 0.0385 -3.2032 0.0014 (-0.199 | -0.0479)

AR(5) -0.0271 0.0382 -0.711 0.4771 (-0.1019 | 0.0477)

Beta 1 0.0147 0.239 0.0615 0.951 (-0.4538 | 0.4832)

Beta acc\_phone\_x -0.0162 0.0175 -0.9264 0.3543 (-0.0506 | 0.0181)

Beta acc\_phone\_y 0.0013 0.0104 0.1216 0.9032 (-0.0192 | 0.0217)

Beta acc\_phone\_z 0.0666 0.0163 4.0726 0.0 (0.0345 | 0.0986)

Beta gyr\_phone\_y 0.8642 0.0537 16.0904 0.0 (0.7589 | 0.9695)

Beta gyr\_phone\_z -0.1853 0.1621 -1.143 0.253 (-0.5029 | 0.1324)

Beta mag\_phone\_x 0.0002 0.0032 0.0726 0.9421 (-0.0061 | 0.0066)

Beta mag\_phone\_y 0.0037 0.0054 0.6788 0.4973 (-0.007 | 0.0144)

Beta mag\_phone\_z -0.0007 0.0027 -0.2482 0.804 (-0.0059 | 0.0046)

Normal Scale 0.6178

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[5, 5, 1]

Normal ARIMAX(5,0,5)

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Dependent Variable: gyr\_phone\_x Method: MLE

Start Date: 1970-01-01 00:00:00 Log Likelihood: -296.7829

End Date: 1970-01-01 00:05:00 AIC: 633.5658

Number of observations: 332 BIC: 709.6685

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Latent Variable Estimate Std Error z P>|z| 95% C.I.

======================================== ========== ========== ======== ======== =========================

AR(1) 0.3982 0.0335 11.88 0.0 (0.3325 | 0.4639)

AR(2) 0.1131 0.0355 3.188 0.0014 (0.0436 | 0.1826)

AR(3) 0.0054 0.0435 0.1247 0.9007 (-0.0798 | 0.0907)

AR(4) -0.0874 0.0417 -2.0948 0.0362 (-0.1691 | -0.0056)

AR(5) -0.0065 0.0459 -0.1413 0.8876 (-0.0965 | 0.0835)

MA(1) -0.0973 0.079 -1.231 0.2183 (-0.2521 | 0.0576)

MA(2) -0.2458 0.0148 -16.6093 0.0 (-0.2748 | -0.2168)

MA(3) -0.416 0.0555 -7.4955 0.0 (-0.5248 | -0.3073)

MA(4) -0.2187 0.0617 -3.5454 0.0004 (-0.3396 | -0.0978)

MA(5) -0.0662 0.0557 -1.1895 0.2342 (-0.1753 | 0.0429)

Beta 1 0.0154 0.0461 0.3337 0.7386 (-0.0749 | 0.1057)

Beta acc\_phone\_x -0.0055 0.0021 -2.5999 0.0093 (-0.0097 | -0.0014)

Beta acc\_phone\_y -0.0071 0.0065 -1.0864 0.2773 (-0.0199 | 0.0057)

Beta acc\_phone\_z 0.0534 0.017 3.1386 0.0017 (0.0201 | 0.0868)

Beta gyr\_phone\_y 0.9041 0.0441 20.5036 0.0 (0.8177 | 0.9905)

Beta gyr\_phone\_z -0.0506 0.1423 -0.3555 0.7222 (-0.3296 | 0.2284)

Beta mag\_phone\_x -0.0006 0.0004 -1.6739 0.0942 (-0.0014 | 0.0001)

Beta mag\_phone\_y 0.0018 0.001 1.831 0.0671 (-0.0001 | 0.0036)

Beta mag\_phone\_z -0.0005 0.0004 -1.3487 0.1774 (-0.0013 | 0.0002)

Normal Scale 0.5886

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[5, 0, 1]

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Normal ARIMAX(5,0,0)

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Dependent Variable: gyr\_phone\_x Method: MLE

Start Date: 1970-01-01 00:00:00 Log Likelihood: -448.2482

End Date: 1970-01-01 00:07:00 AIC: 926.4965

Number of observations: 477 BIC: 989.0092

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Latent Variable Estimate Std Error z P>|z| 95% C.I.

======================================== ========== ========== ======== ======== =========================

AR(1) 0.3718 0.0339 10.9737 0.0 (0.3054 | 0.4382)

AR(2) 0.0644 0.0318 2.0232 0.0431 (0.002 | 0.1267)

AR(3) -0.0896 0.0311 -2.8827 0.0039 (-0.1505 | -0.0287)

AR(4) -0.1591 0.0314 -5.0757 0.0 (-0.2206 | -0.0977)

AR(5) -0.0313 0.0317 -0.9875 0.3234 (-0.0933 | 0.0308)

Beta 1 -0.0023 0.1771 -0.0132 0.9895 (-0.3494 | 0.3447)

Beta acc\_phone\_x 0.002 0.0156 0.1302 0.8964 (-0.0285 | 0.0325)

Beta acc\_phone\_y -0.0007 0.0082 -0.0821 0.9346 (-0.0168 | 0.0155)

Beta acc\_phone\_z 0.0557 0.0136 4.0917 0.0 (0.029 | 0.0824)

Beta gyr\_phone\_y 0.8663 0.0454 19.0881 0.0 (0.7773 | 0.9552)

Beta gyr\_phone\_z -0.2136 0.1355 -1.5768 0.1148 (-0.4792 | 0.0519)

Beta mag\_phone\_x 0.002 0.0024 0.8283 0.4075 (-0.0027 | 0.0067)

Beta mag\_phone\_y 0.0026 0.0043 0.5952 0.5517 (-0.0059 | 0.011)

Beta mag\_phone\_z 0.0 0.0022 -0.0002 0.9999 (-0.0044 | 0.0044)

Normal Scale 0.6192

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Process finished with exit code 0