

Mathematical modeling of the development of confirmed daily infection numbers in the COVID-19 pandemic by a special exponential function

Egbert Keller, Johannes Keller, and Matthias Selg

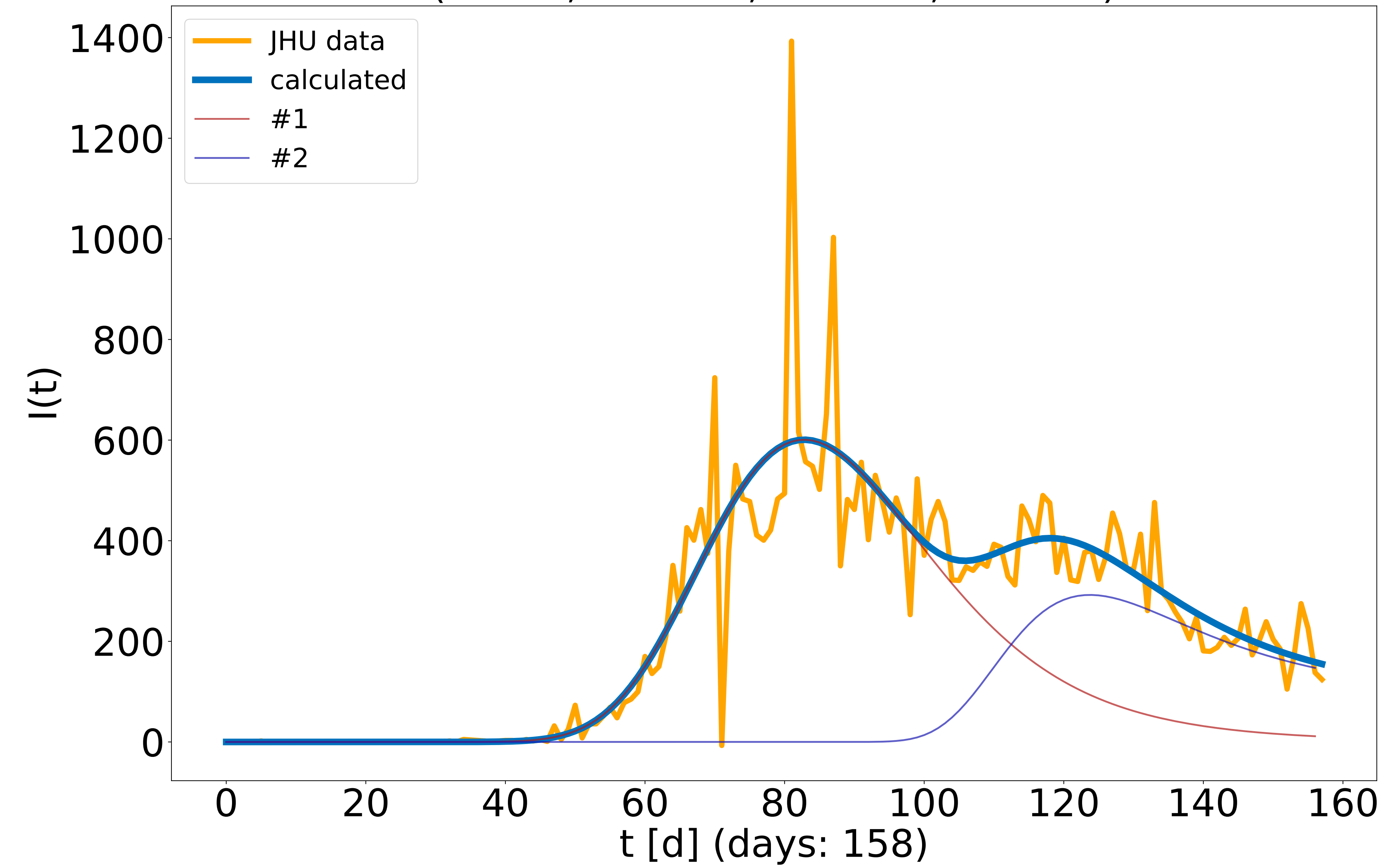
Supplementary Material II

Diagrams of successful modeling attempts with two functions of type (1)

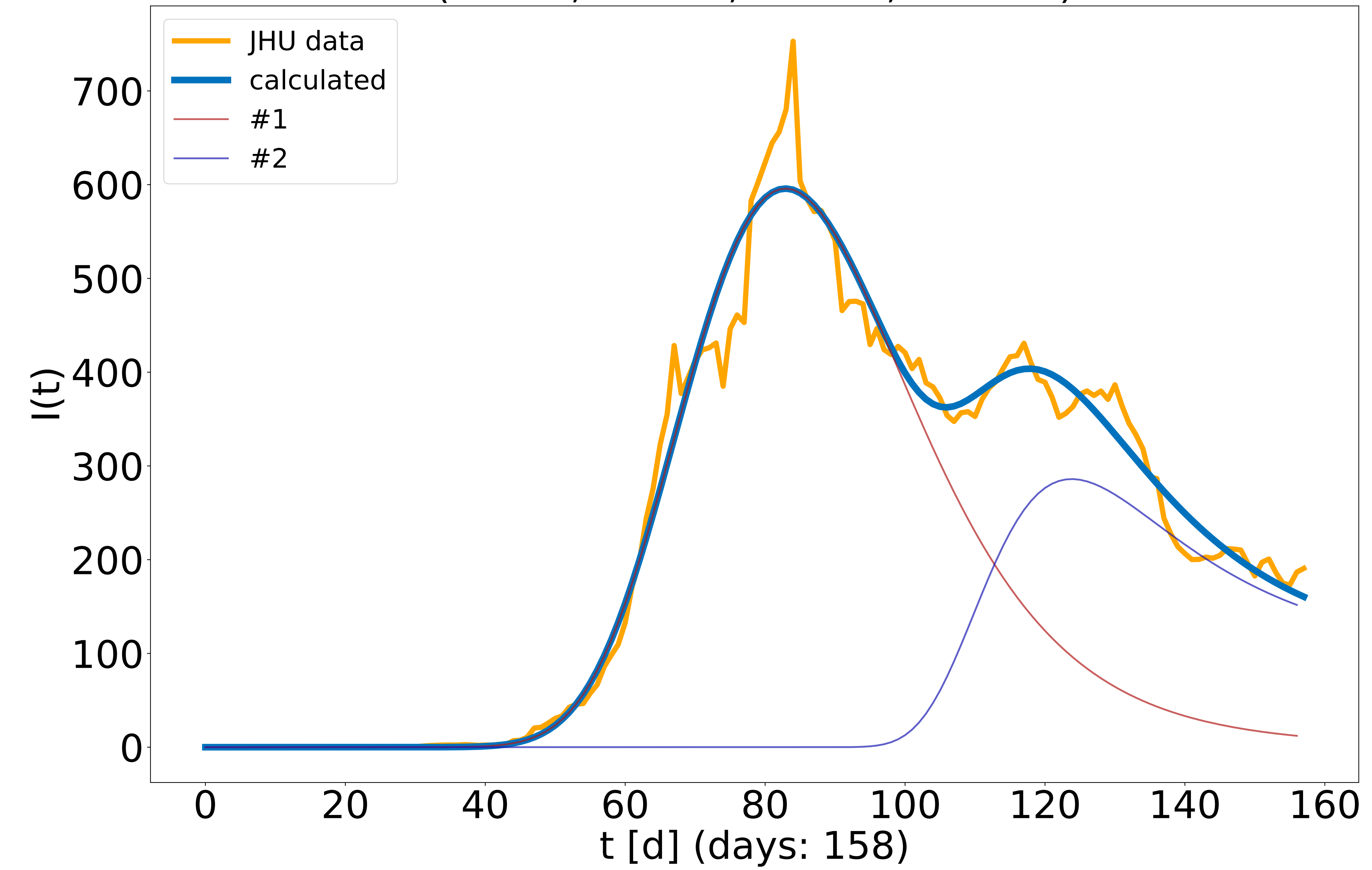
$$\hat{I}(t) = \hat{I}(0) e^{(ae^{-bt})t} \quad (1)$$

By an automatic procedure, daily infection number developments in all countries and US counties monitored by JHU [9] were modeled using a linear combination of two functions of type (1) (status: end of June, 2020). The diagrams of those modeling attempts leading to an R^2 value > 0.97 (for the 7-days averaged data) are shown in the following. As in Fig. 1 of the paper, function parameters for raw data (left diagram) and for 7-days averaged data were determined separately (while for Fig. 2 parameters were determined for 7-days averaged data only).

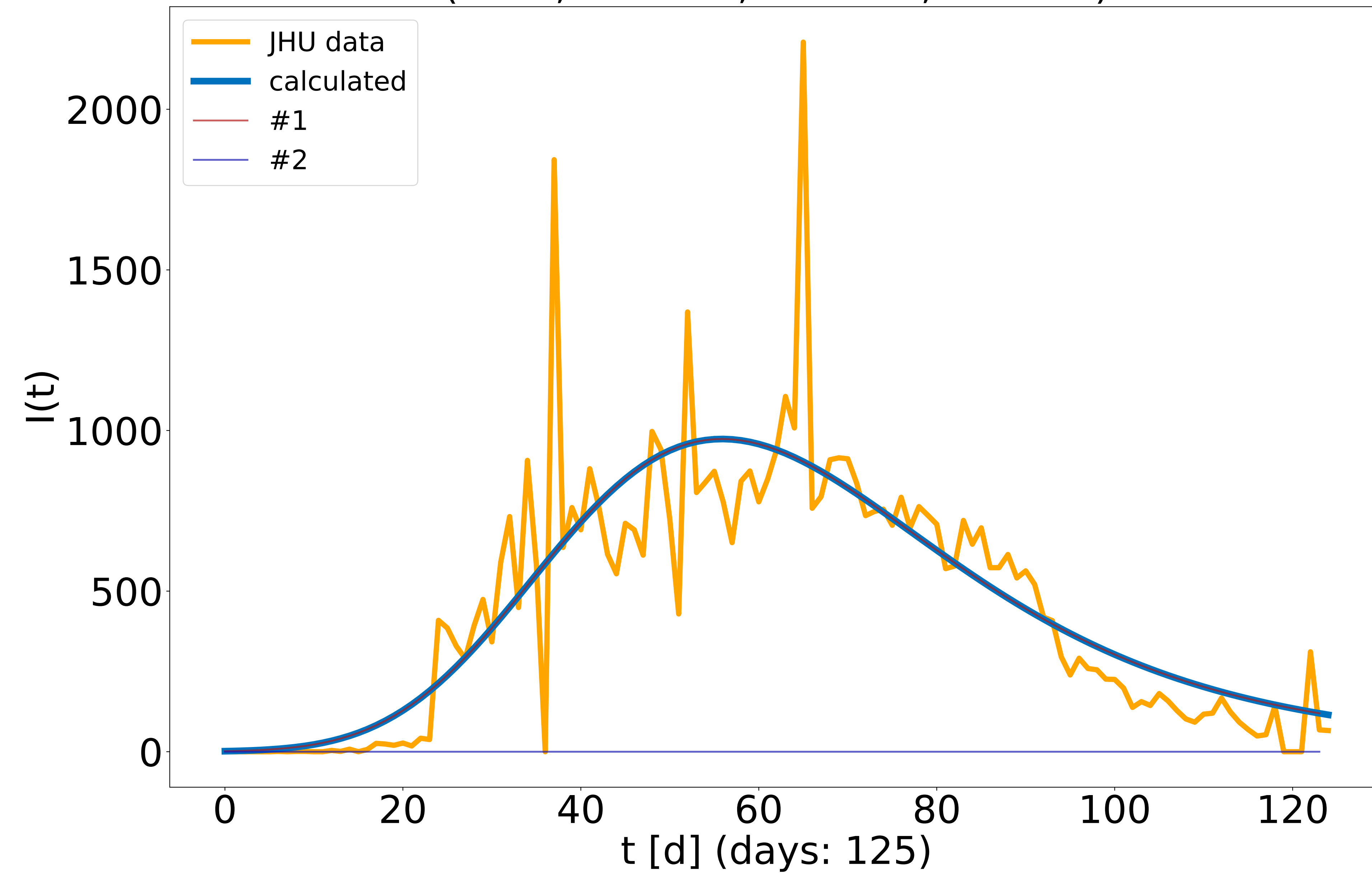
Canada, Ontario ($R^2 = 0.805$)
(i: 0.1, a: 0.498, b: 0.021, t: 35.3)
(i: 85.4, a: 0.194, b: 0.058, t: 106.5)



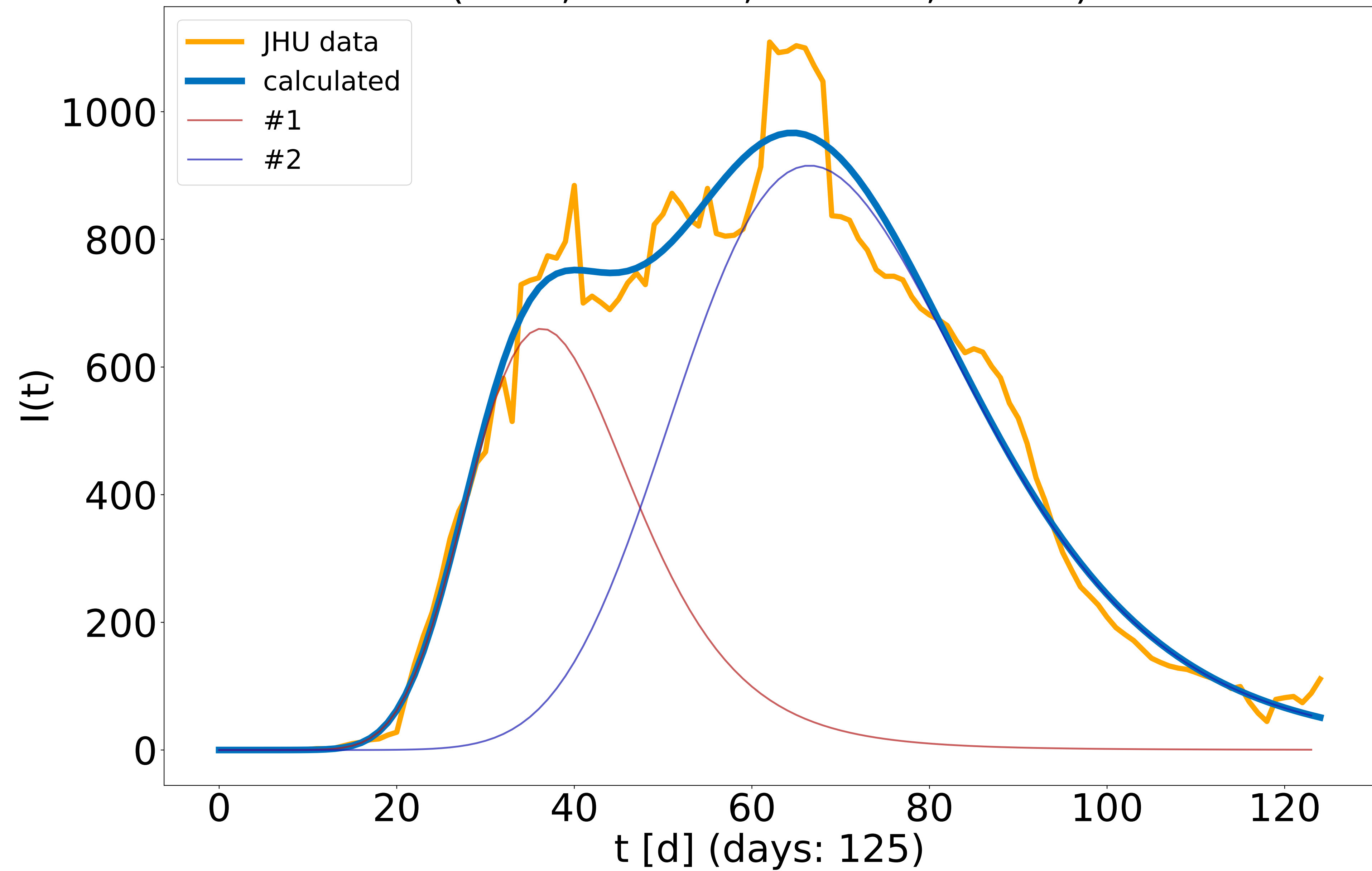
Canada, Ontario ($R^2 = 0.978$)
(i: 0.1, a: 0.49, b: 0.021, t: 34.7)
(i: 95.5, a: 0.18, b: 0.06, t: 107.2)



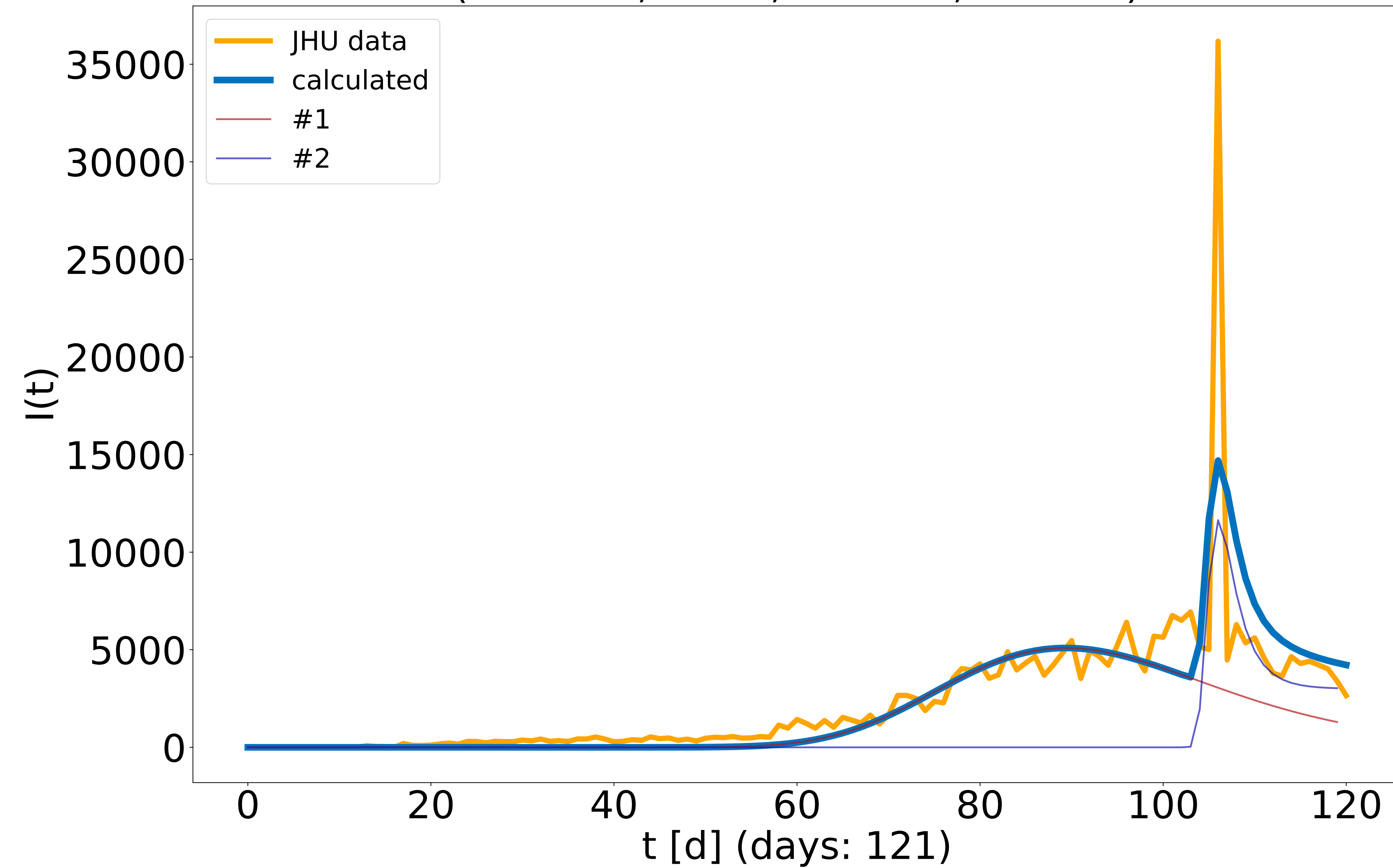
Canada, Quebec ($R^2 = 0.72$)
(i: 2.3, a: 0.3, b: 0.018, t: 1.0)
(i: 9.8, a: 1.997, b: 0.906, t: 128.2)



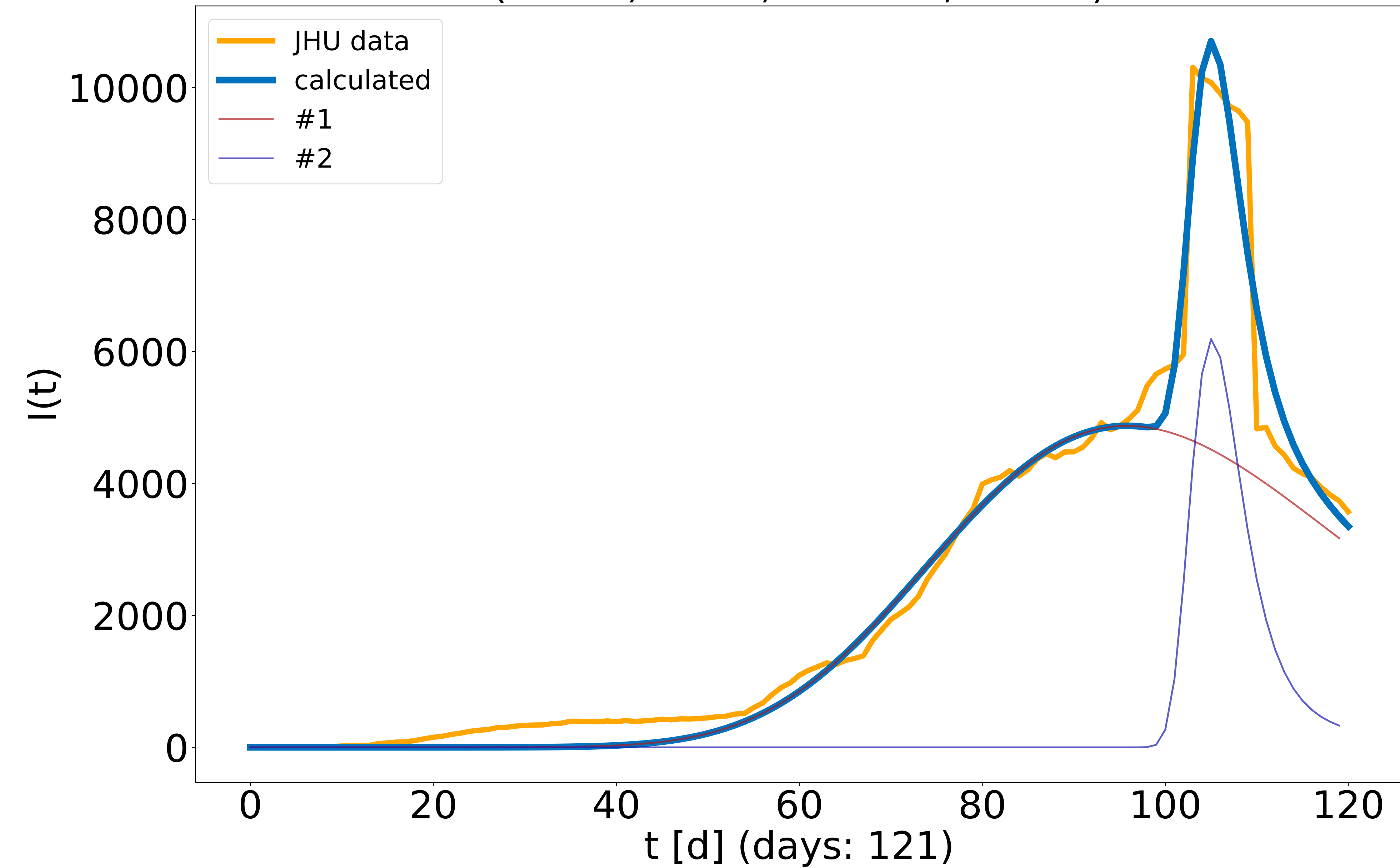
Canada, Quebec ($R^2 = 0.975$)
(i: 0.1, a: 0.876, b: 0.037, t: 9.0)
(i: 0.2, a: 0.489, b: 0.021, t: 18.1)



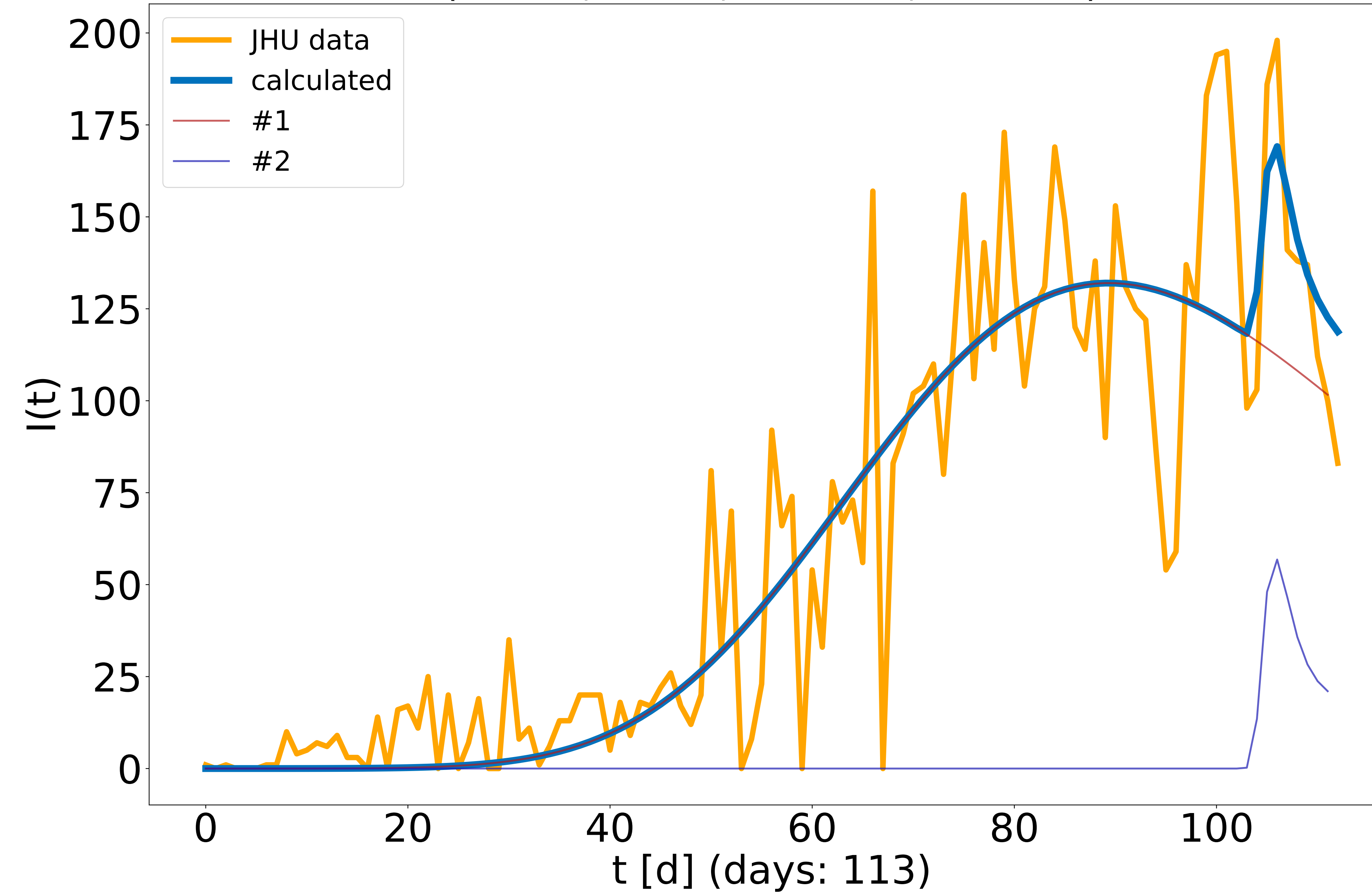
Chile ($R^2 = 0.592$)
(i: 0.1, a: 0.609, b: 0.021, t: 41.0)
(i: 3000.0, a: 2.0, b: 0.543, t: 104.2)



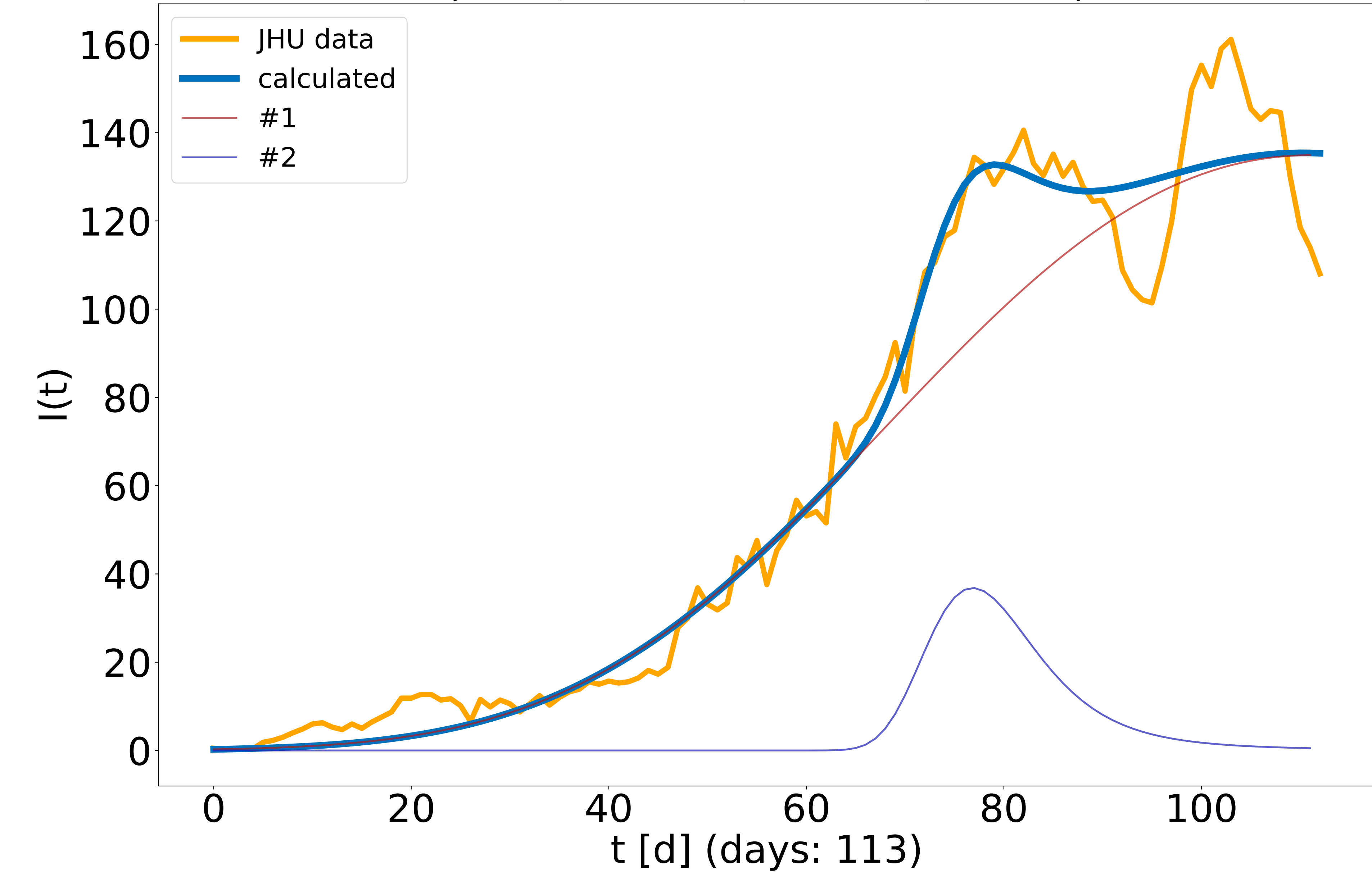
Chile ($R^2 = 0.975$)
(i: 0.1, a: 0.396, b: 0.013, t: 21.7)
(i: 94.4, a: 2.0, b: 0.176, t: 99.4)

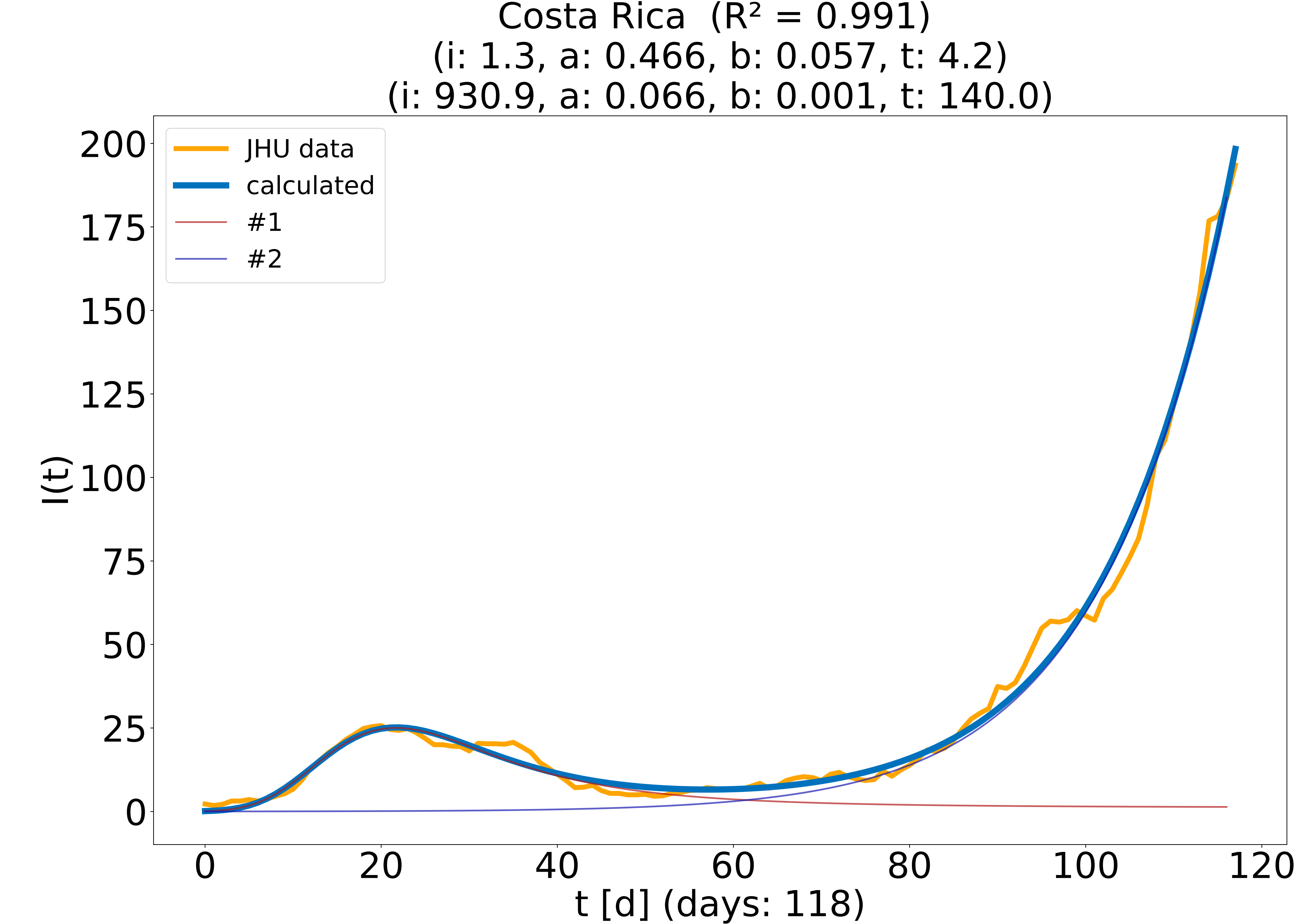
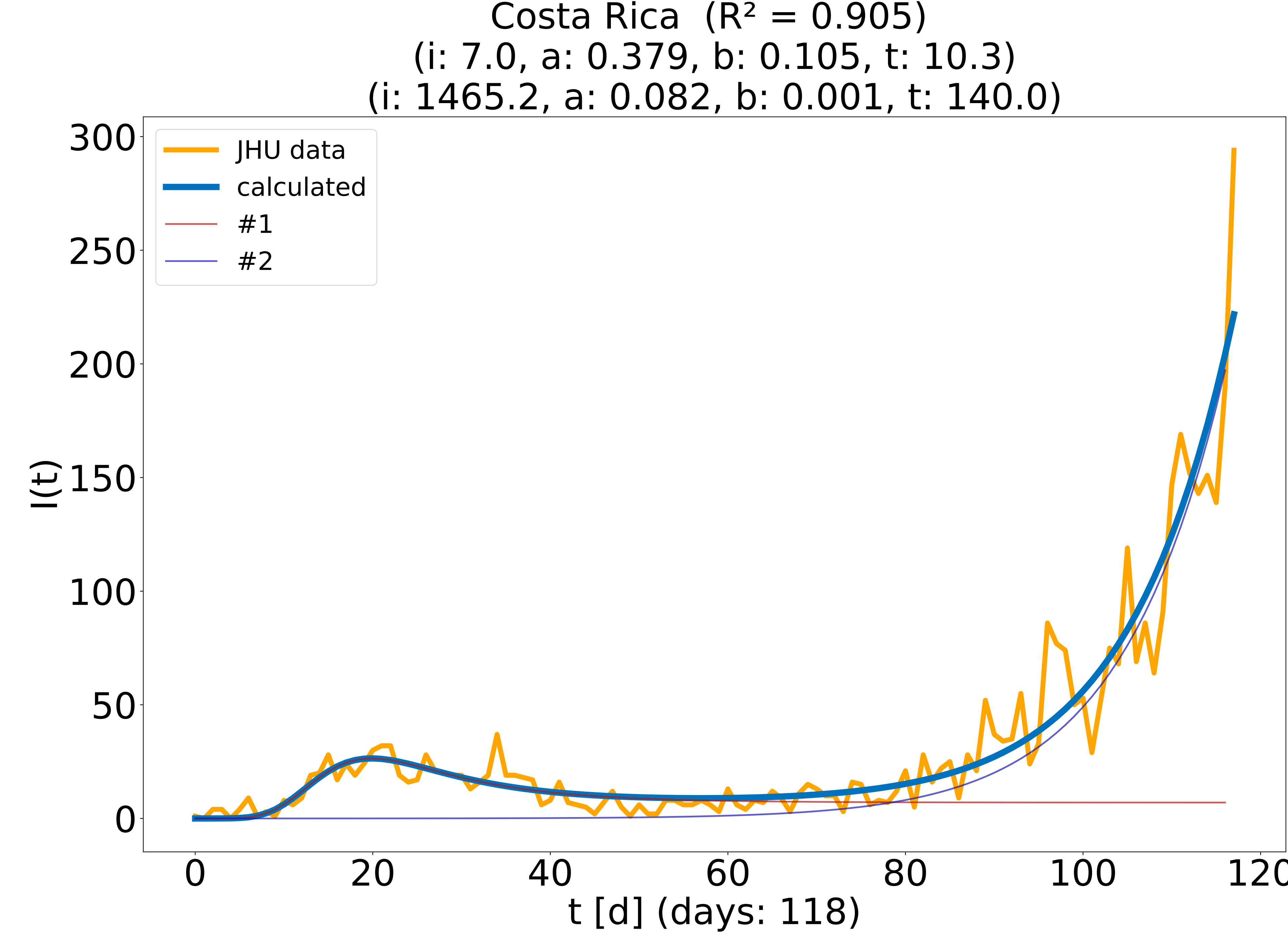


Congo (Kinshasa) ($R^2 = 0.813$)
(i: 0.1, a: 0.268, b: 0.014, t: 16.6)
(i: 16.9, a: 2.0, b: 0.602, t: 104.1)

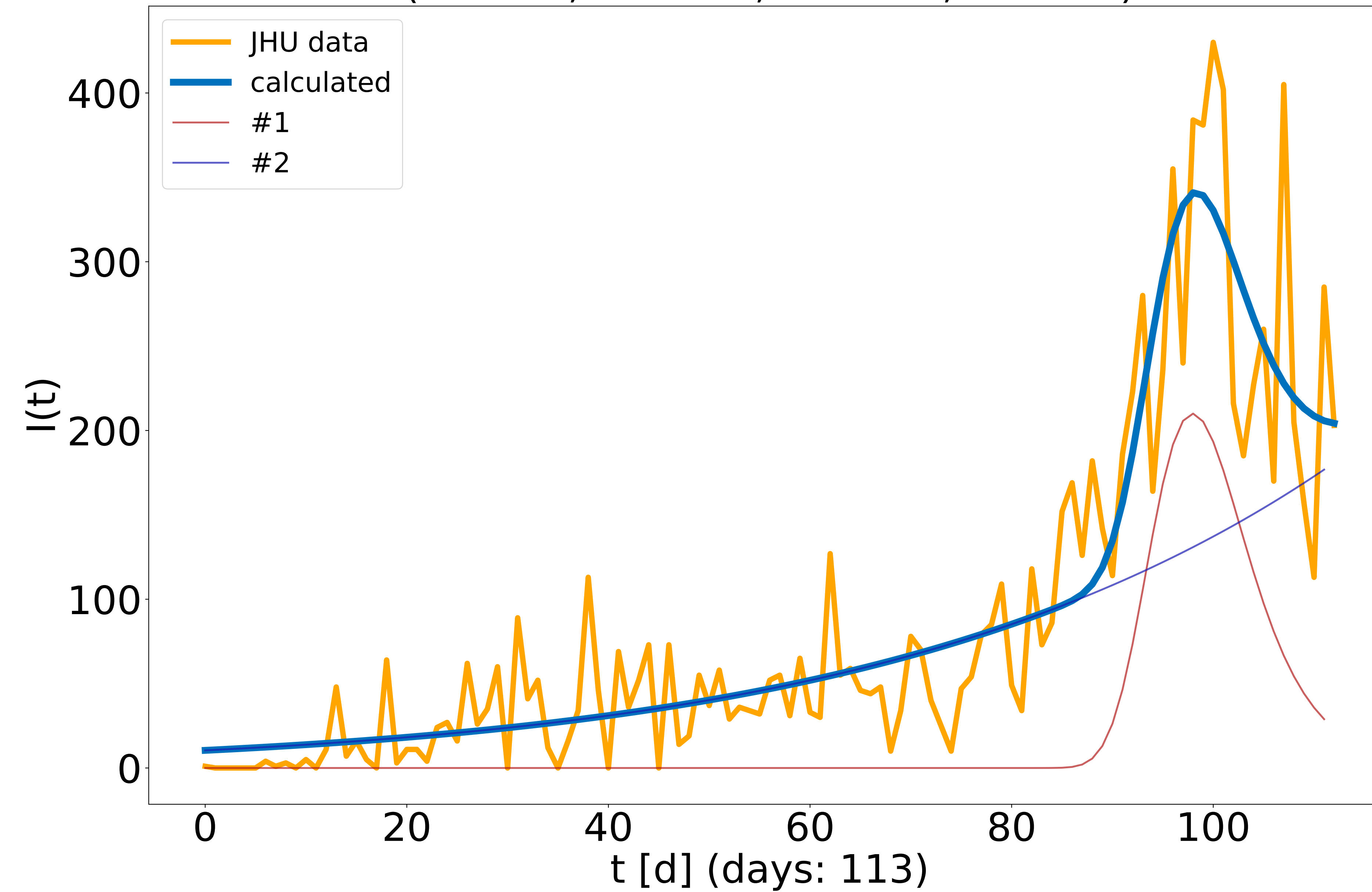


Congo (Kinshasa) ($R^2 = 0.971$)
(i: 0.3, a: 0.152, b: 0.009, t: 1.0)
(i: 0.1, a: 1.195, b: 0.074, t: 63.4)

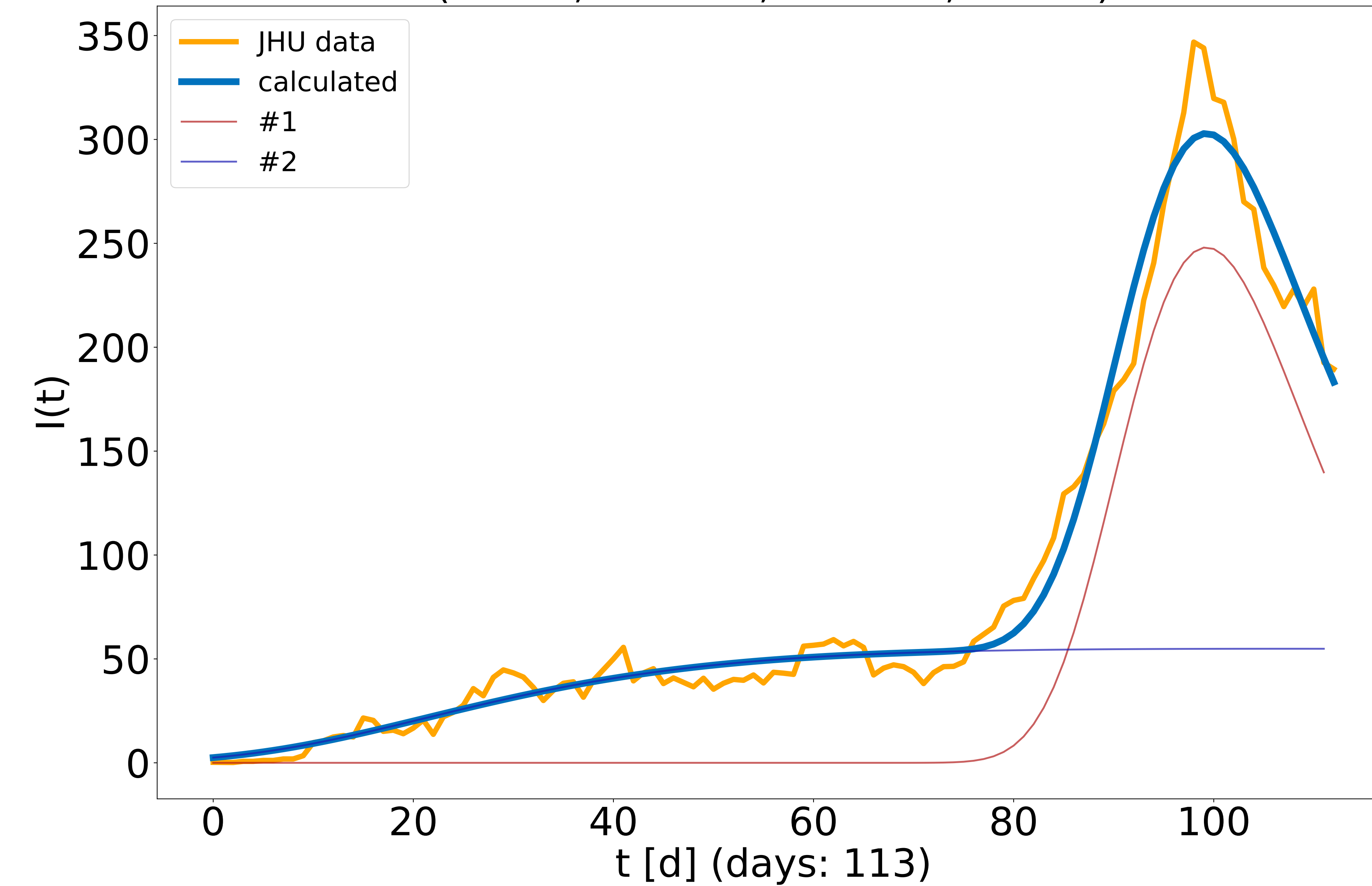




Cote d'Ivoire ($R^2 = 0.833$)
(i: 0.1, a: 1.572, b: 0.076, t: 84.7)
(i: 336.6, a: 0.022, b: 0.001, t: 140.0)



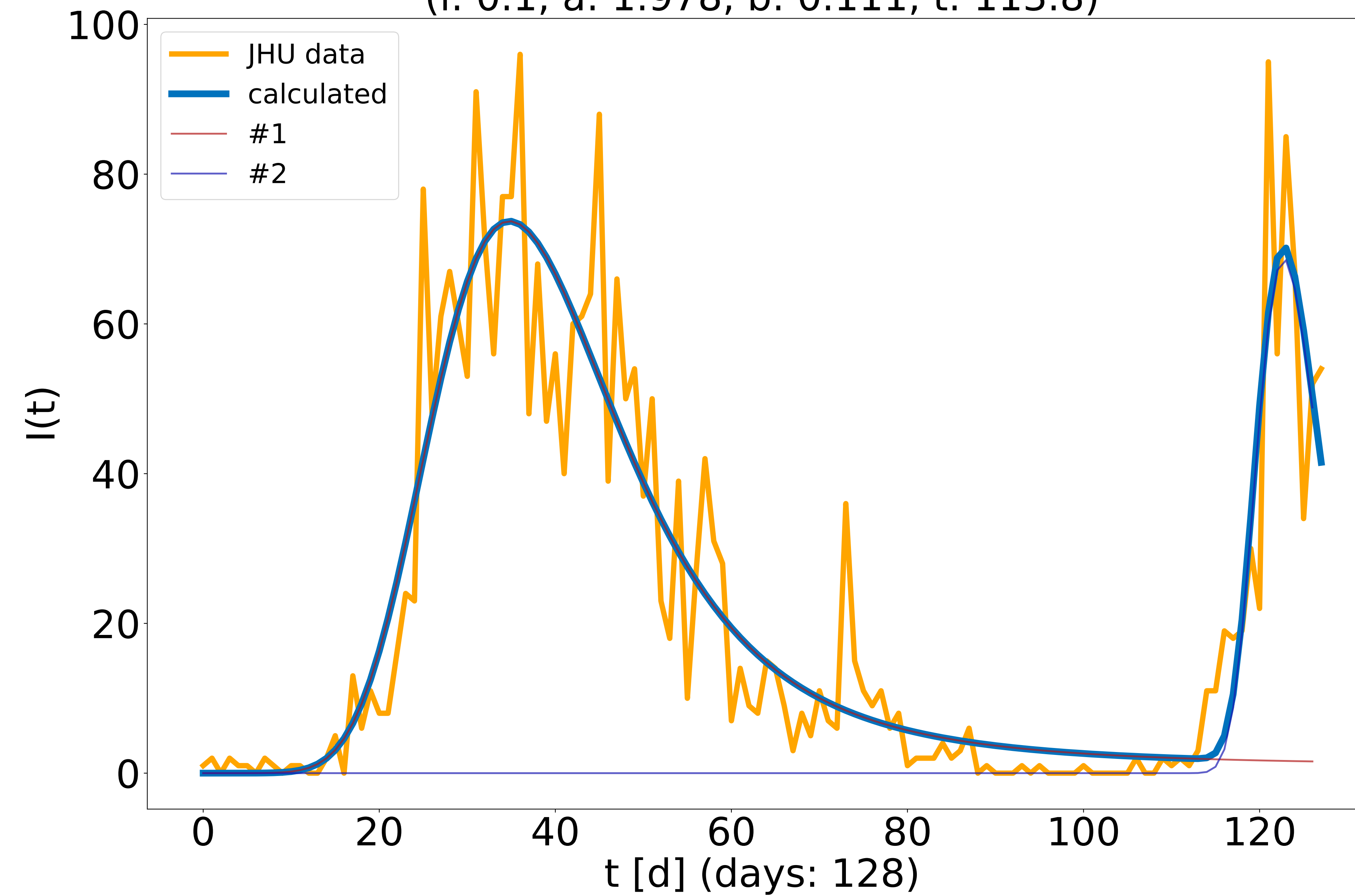
Cote d'Ivoire ($R^2 = 0.982$)
(i: 0.1, a: 0.802, b: 0.038, t: 72.8)
(i: 54.4, a: 0.001, b: 0.043, t: 84.1)



Croatia ($R^2 = 0.85$)

(i: 1.1, a: 0.519, b: 0.046, t: 12.8)

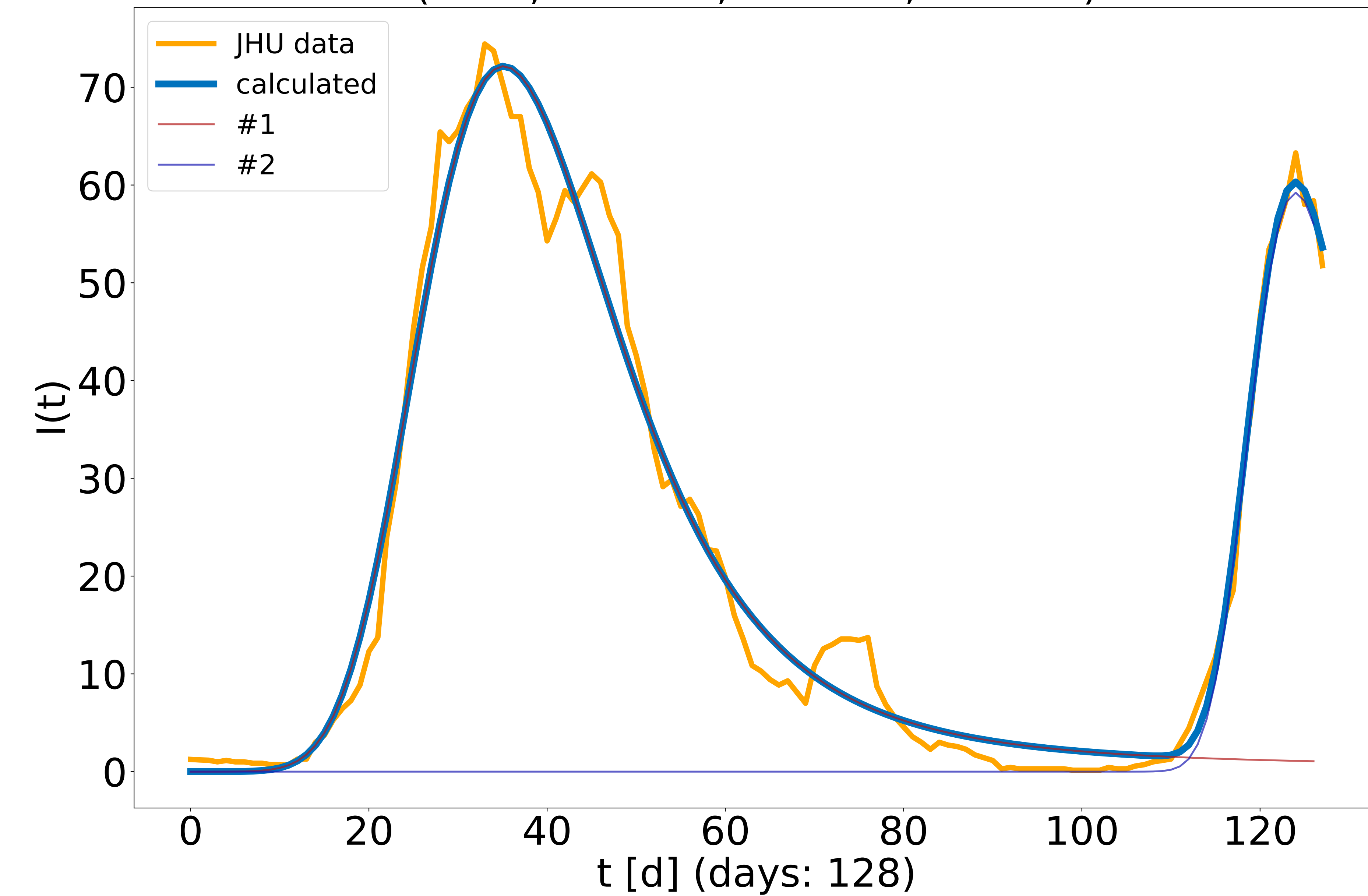
(i: 0.1, a: 1.978, b: 0.111, t: 113.8)



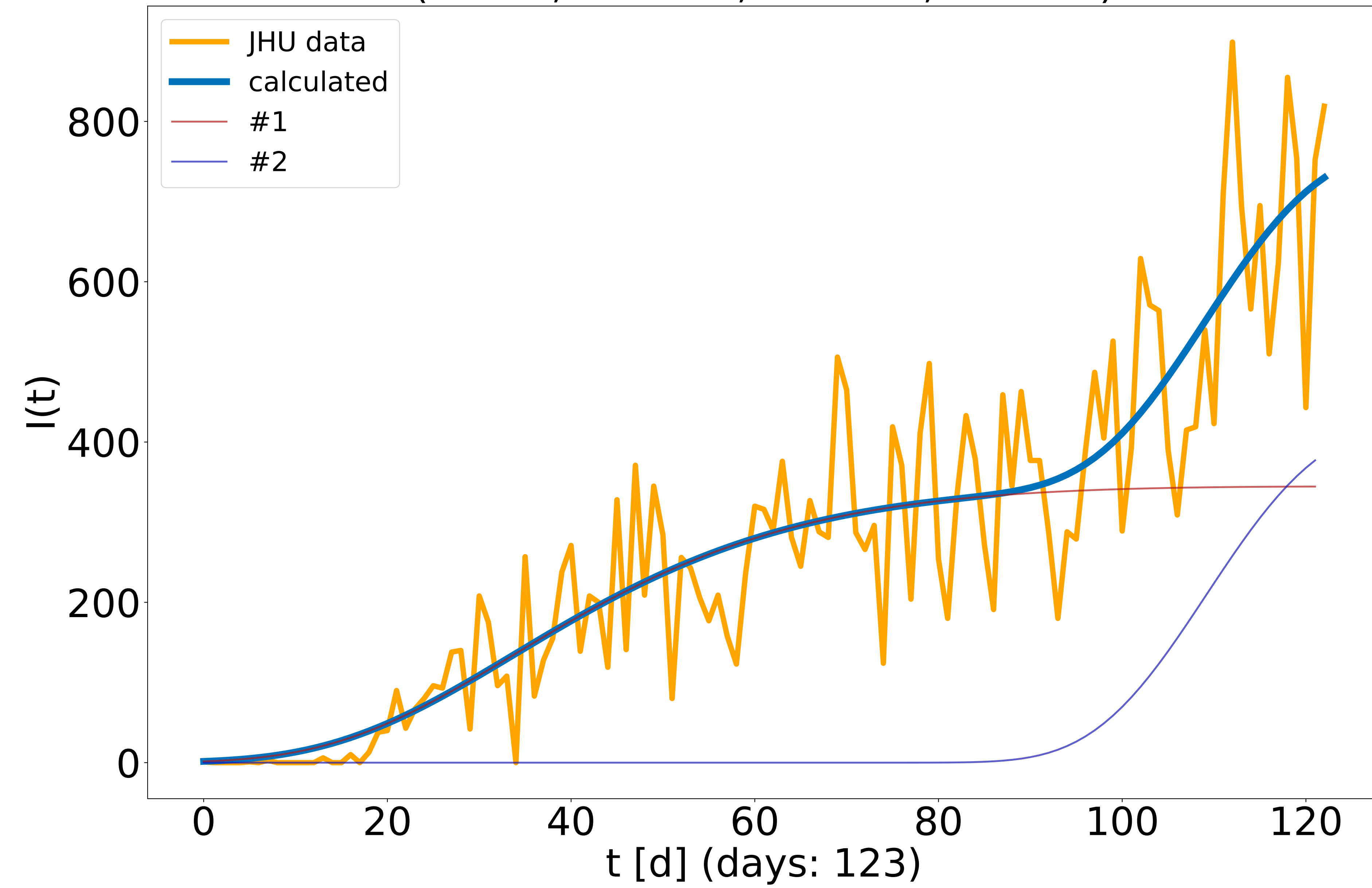
Croatia ($R^2 = 0.979$)

(i: 0.6, a: 0.533, b: 0.041, t: 10.9)

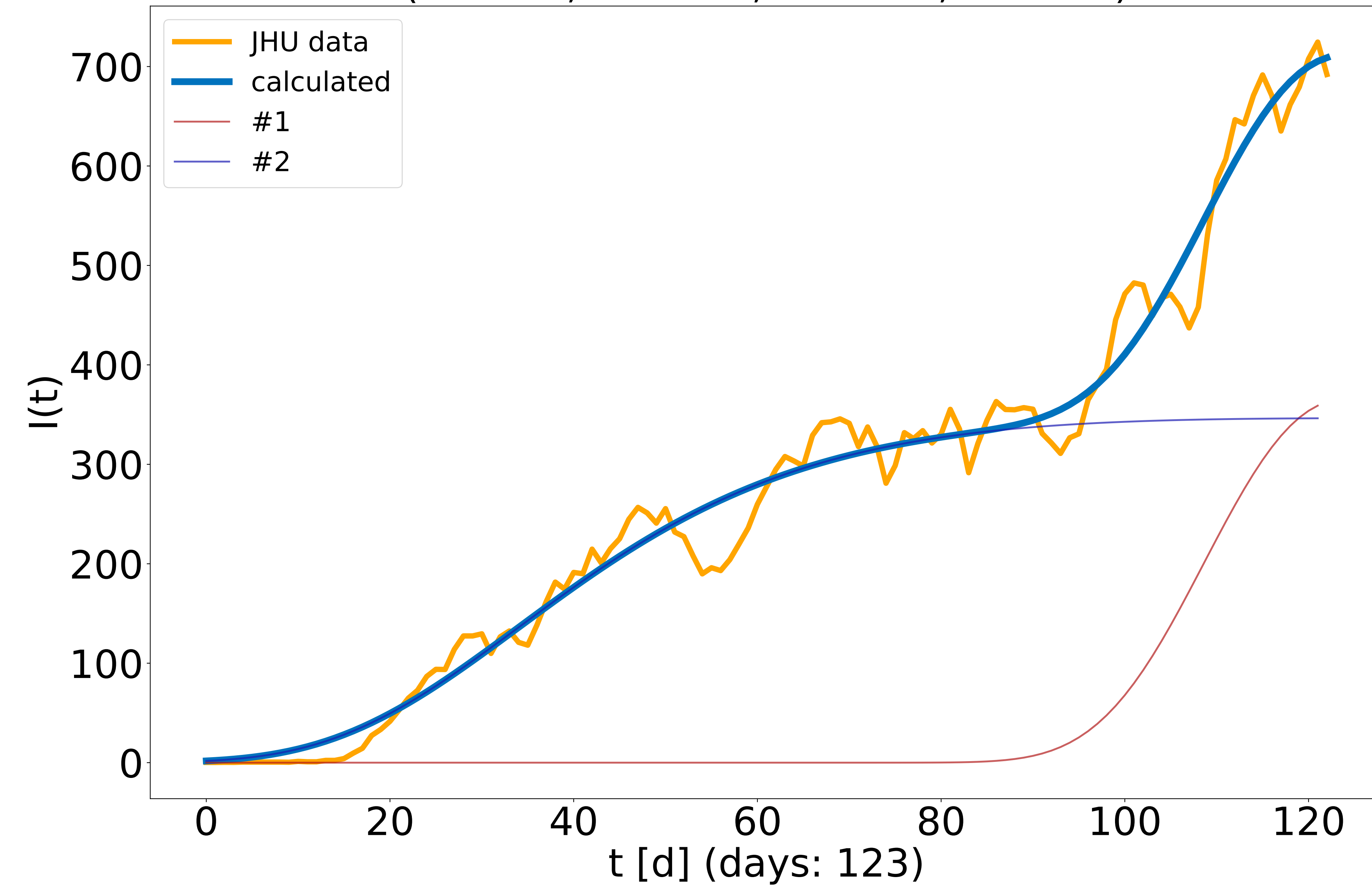
(i: 0.1, a: 1.192, b: 0.069, t: 109.4)

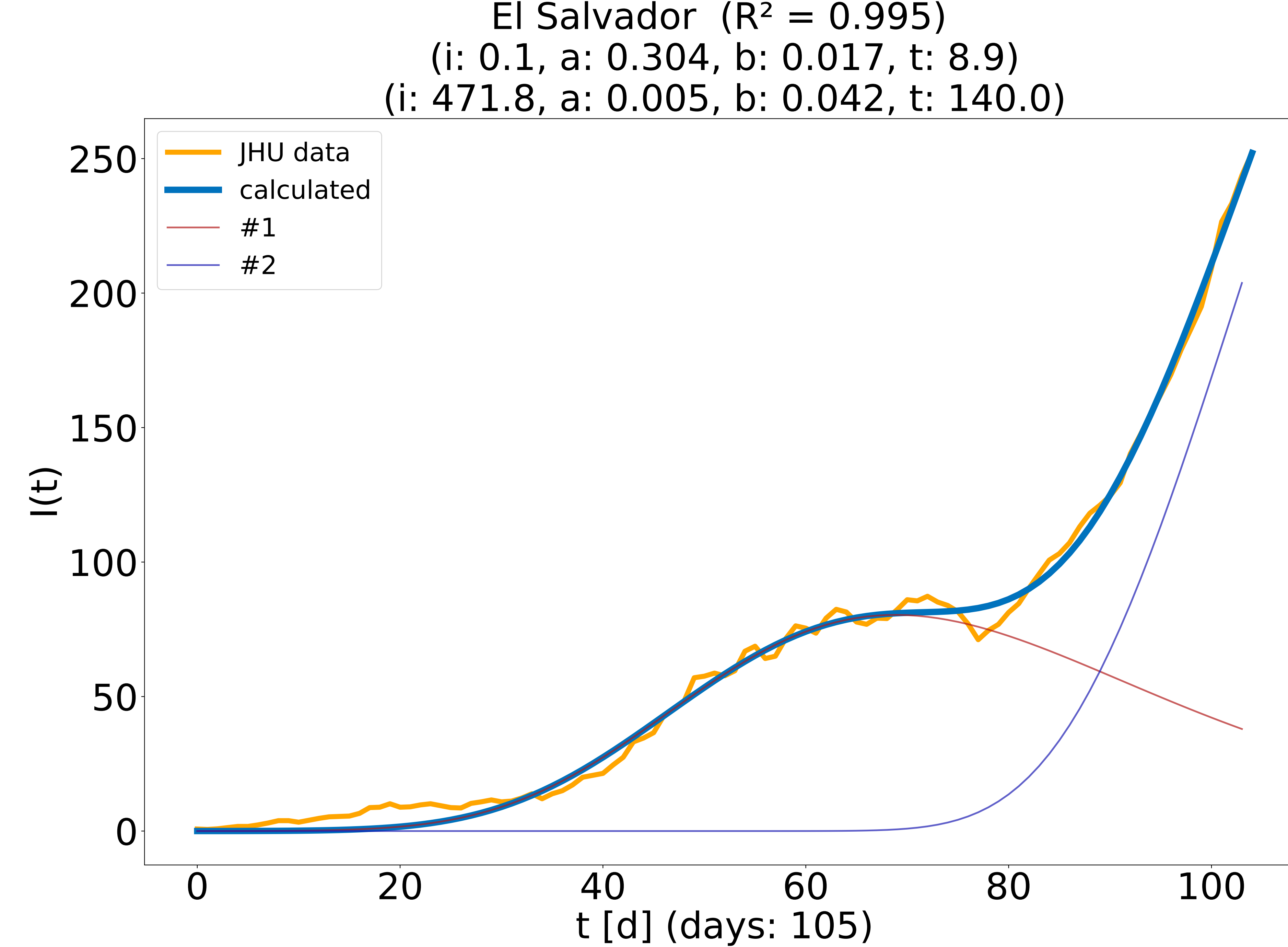
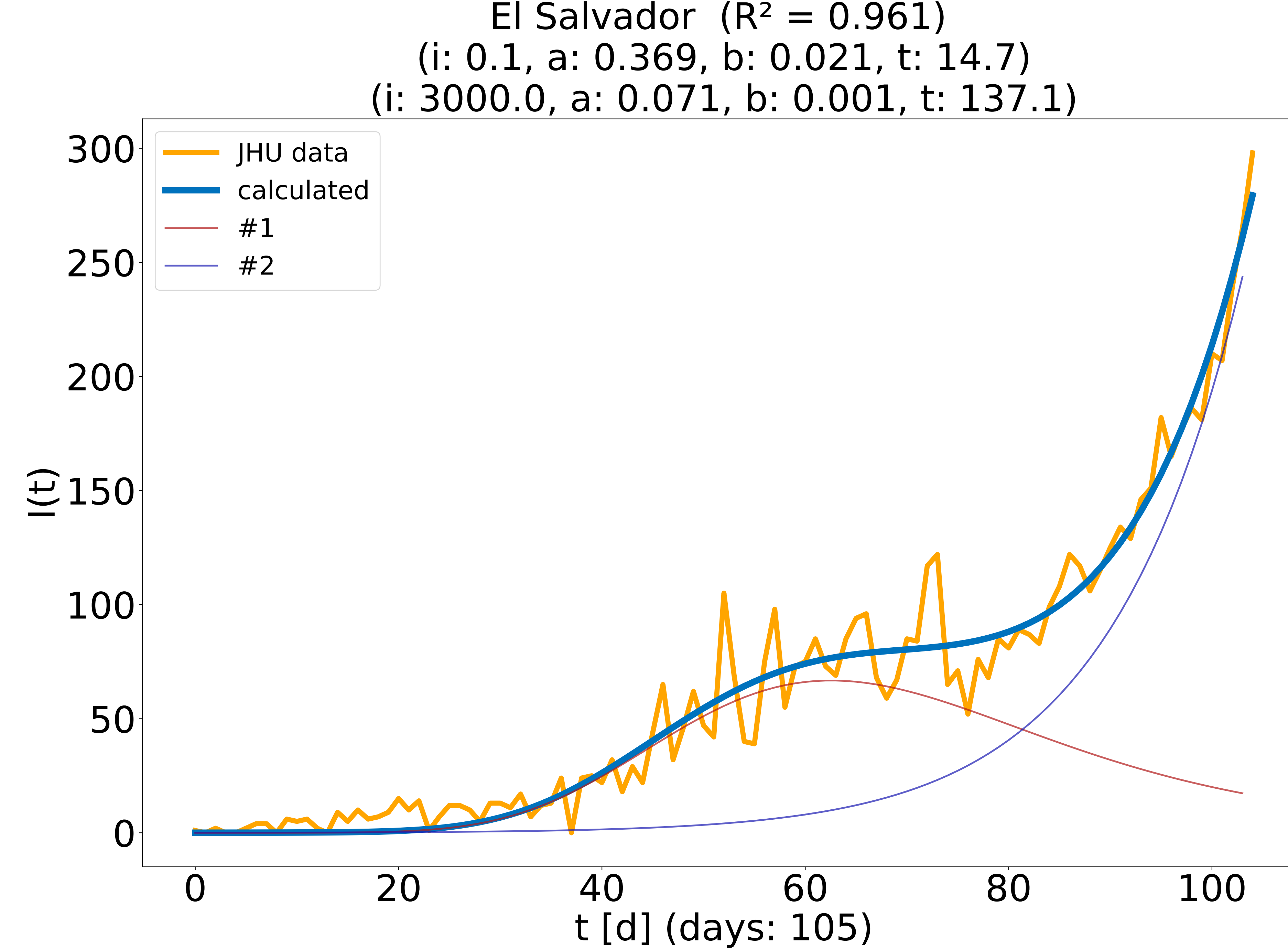


Dominican Republic ($R^2 = 0.821$)
(i: 341.3, a: 0.001, b: 0.04, t: 100.1)
(i: 82.4, a: 0.153, b: 0.035, t: 101.1)



Dominican Republic ($R^2 = 0.98$)
(i: 0.1, a: 0.501, b: 0.022, t: 79.3)
(i: 343.1, a: 0.001, b: 0.039, t: 101.0)

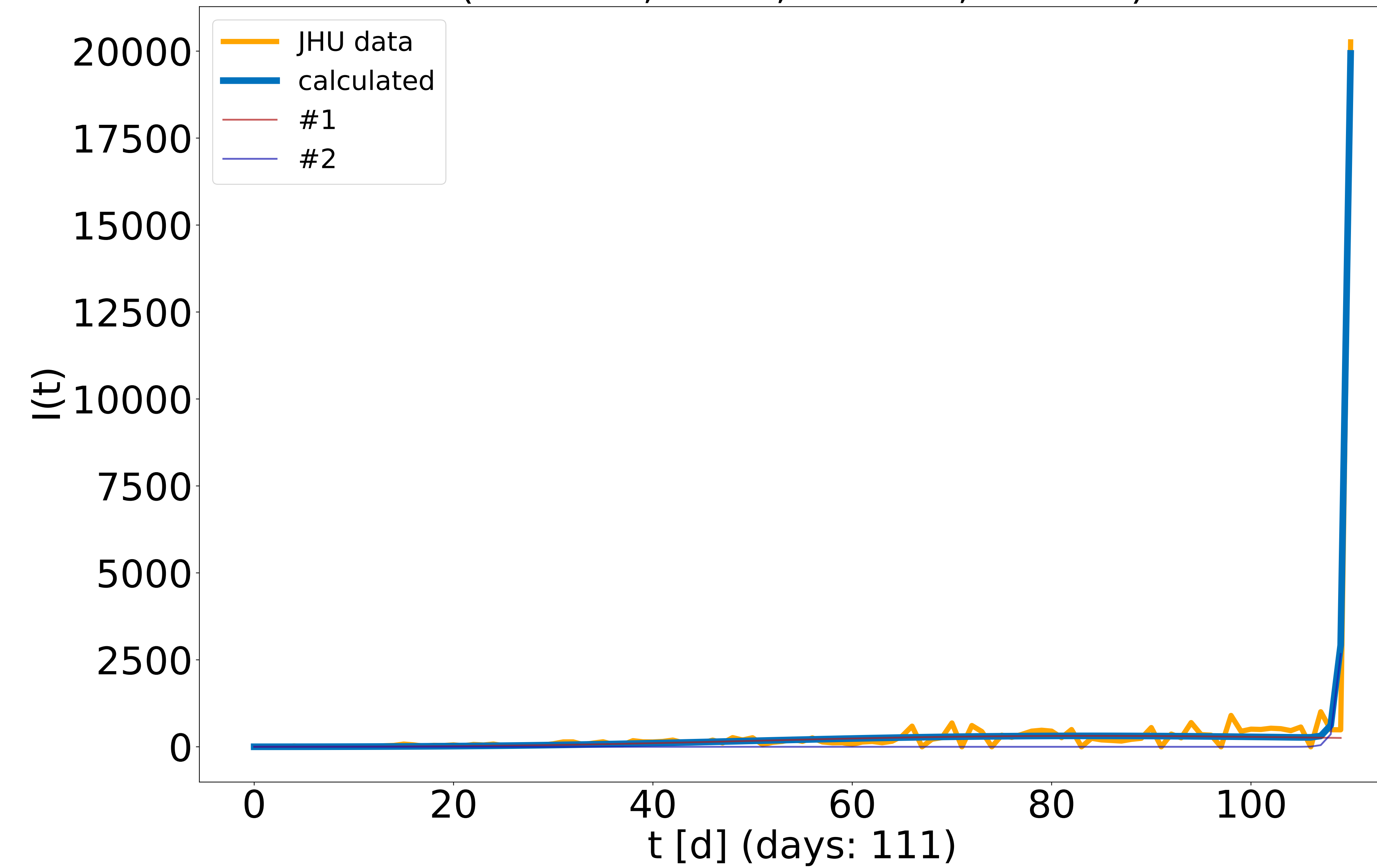




Kazakhstan ($R^2 = 0.978$)

(i: 1.3, a: 0.181, b: 0.012, t: 1.0)

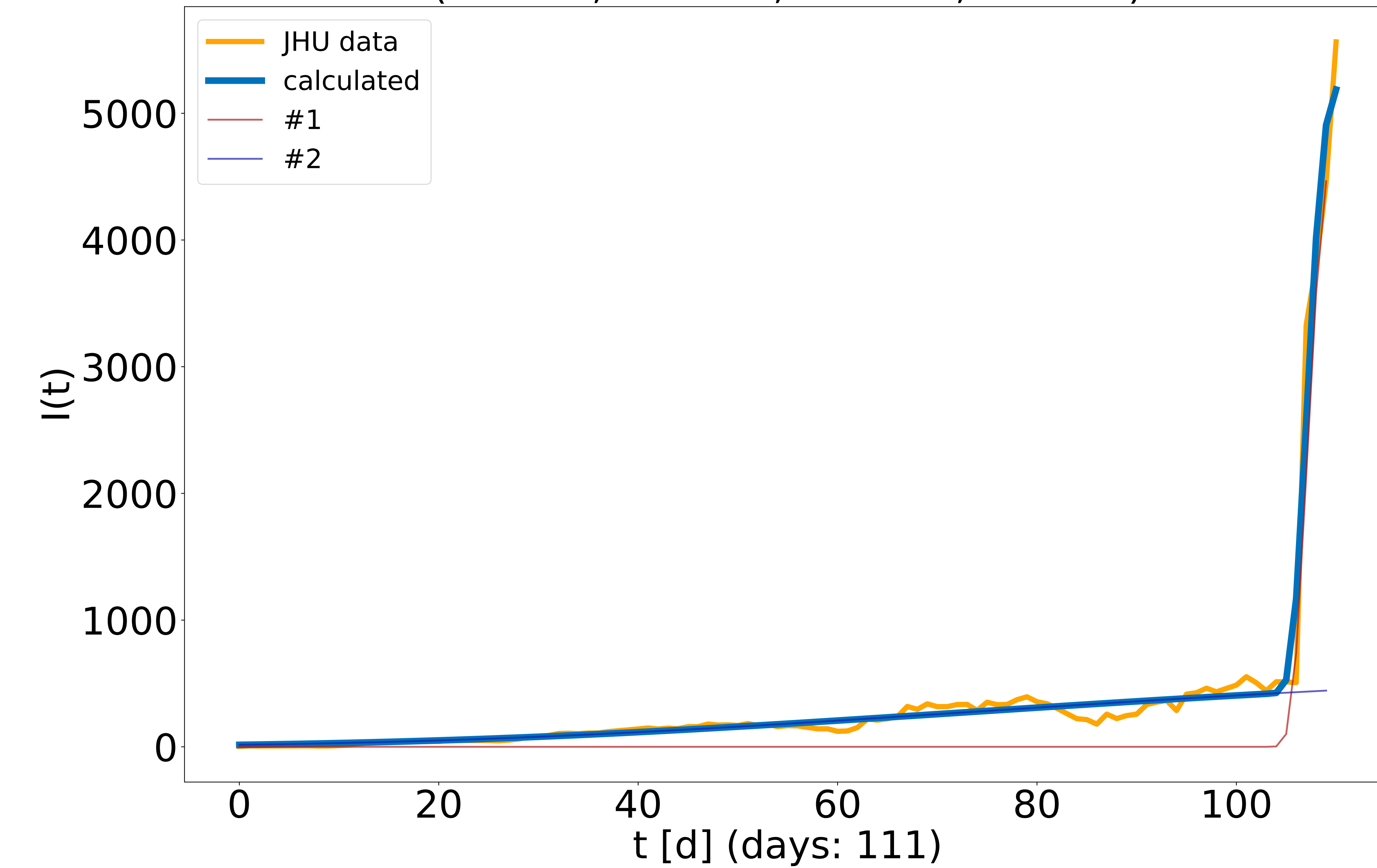
(i: 3000.0, a: 2.0, b: 0.001, t: 109.1)



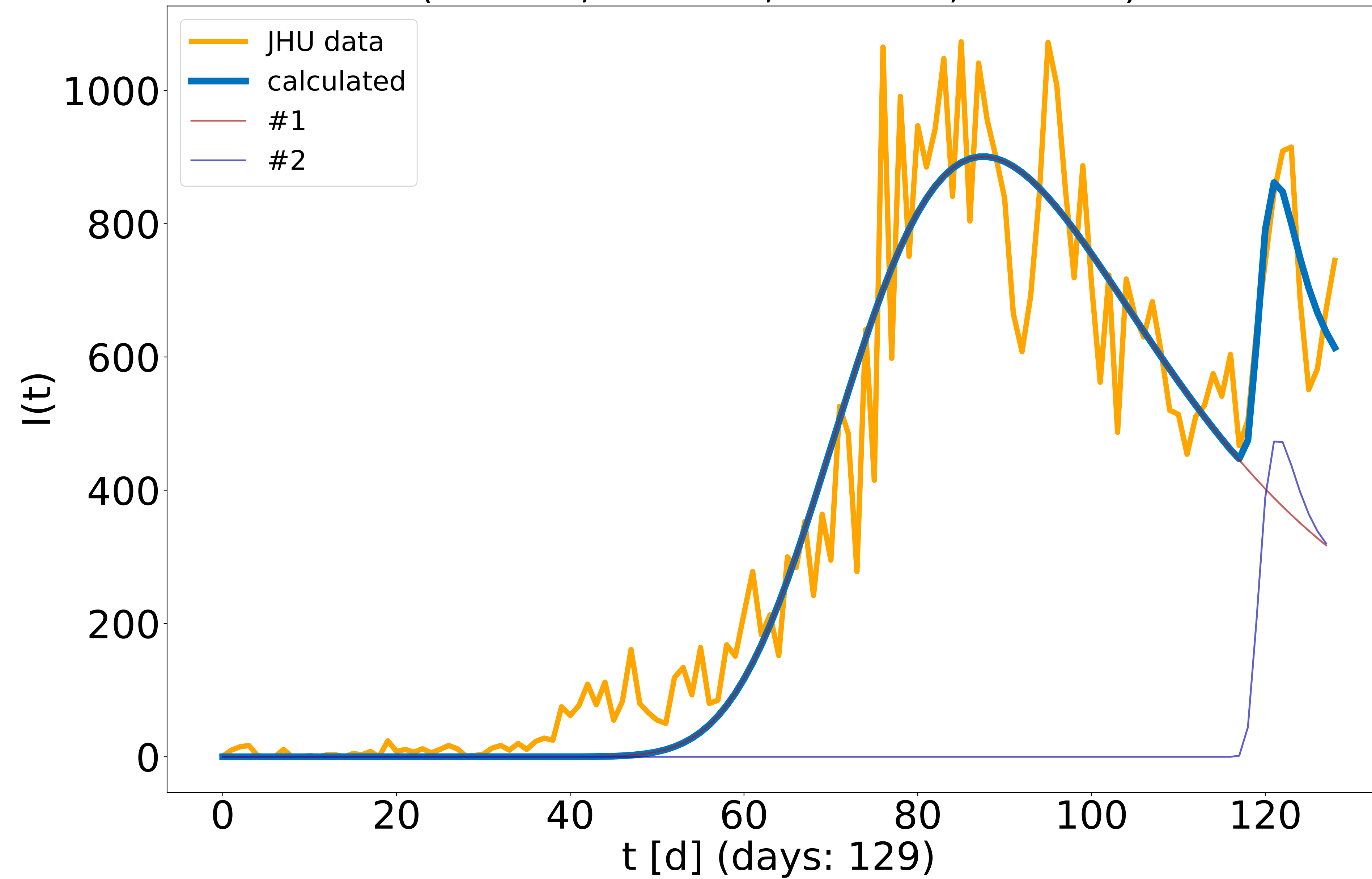
Kazakhstan ($R^2 = 0.976$)

(i: 3000.0, a: 0.485, b: 0.389, t: 107.6)

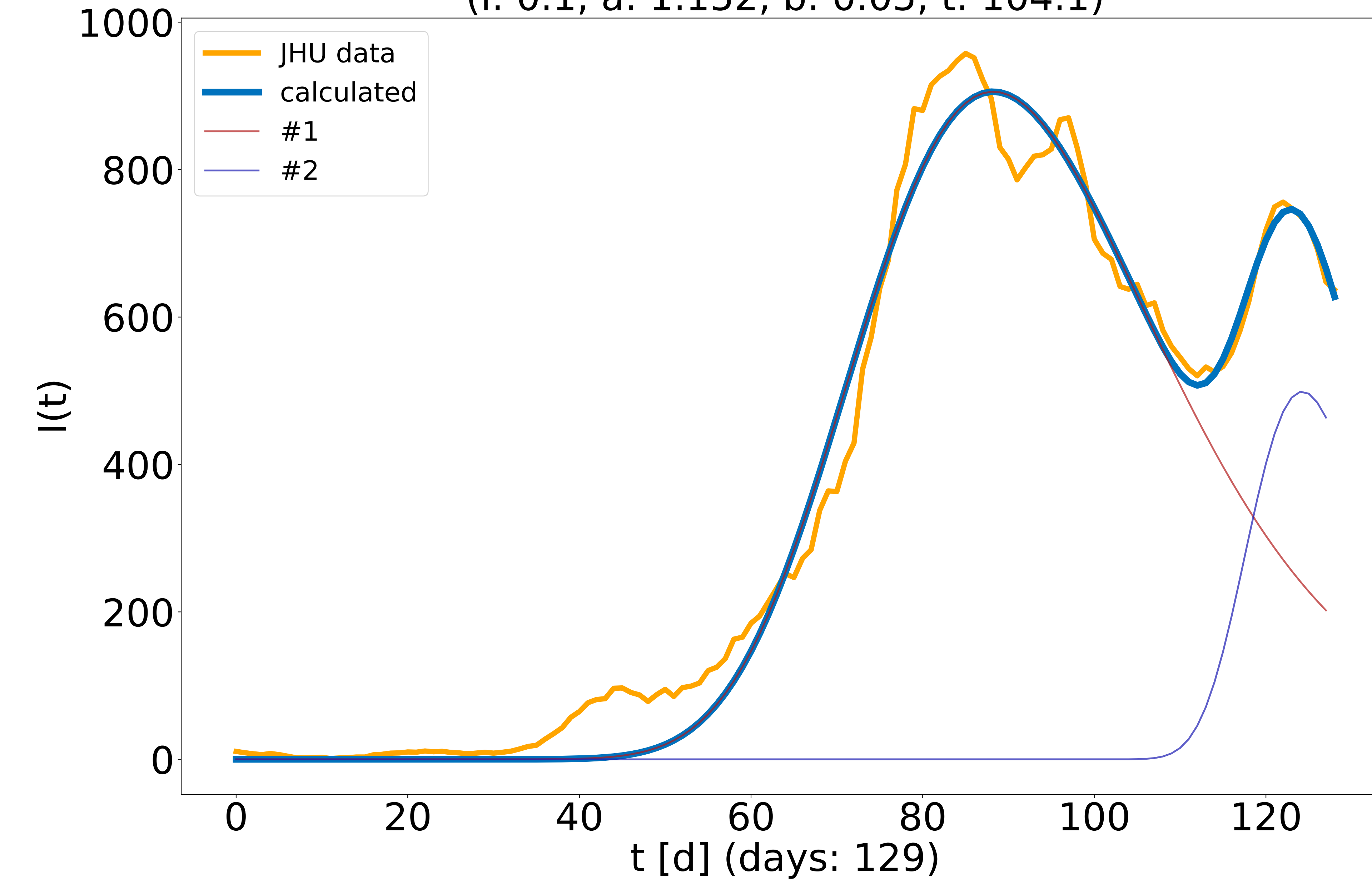
(i: 543.7, a: 0.004, b: 0.012, t: 140.0)



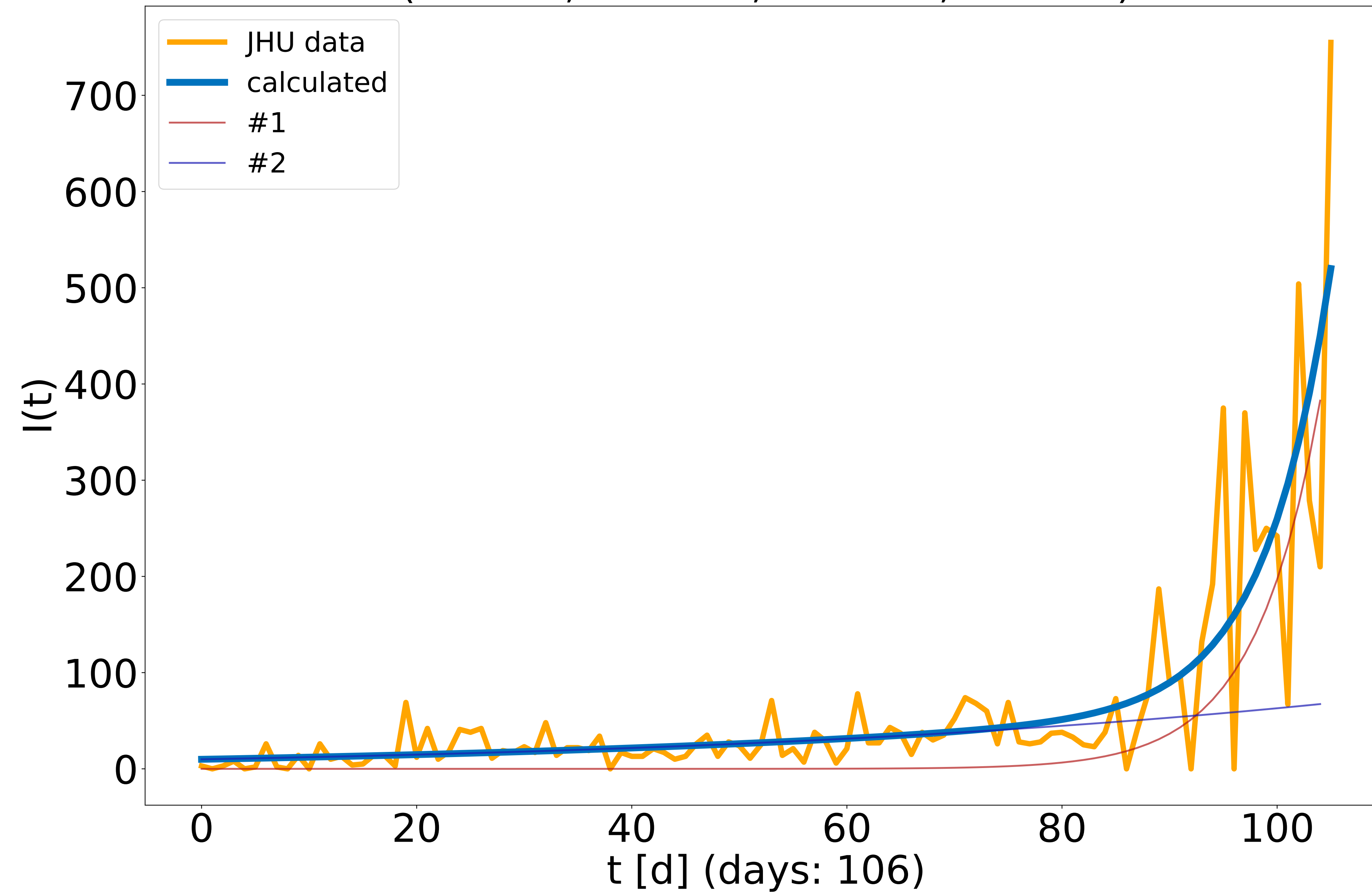
Kuwait ($R^2 = 0.925$)
(i: 48.2, a: 0.253, b: 0.032, t: 56.0)
(i: 278.3, a: 0.708, b: 0.478, t: 119.4)



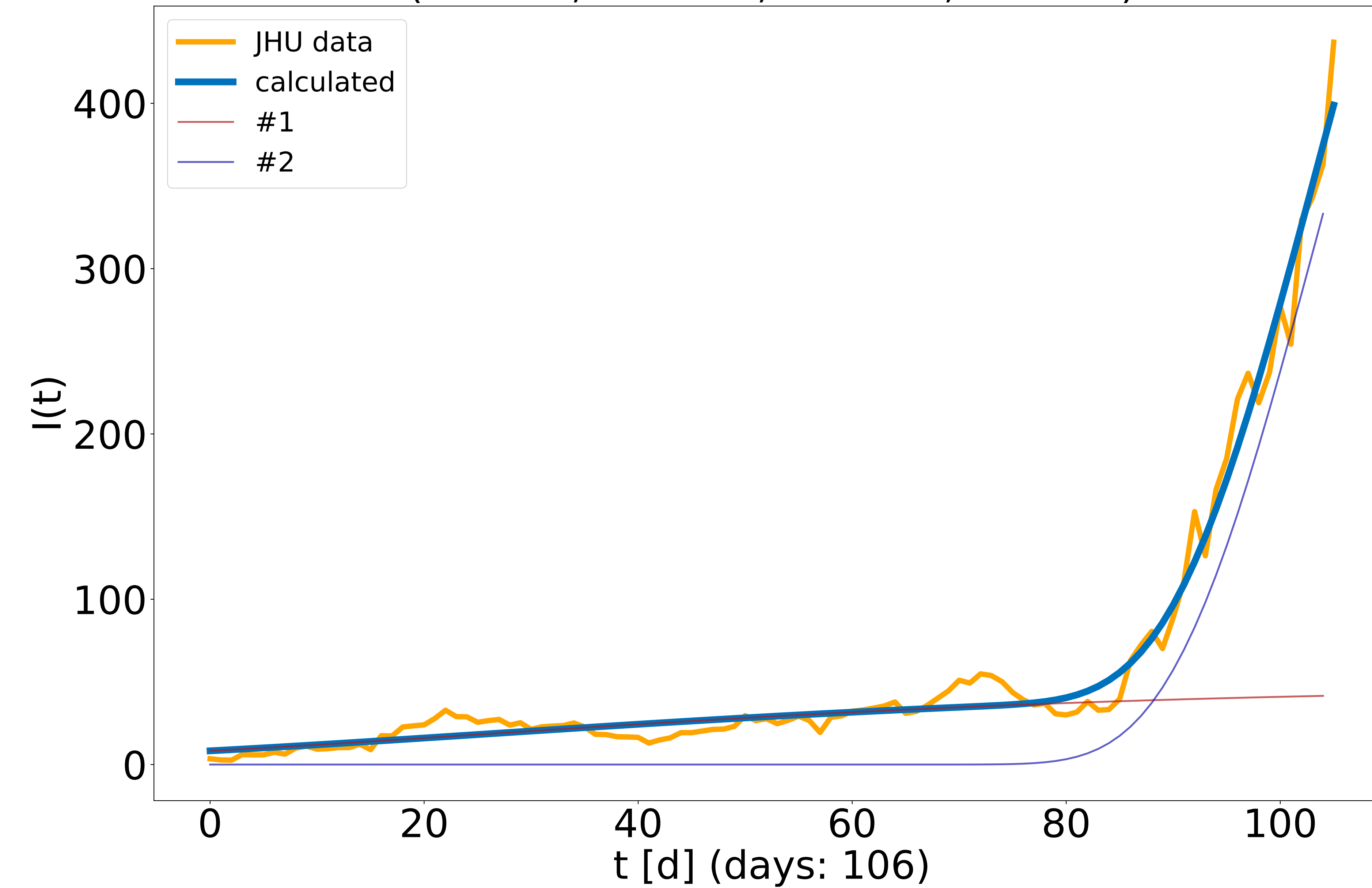
Kuwait ($R^2 = 0.982$)
(i: 0.1, a: 0.463, b: 0.019, t: 34.8)
(i: 0.1, a: 1.152, b: 0.05, t: 104.1)

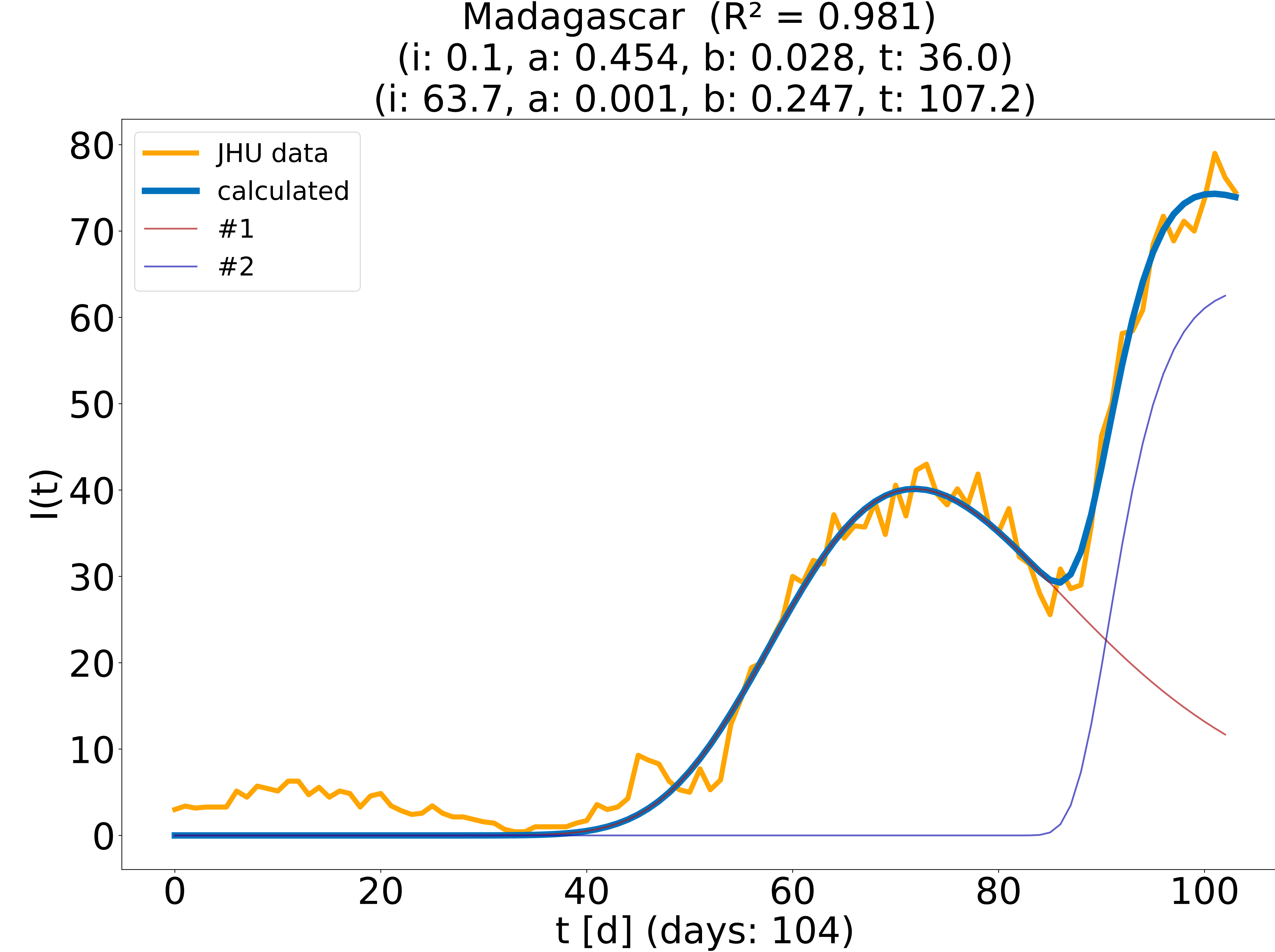
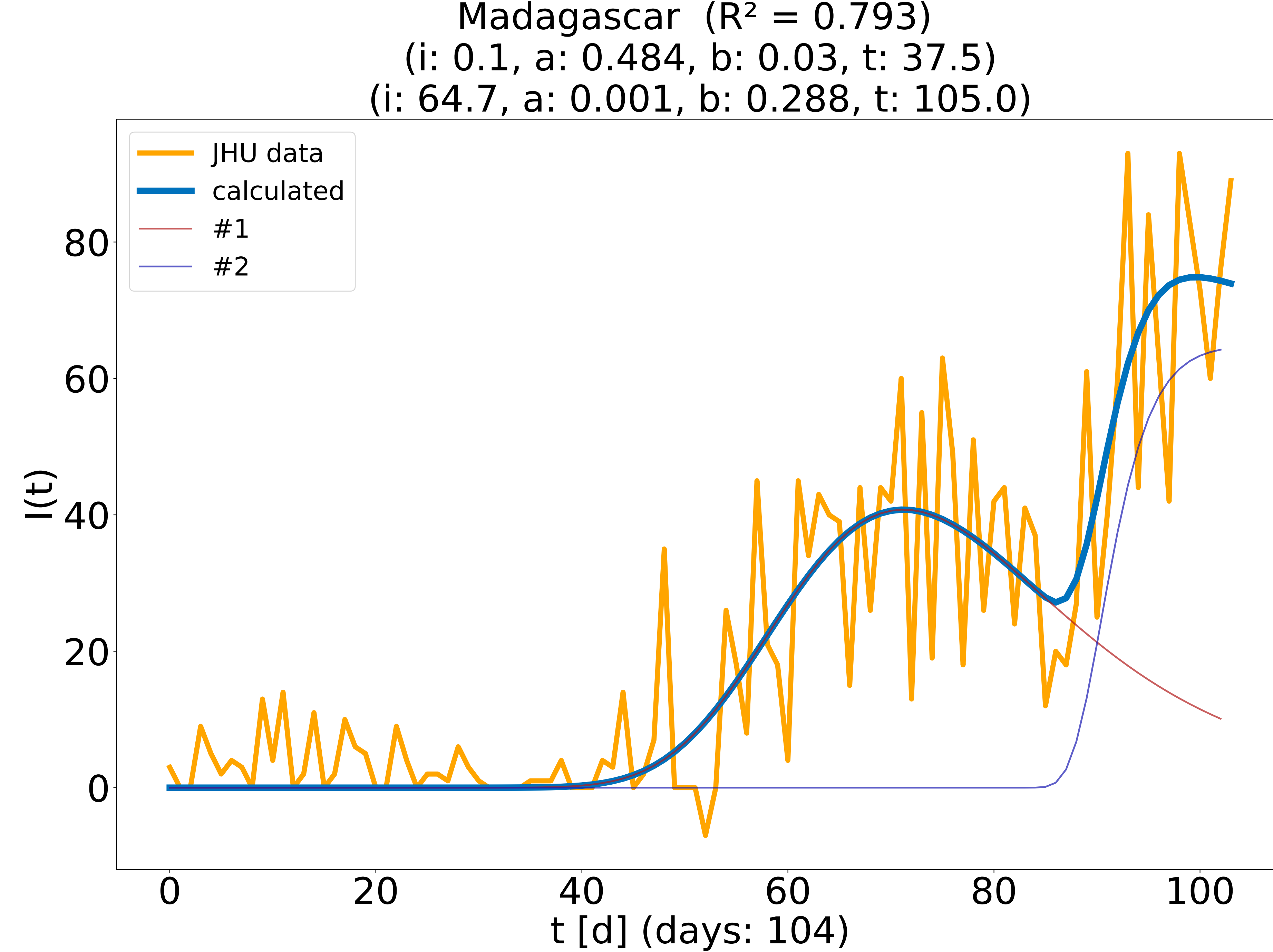


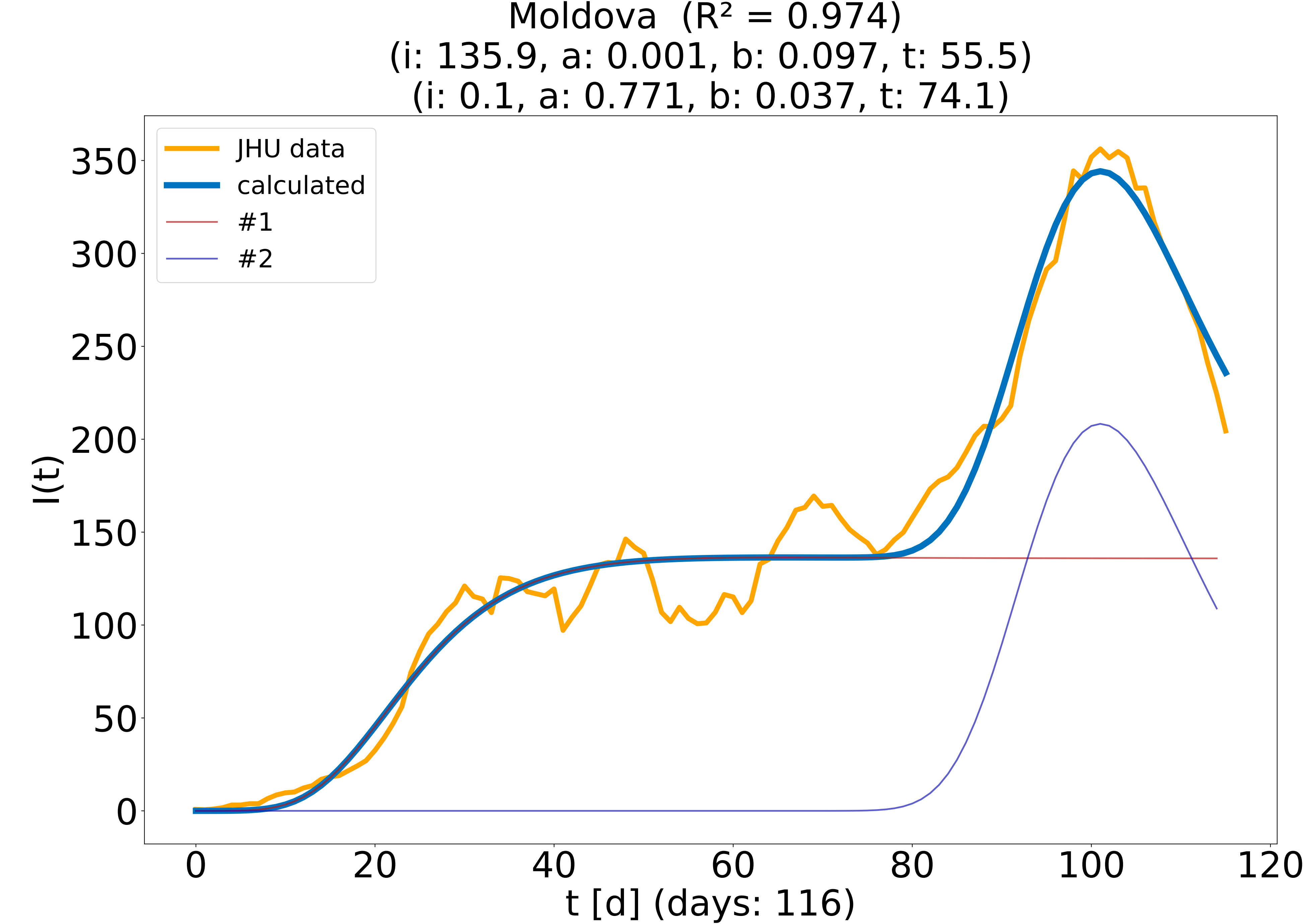
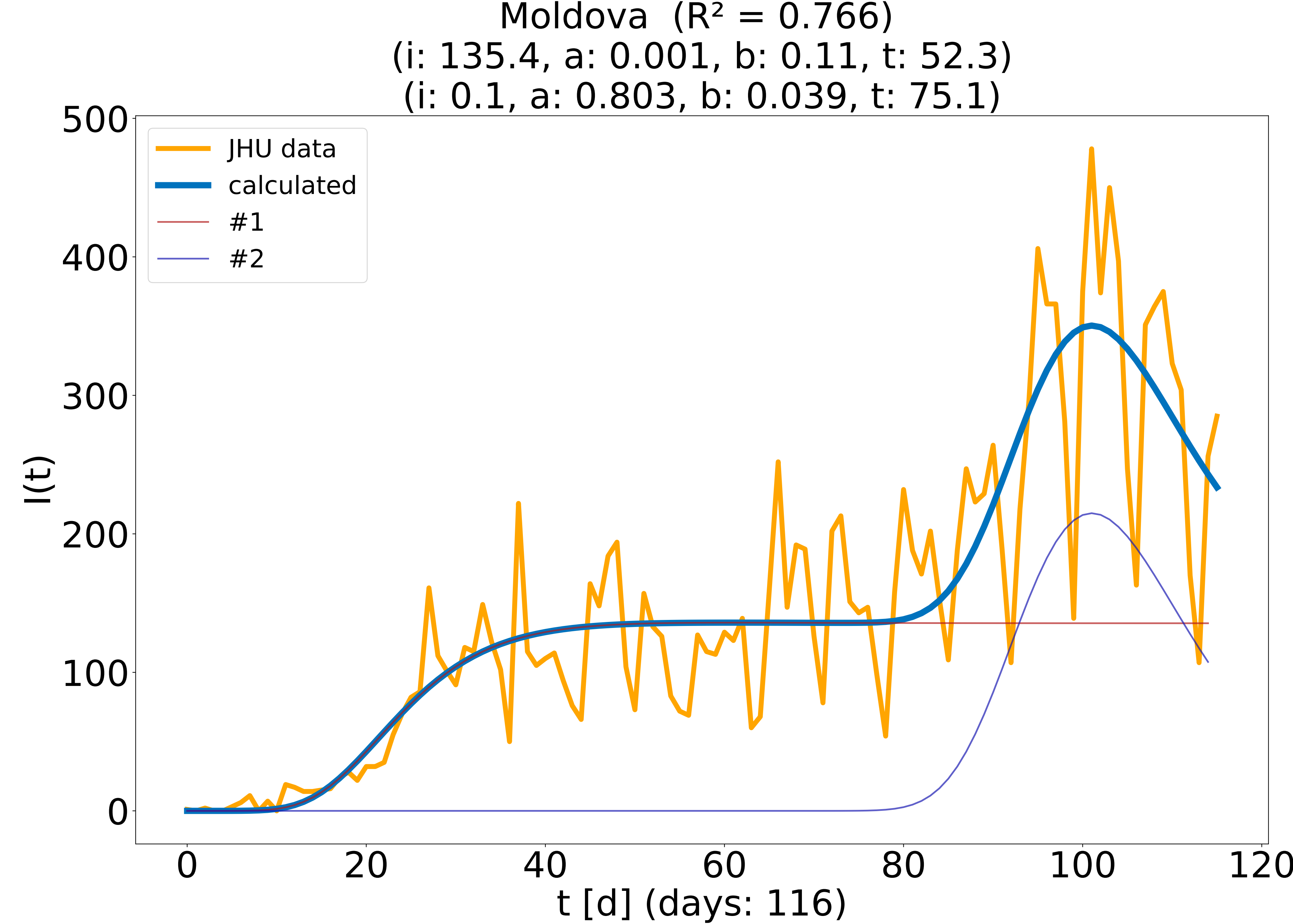
Kyrgyzstan ($R^2 = 0.693$)
(i: 463.4, a: 0.165, b: 0.001, t: 105.2)
(i: 119.9, a: 0.015, b: 0.001, t: 140.0)



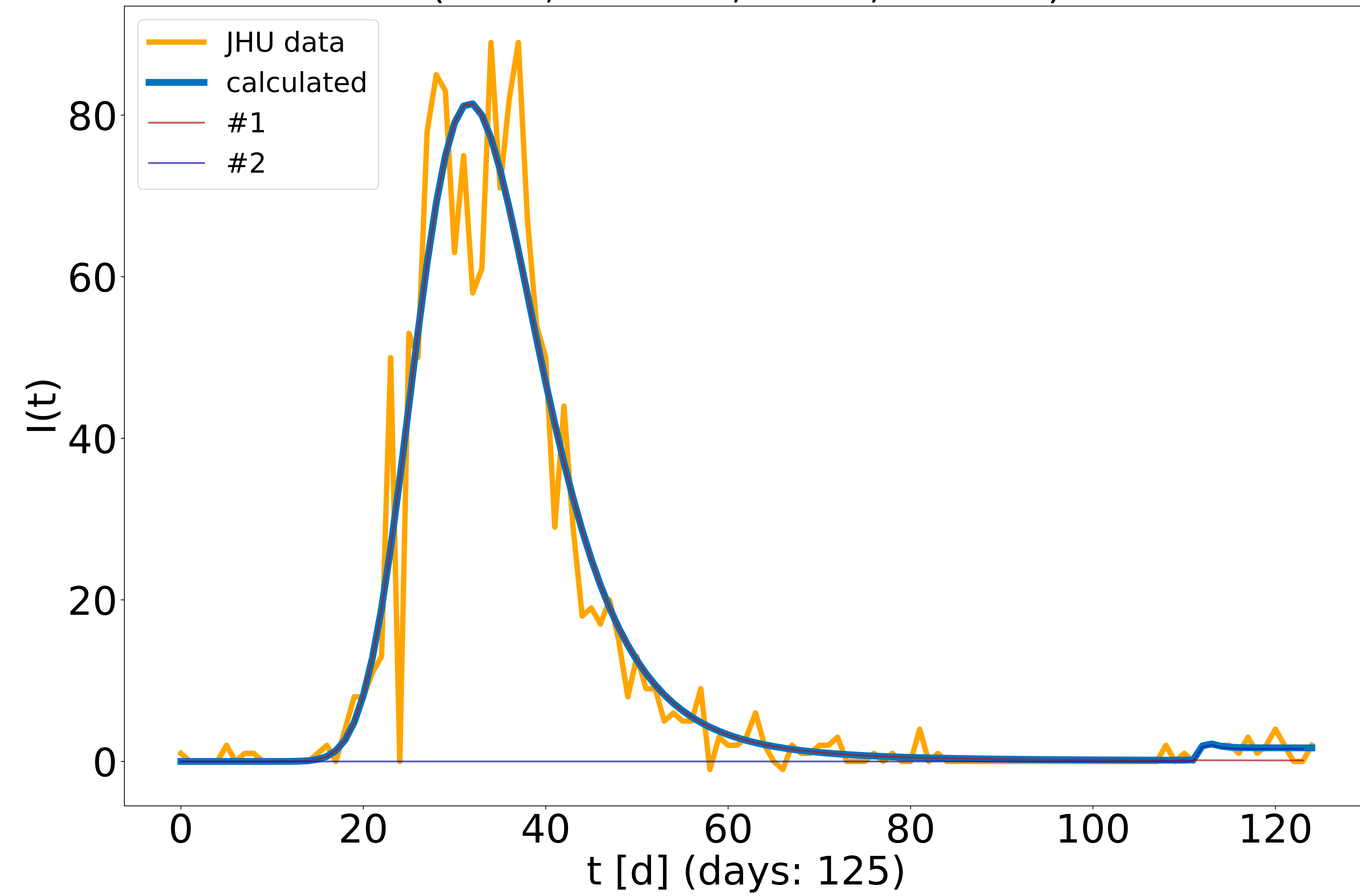
Kyrgyzstan ($R^2 = 0.983$)
(i: 44.7, a: 0.001, b: 0.017, t: 140.0)
(i: 793.1, a: 0.003, b: 0.056, t: 140.0)



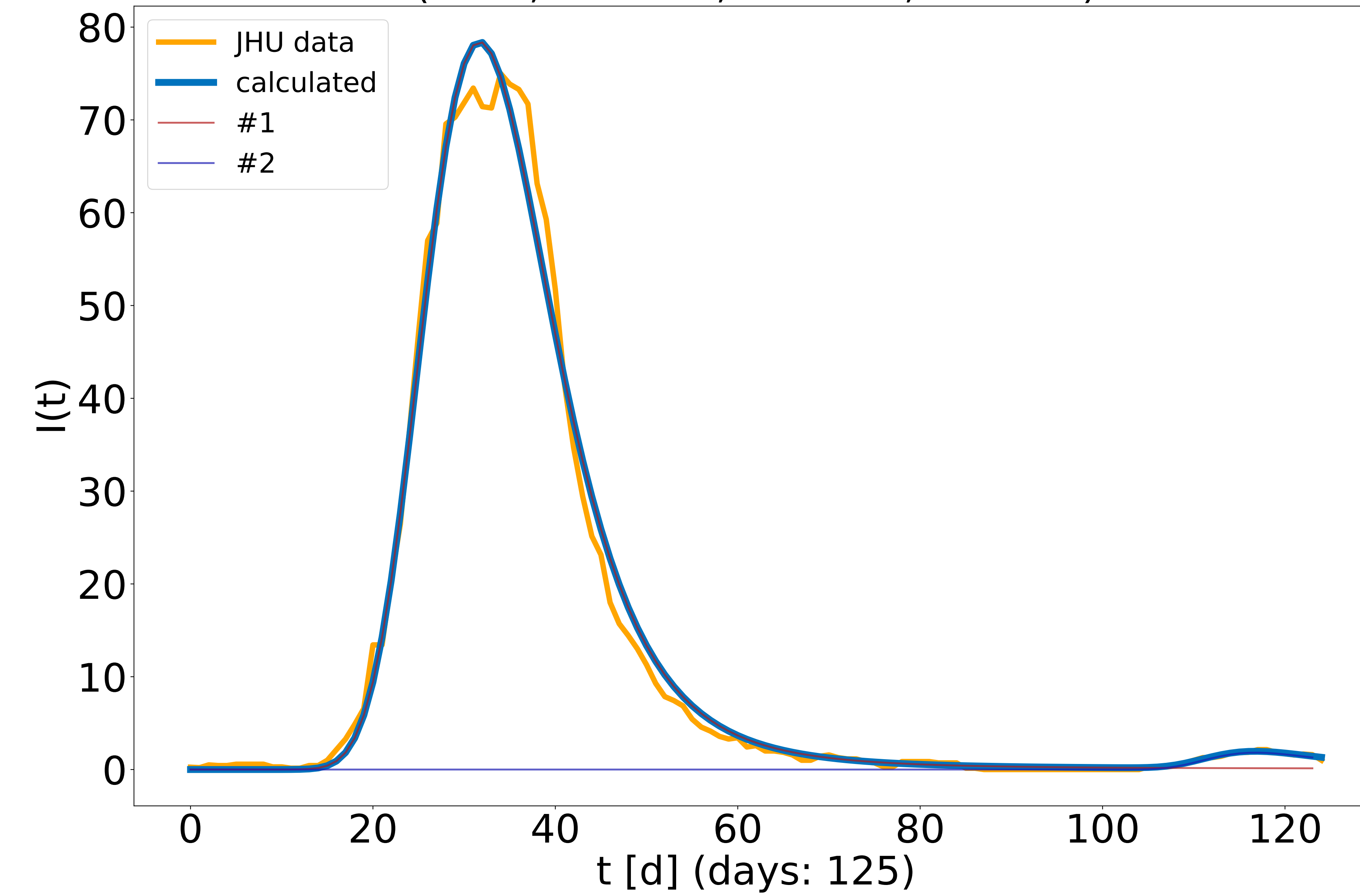




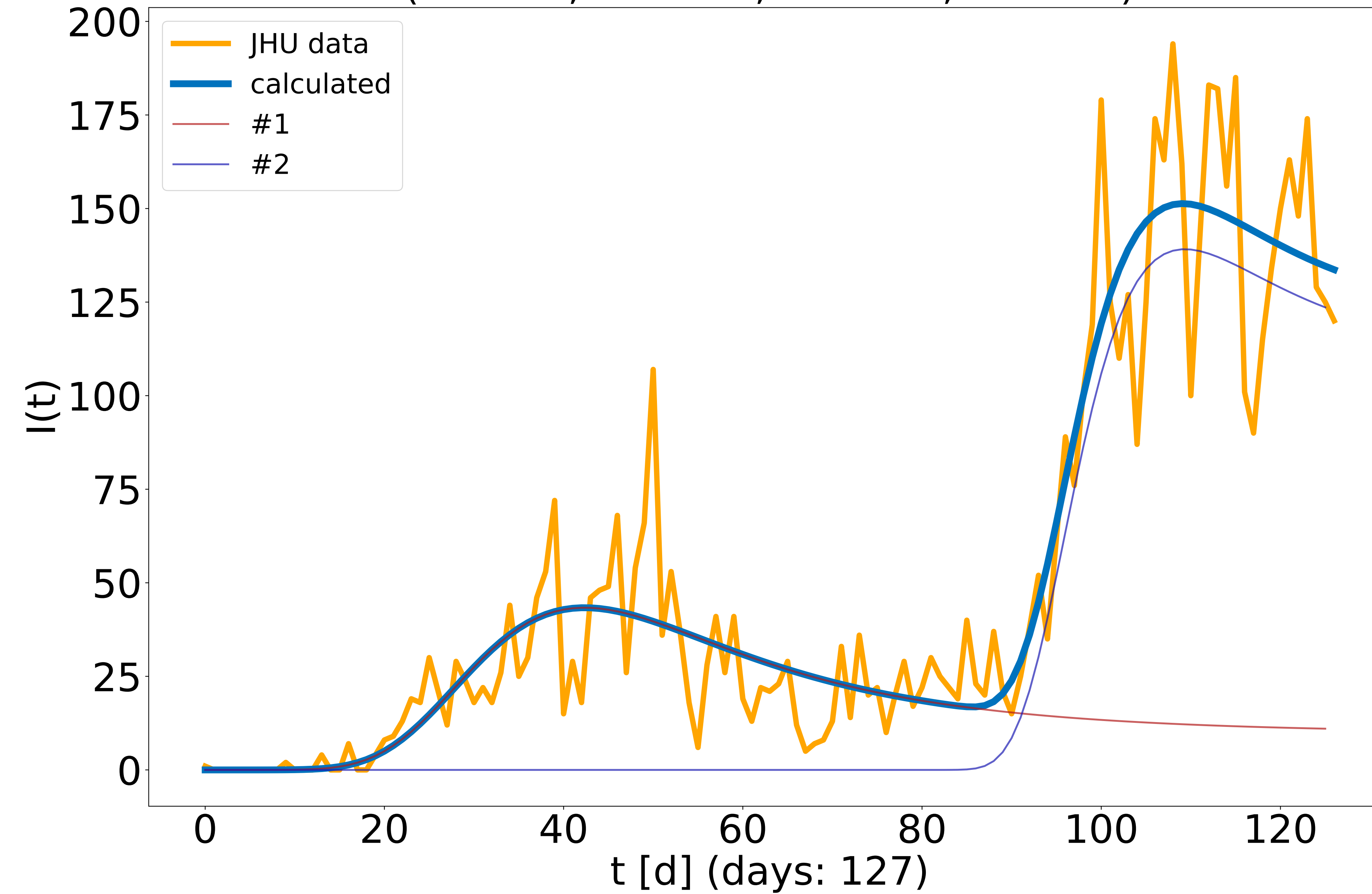
New Zealand ($R^2 = 0.923$)
(i: 0.1, a: 1.034, b: 0.057, t: 14.0)
(i: 1.6, a: 1.148, b: 1.4, t: 111.9)



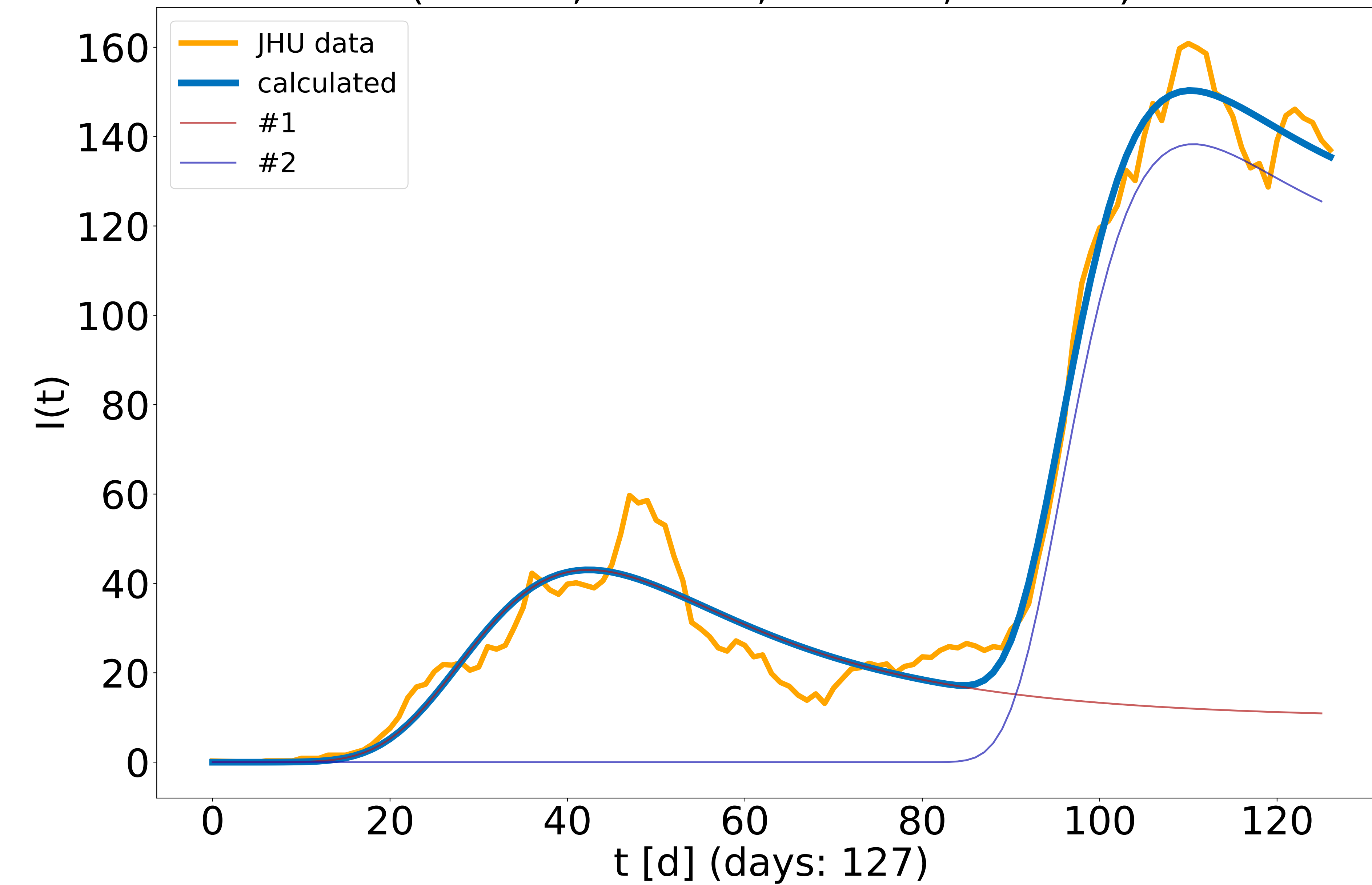
New Zealand ($R^2 = 0.991$)
(i: 0.1, a: 0.993, b: 0.055, t: 13.4)
(i: 0.1, a: 0.738, b: 0.094, t: 106.1)



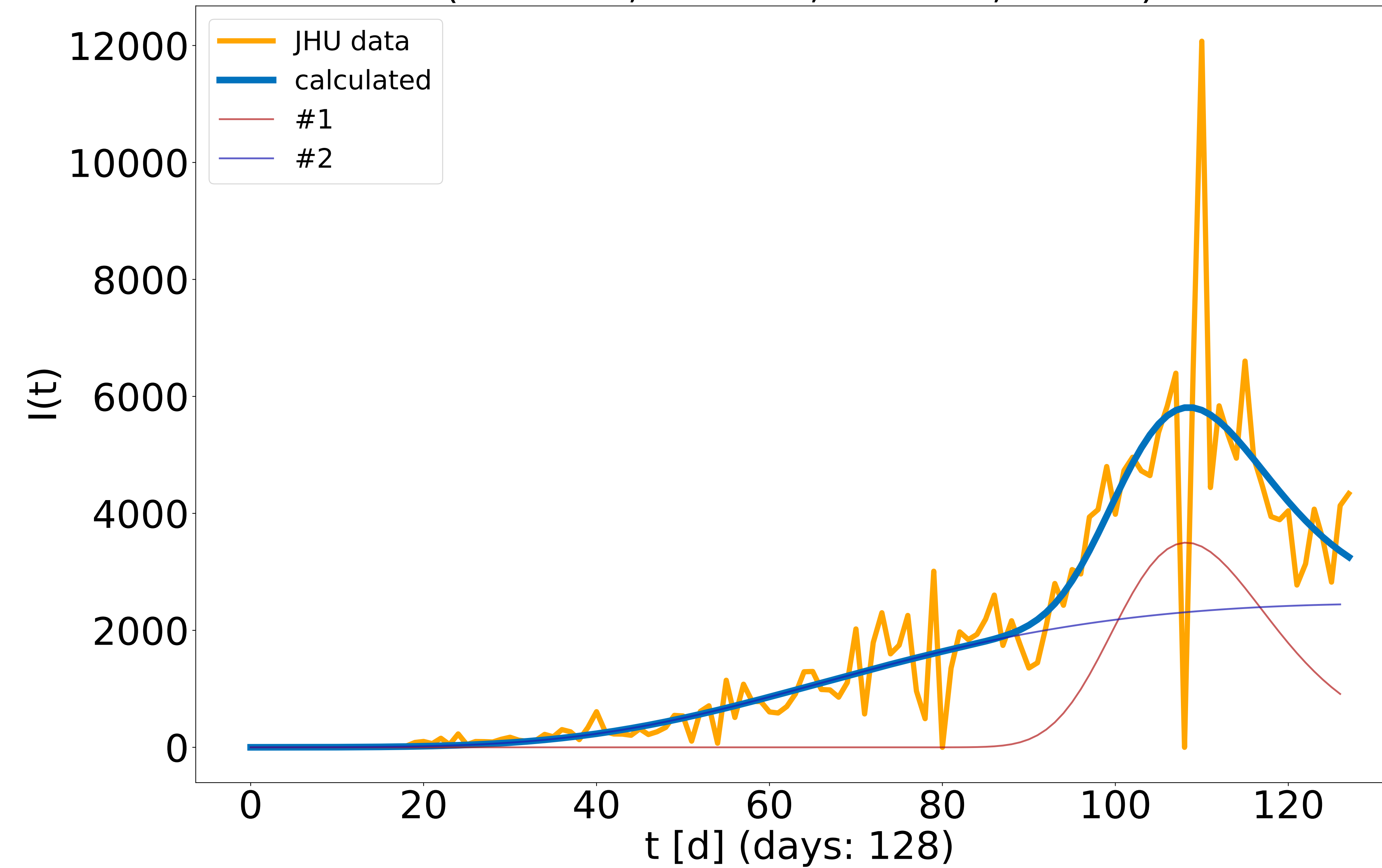
North Macedonia ($R^2 = 0.887$)
(i: 9.8, a: 0.206, b: 0.051, t: 22.8)
(i: 111.9, a: 0.069, b: 0.116, t: 100.7)



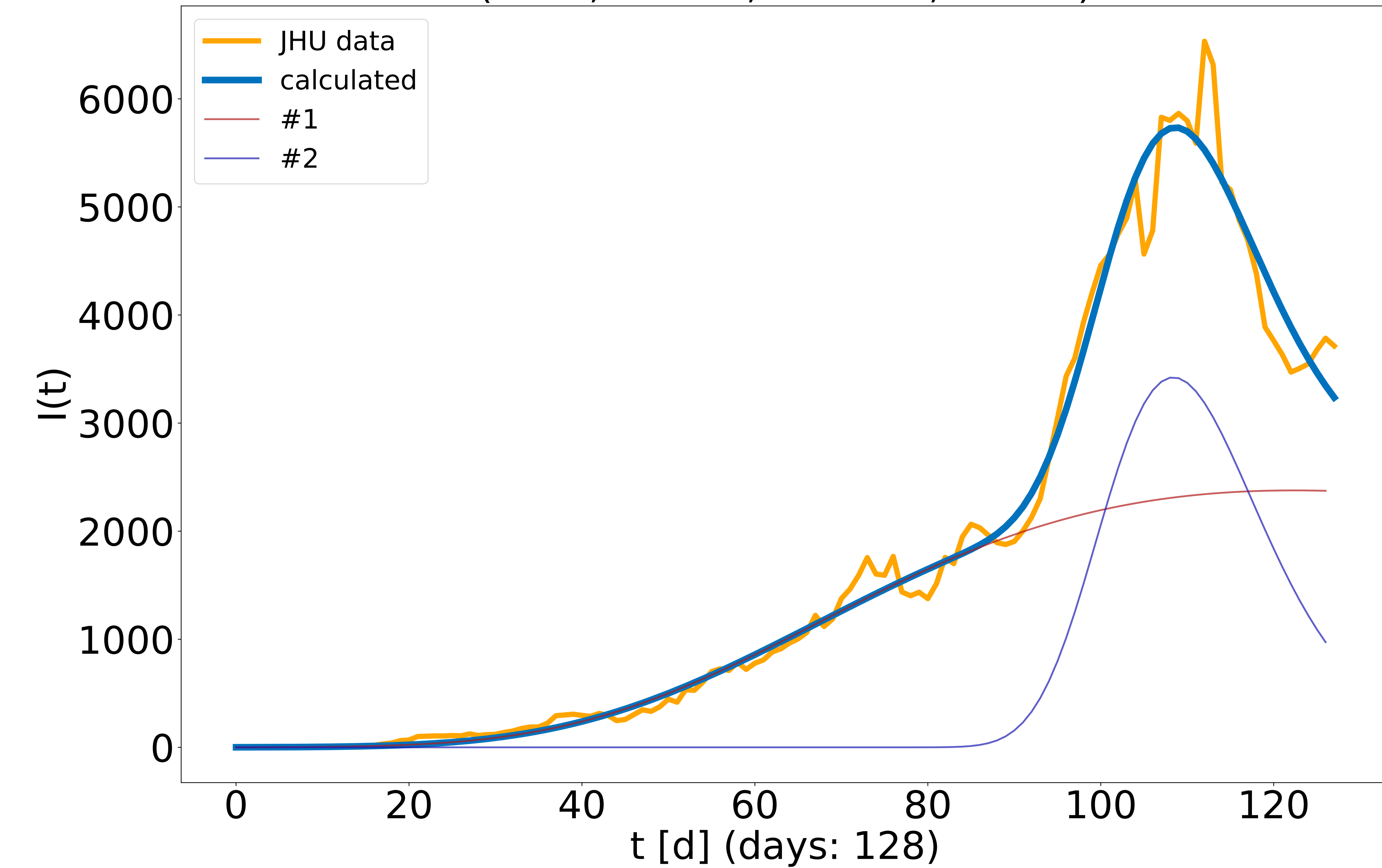
North Macedonia ($R^2 = 0.985$)
(i: 9.7, a: 0.205, b: 0.051, t: 22.6)
(i: 111.7, a: 0.062, b: 0.106, t: 101.1)



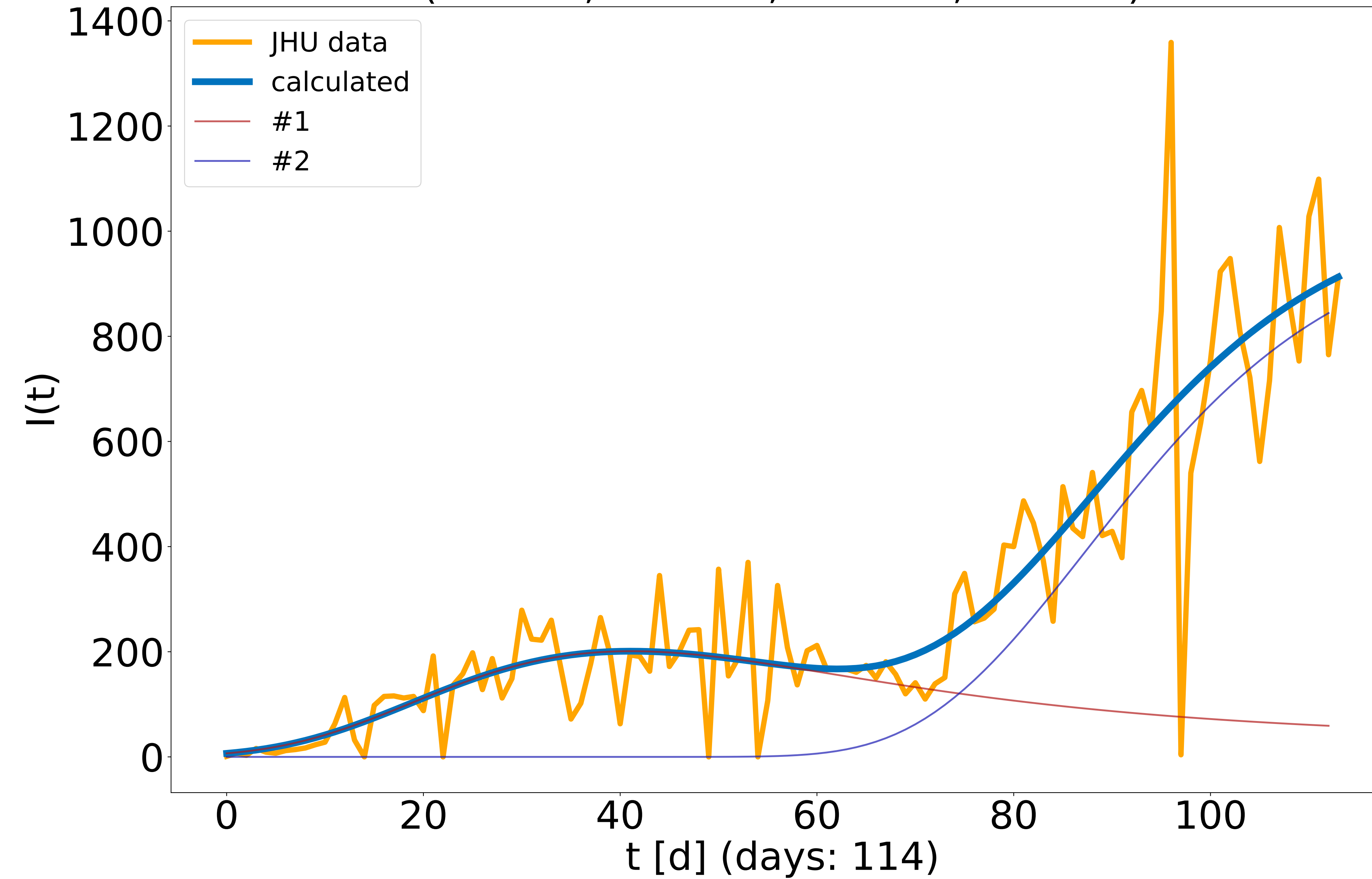
Pakistan ($R^2 = 0.818$)
(i: 0.1, a: 0.991, b: 0.035, t: 79.5)
(i: 1954.5, a: 0.014, b: 0.022, t: 90.1)



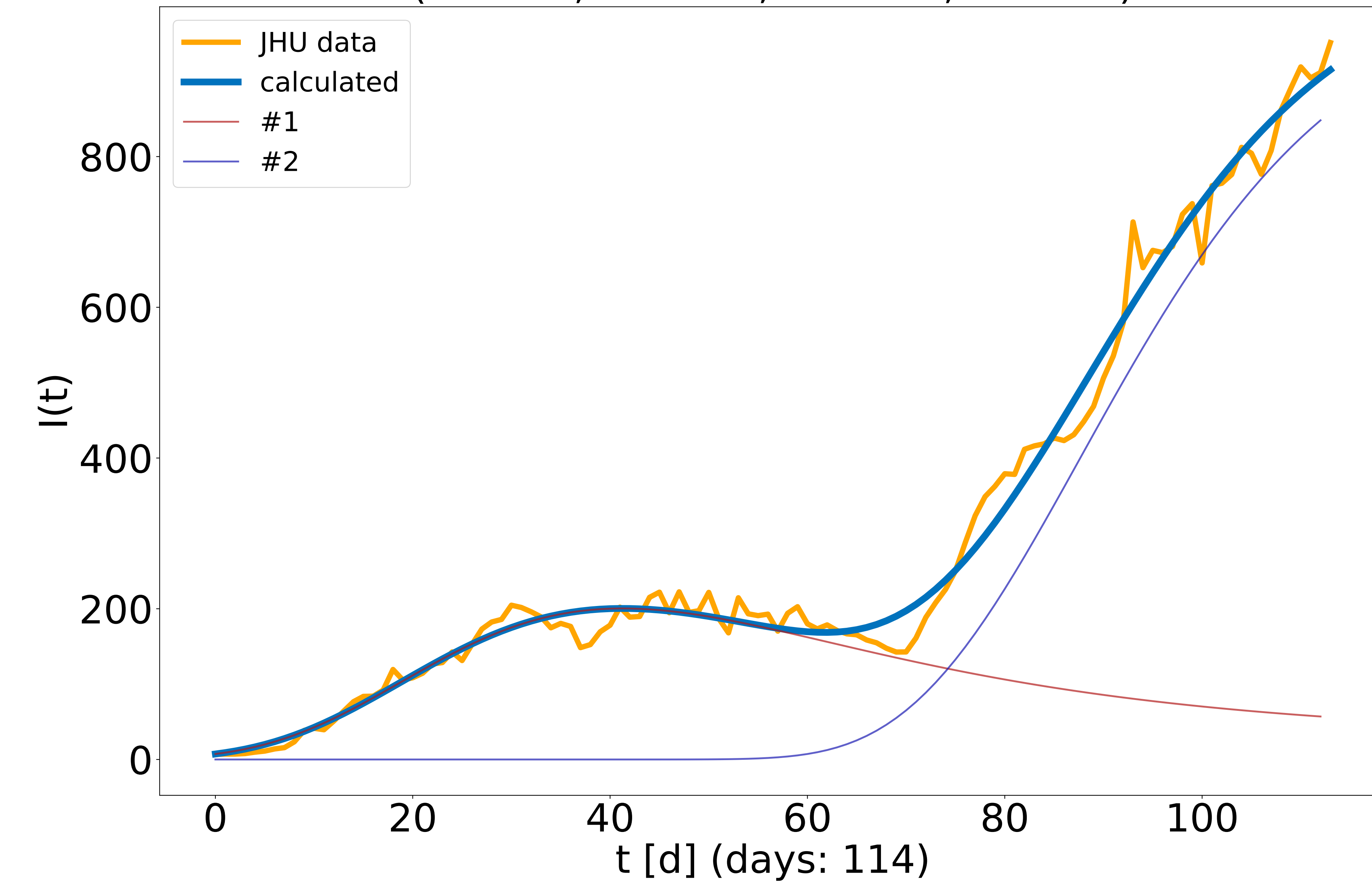
Pakistan ($R^2 = 0.986$)
(i: 1071.1, a: 0.038, b: 0.018, t: 65.3)
(i: 0.1, a: 0.96, b: 0.034, t: 78.8)



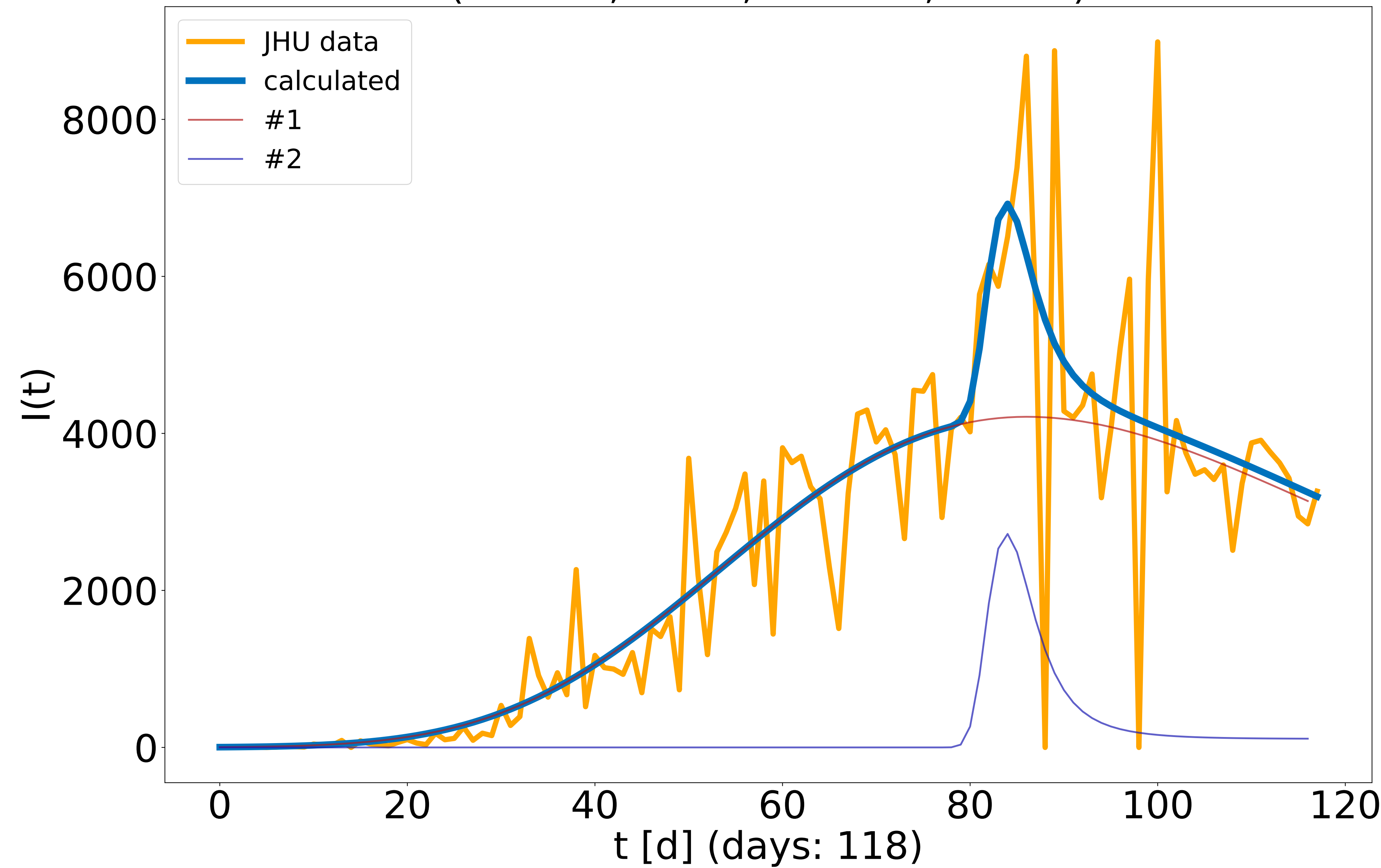
Panama ($R^2 = 0.81$)
(i: 27.9, a: 0.159, b: 0.03, t: 7.2)
(i: 984.4, a: 0.001, b: 0.047, t: 140.0)



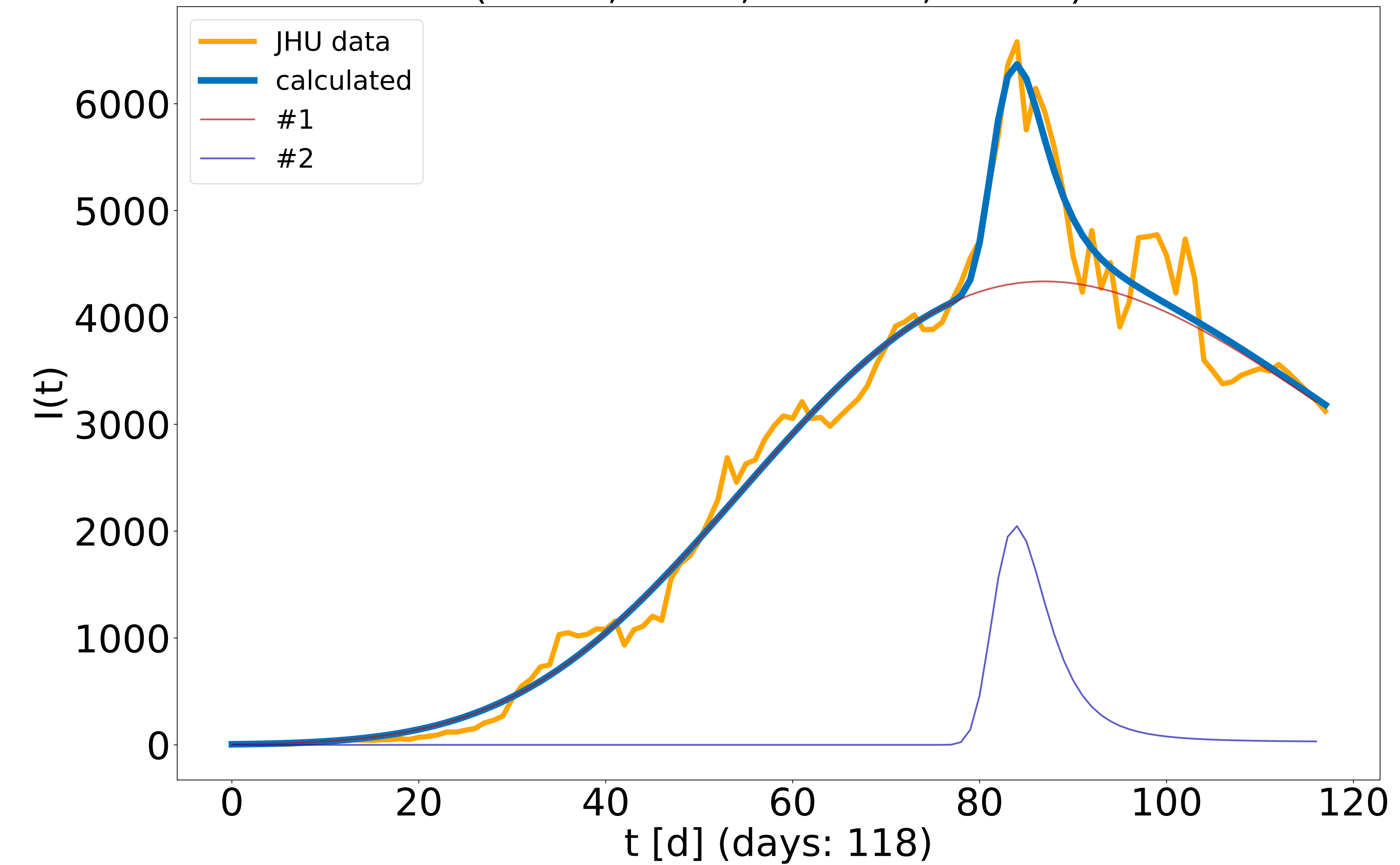
Panama ($R^2 = 0.99$)
(i: 24.6, a: 0.163, b: 0.029, t: 6.2)
(i: 996.1, a: 0.002, b: 0.046, t: 140.0)



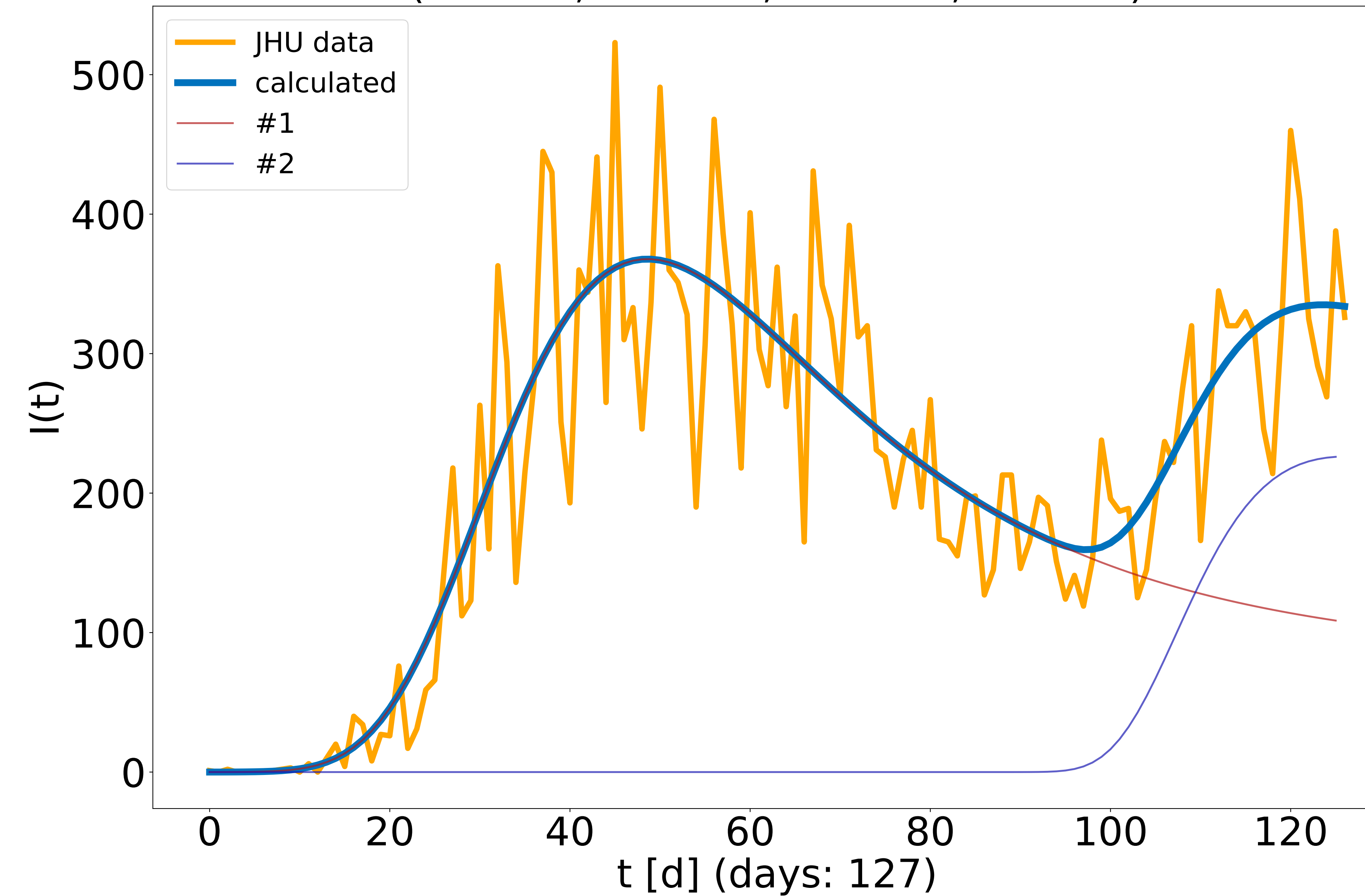
Peru ($R^2 = 0.767$)
(i: 38.6, a: 0.172, b: 0.013, t: 12.0)
(i: 109.6, a: 2.0, b: 0.229, t: 79.5)



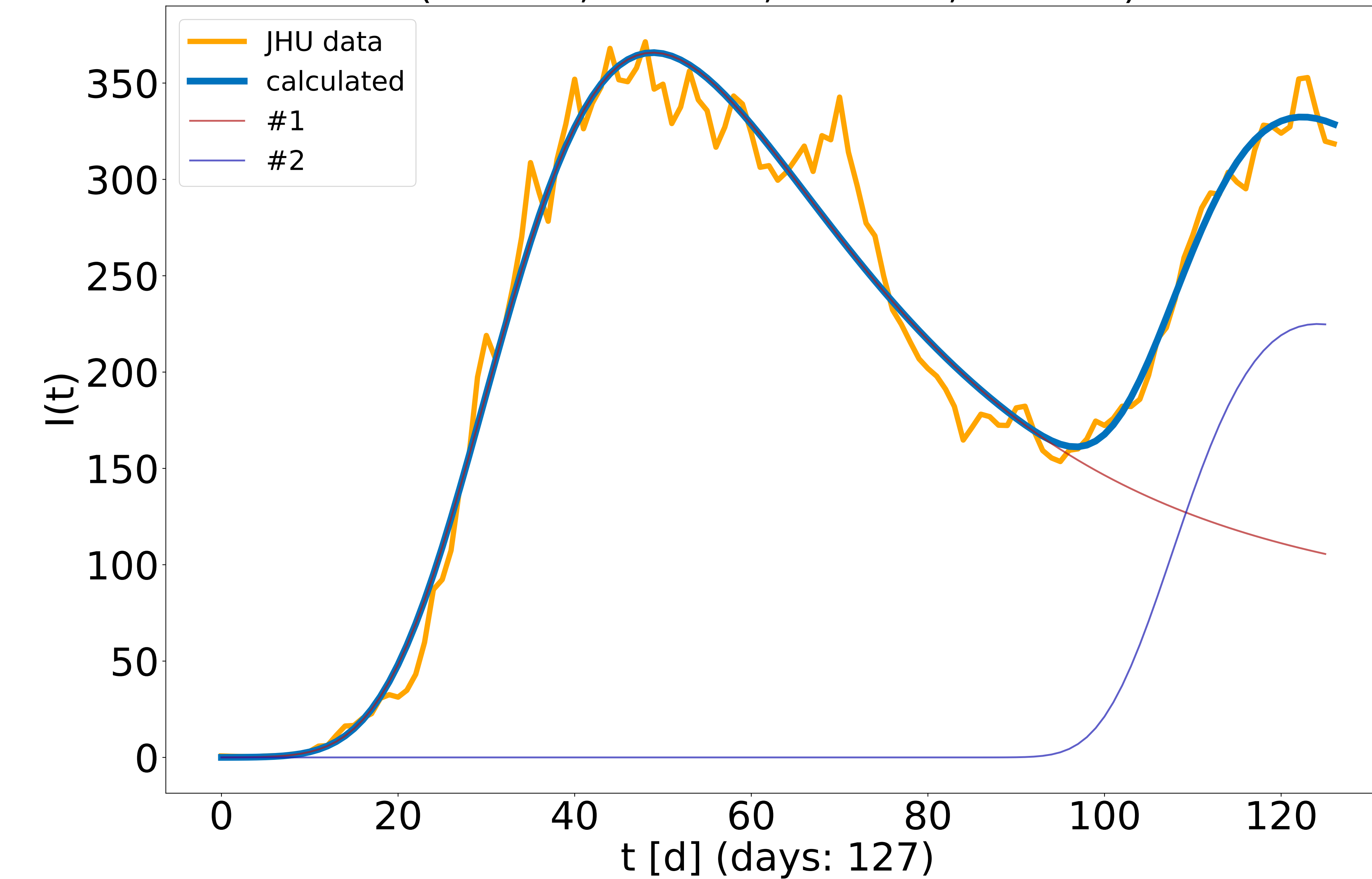
Peru ($R^2 = 0.987$)
(i: 6.1, a: 0.208, b: 0.012, t: 1.0)
(i: 29.0, a: 2.0, b: 0.173, t: 78.1)



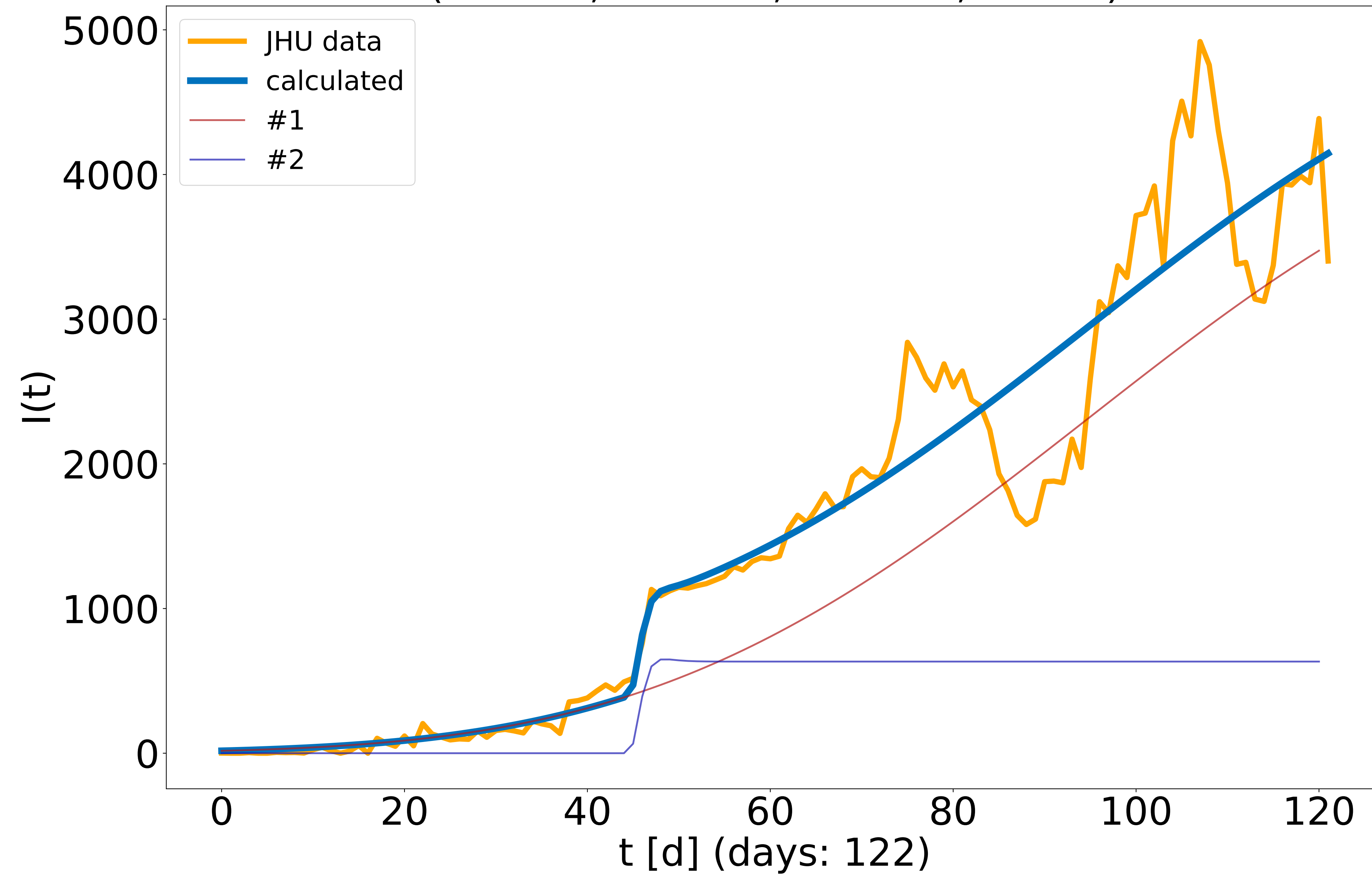
Romania ($R^2 = 0.793$)
(i: 79.9, a: 0.162, b: 0.039, t: 23.0)
(i: 191.3, a: 0.041, b: 0.091, t: 115.1)



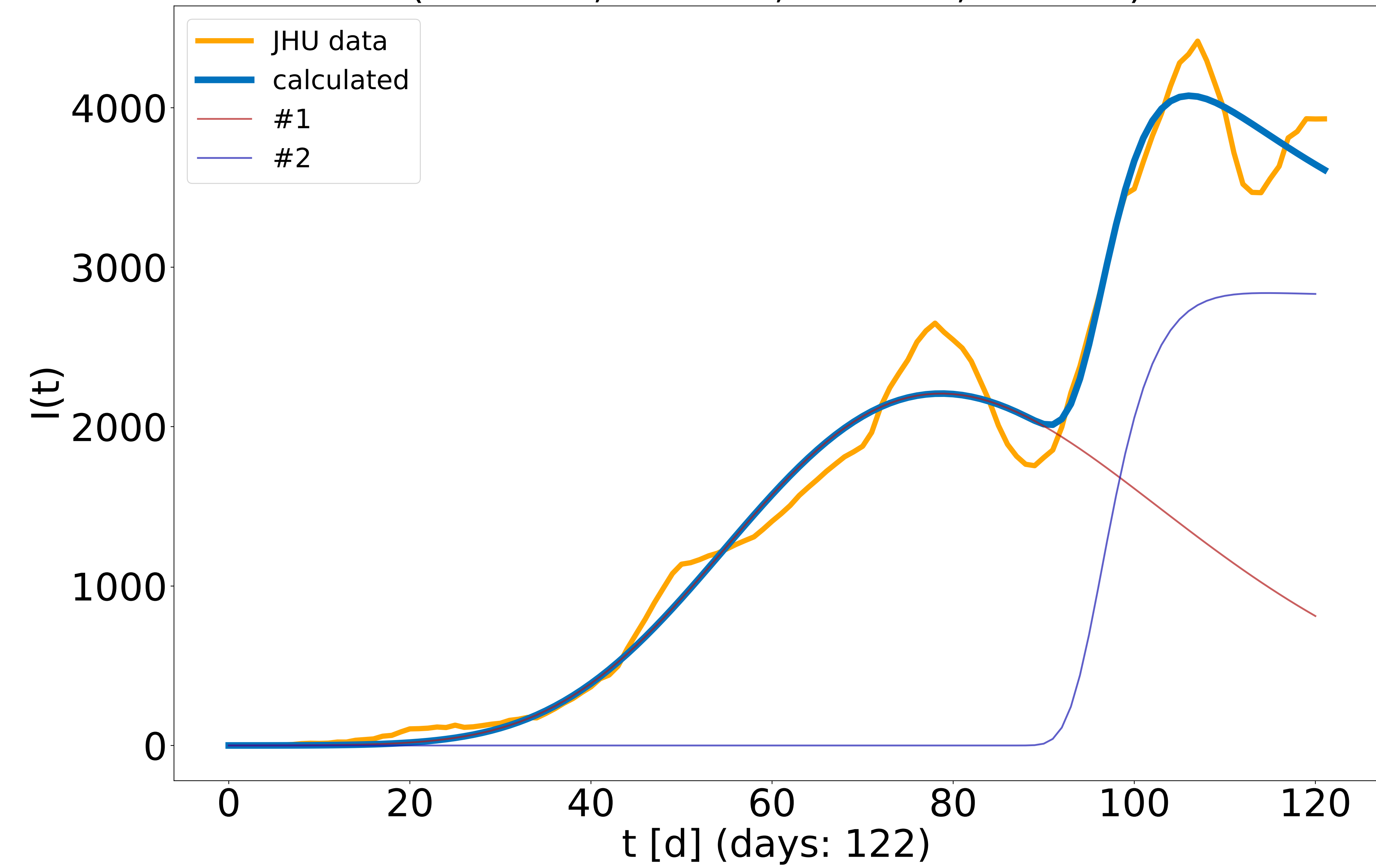
Romania ($R^2 = 0.981$)
(i: 74.8, a: 0.163, b: 0.038, t: 22.5)
(i: 128.5, a: 0.103, b: 0.068, t: 109.3)

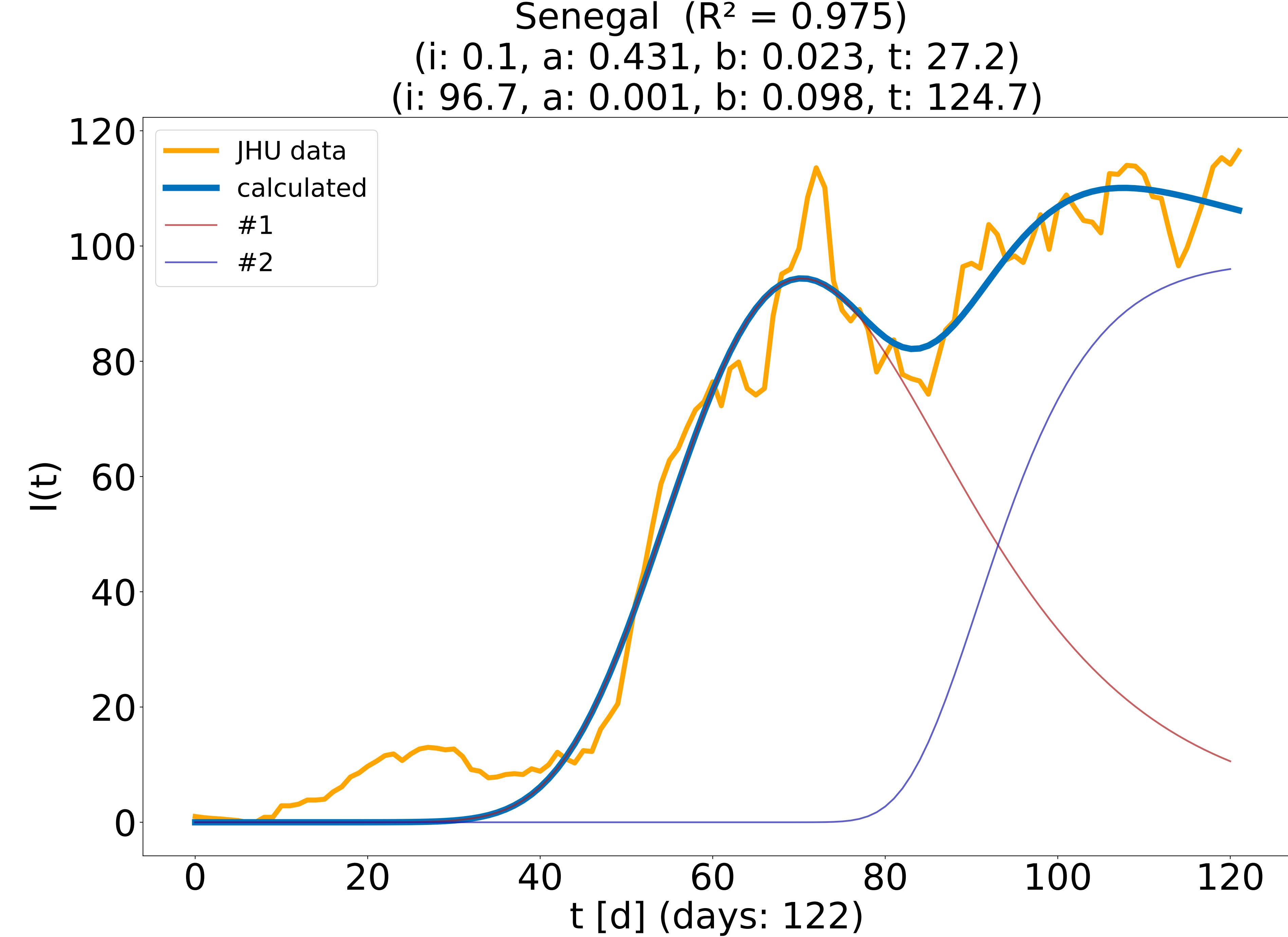
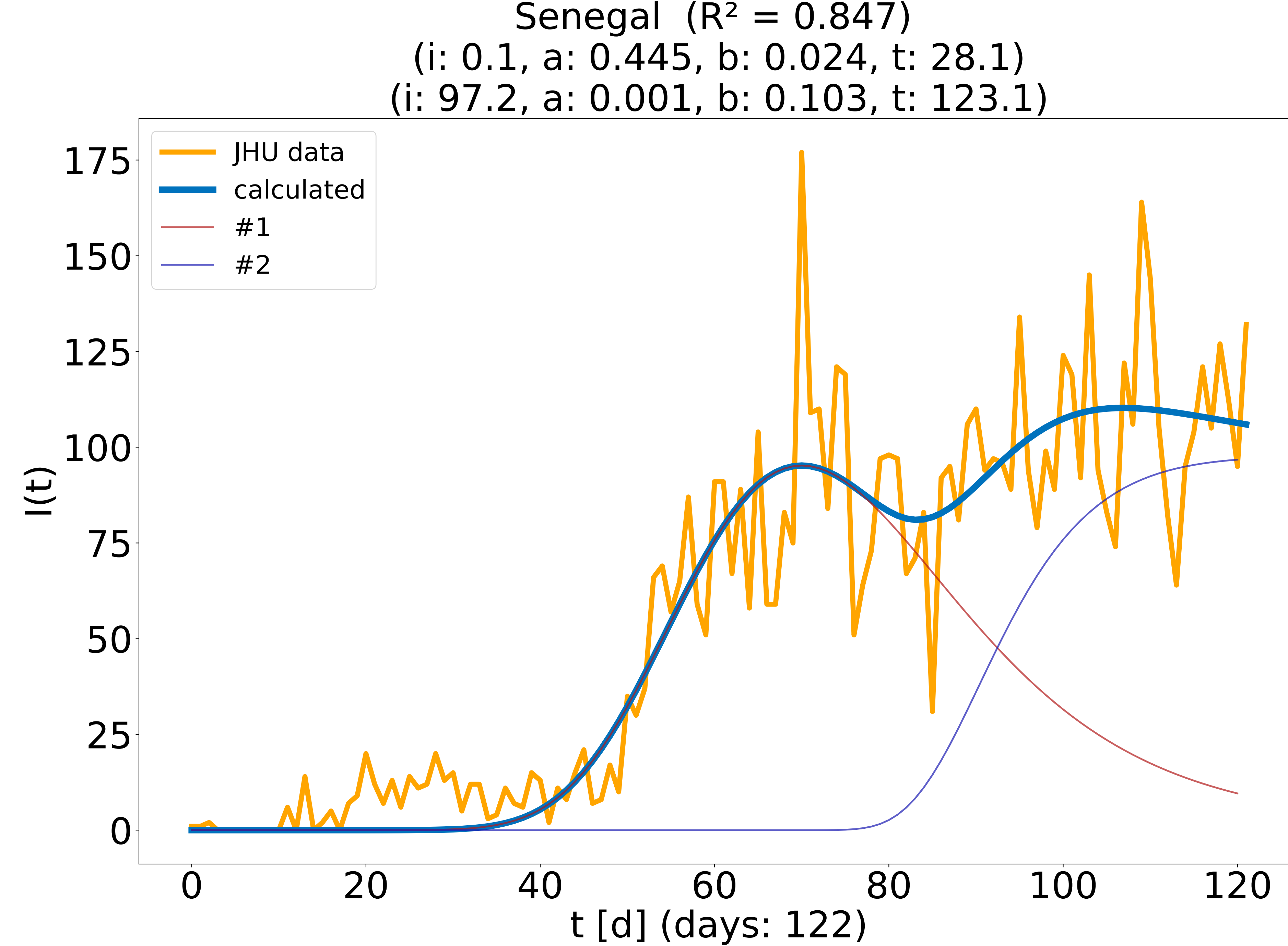


Saudi Arabia ($R^2 = 0.921$)
(i: 18.3, a: 0.093, b: 0.006, t: 1.0)
(i: 633.4, a: 0.072, b: 1.033, t: 47.5)

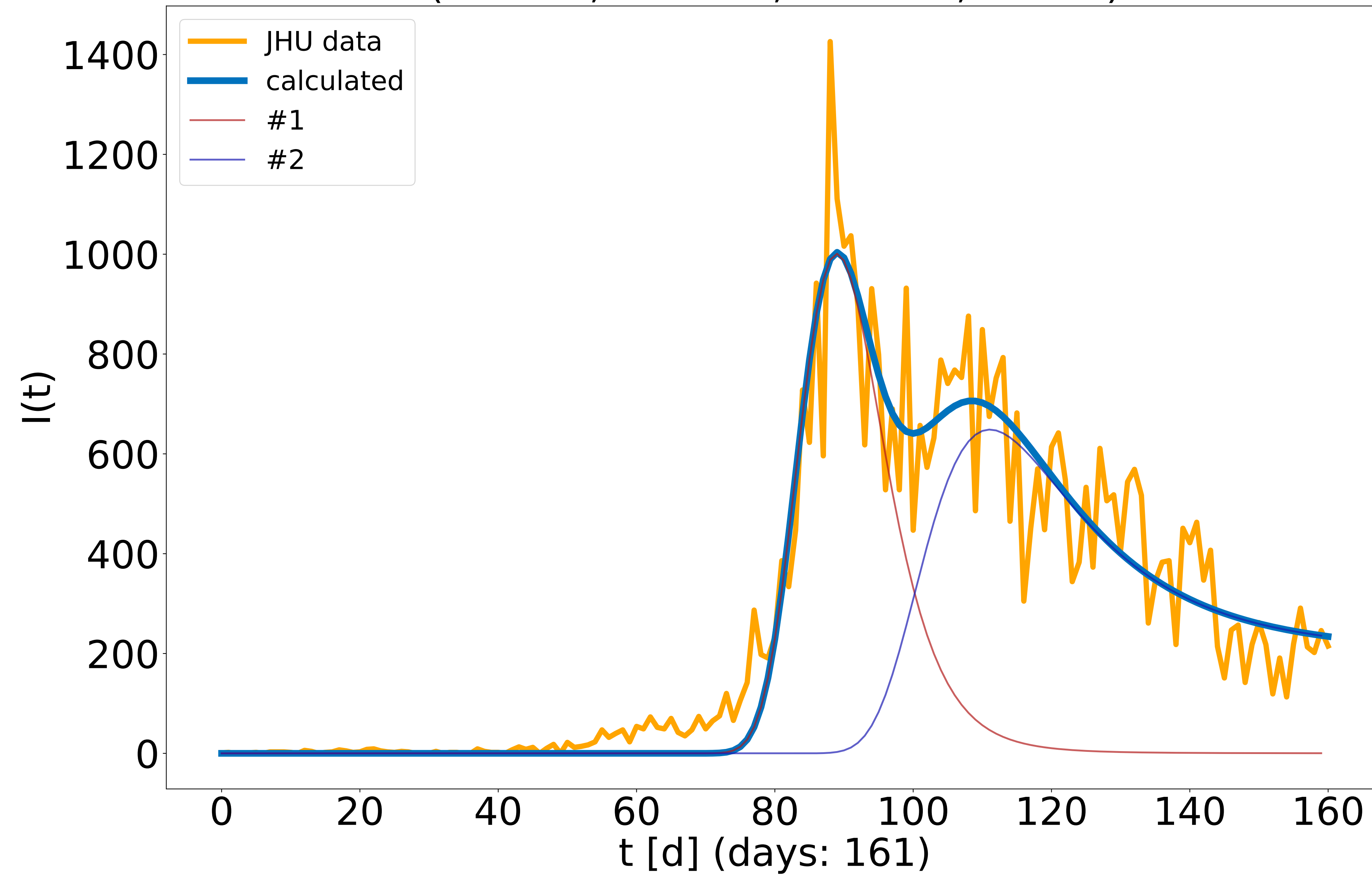


Saudi Arabia ($R^2 = 0.986$)
(i: 0.1, a: 0.35, b: 0.013, t: 1.0)
(i: 2820.5, a: 0.004, b: 0.217, t: 110.0)

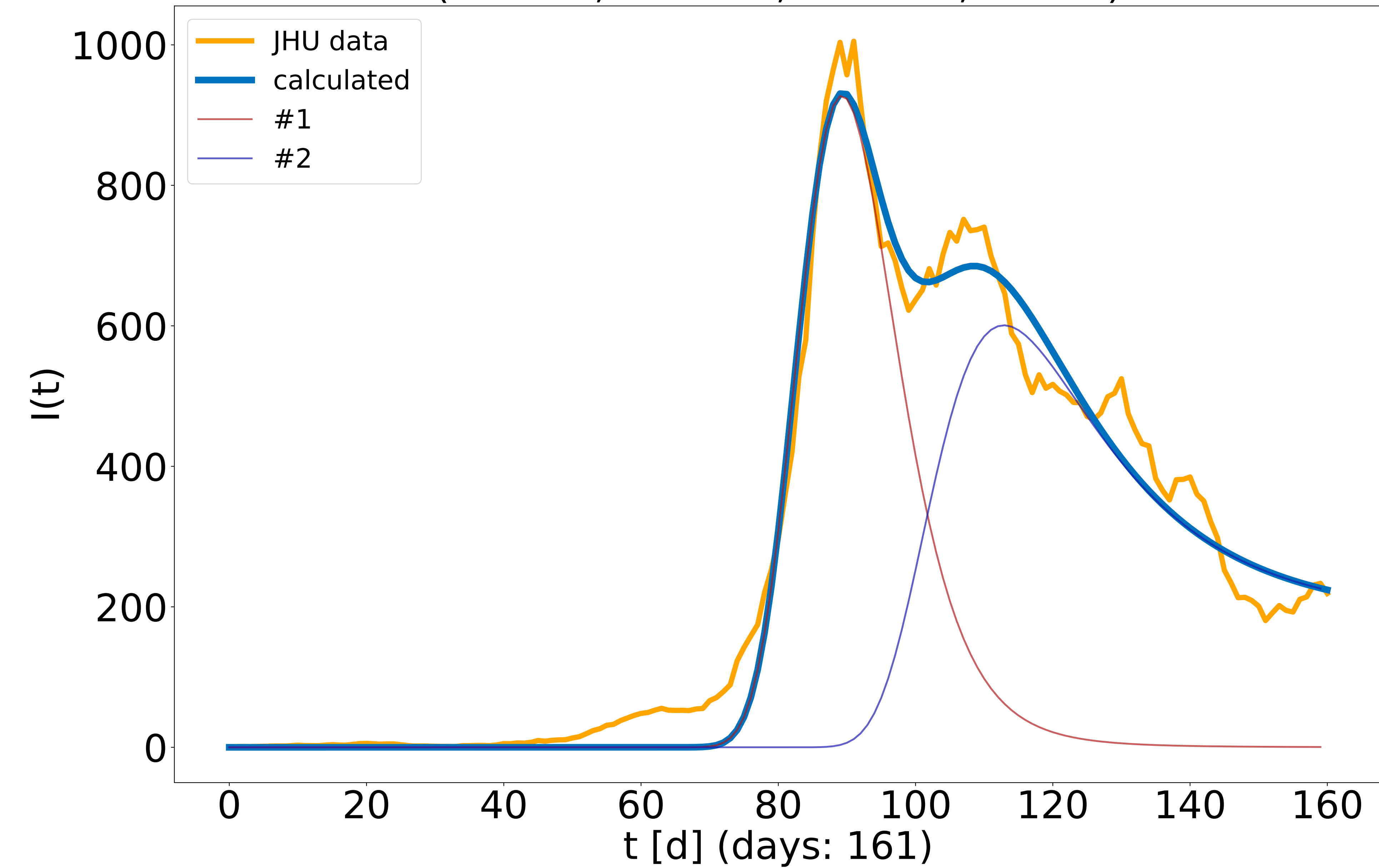




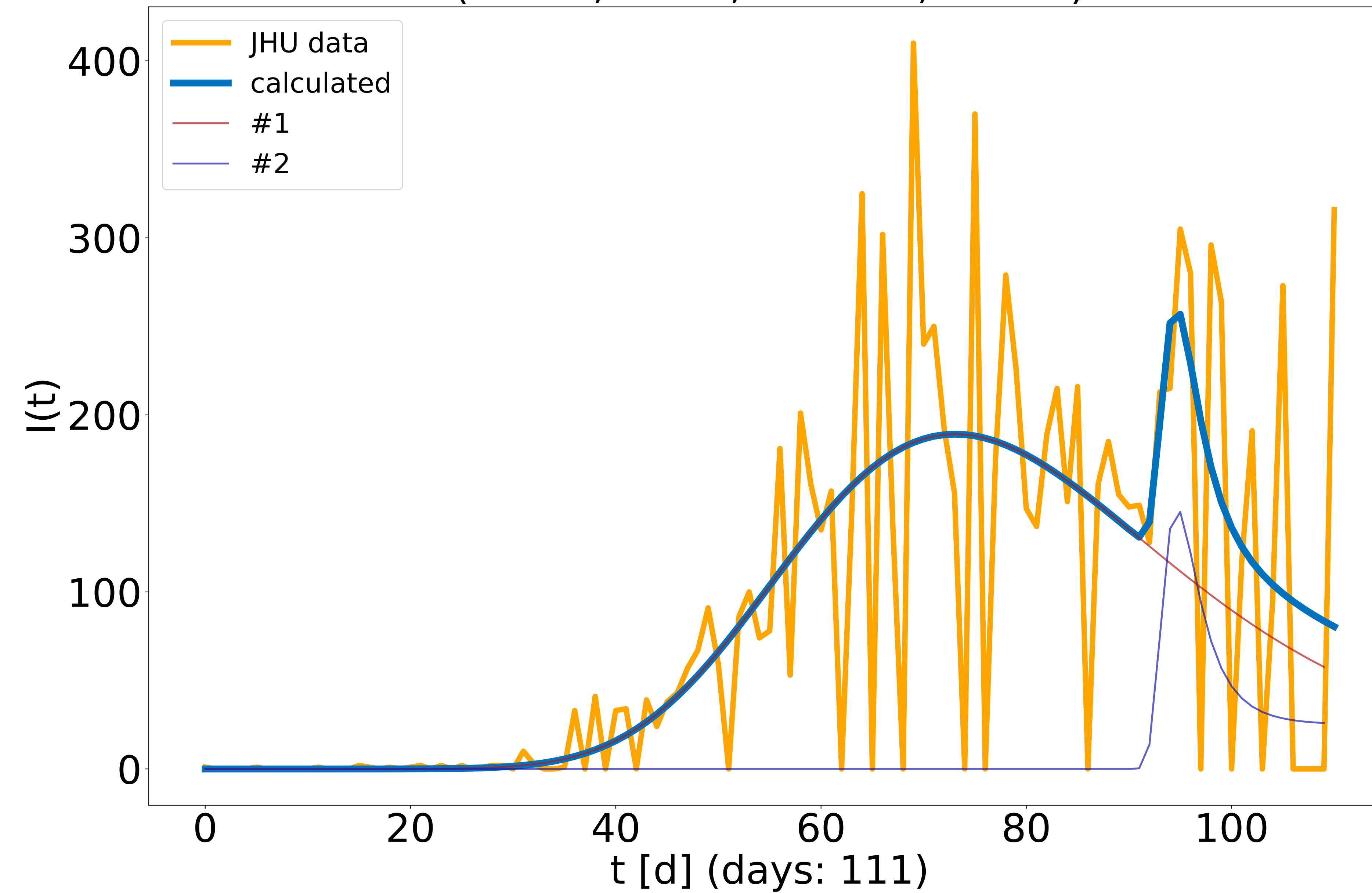
Singapore ($R^2 = 0.901$)
(i: 0.1, a: 1.345, b: 0.054, t: 70.3)
(i: 205.7, a: 0.239, b: 0.077, t: 98.0)



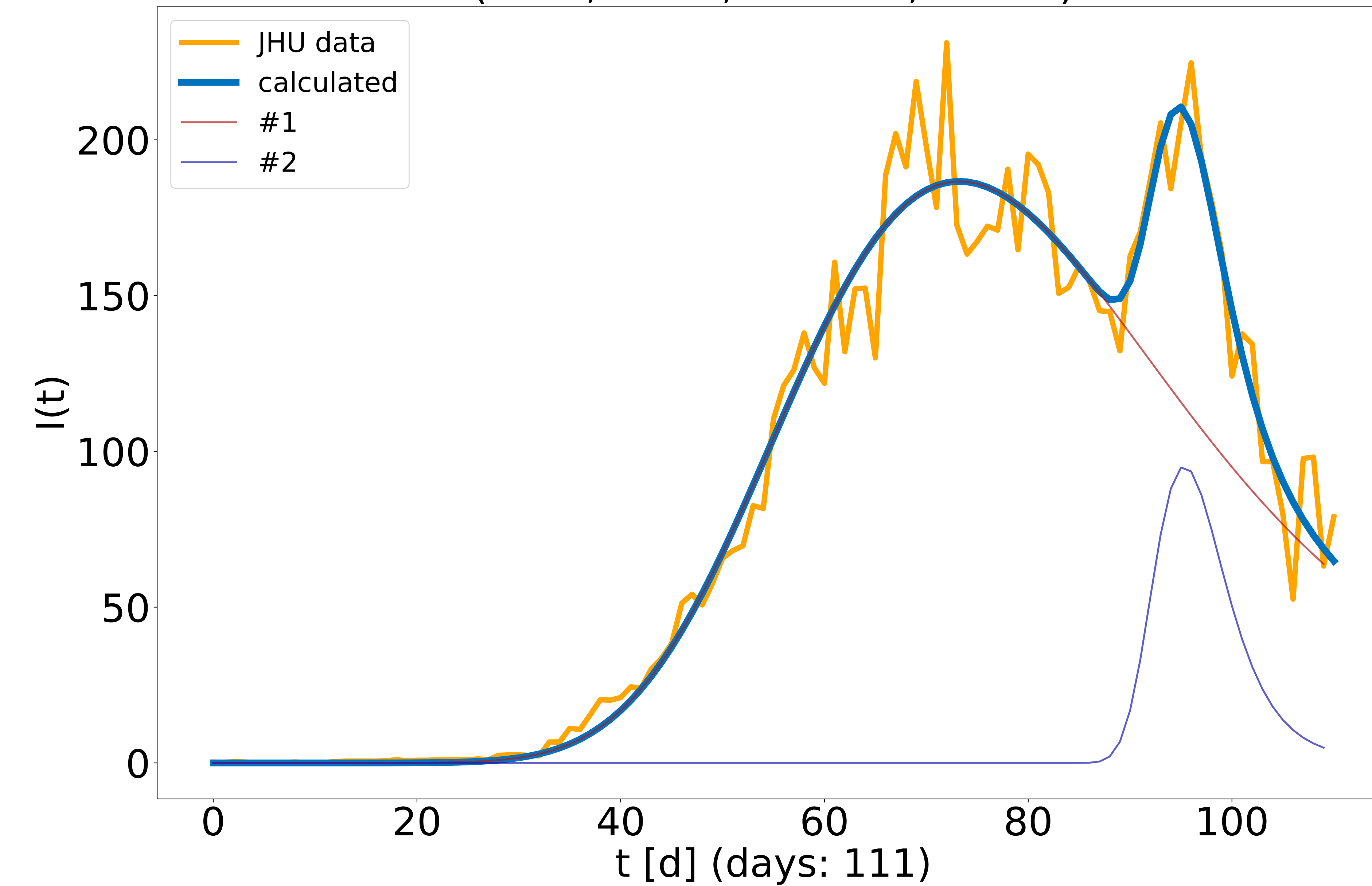
Singapore ($R^2 = 0.978$)
(i: 0.1, a: 1.14, b: 0.046, t: 67.5)
(i: 184.4, a: 0.222, b: 0.069, t: 98.4)



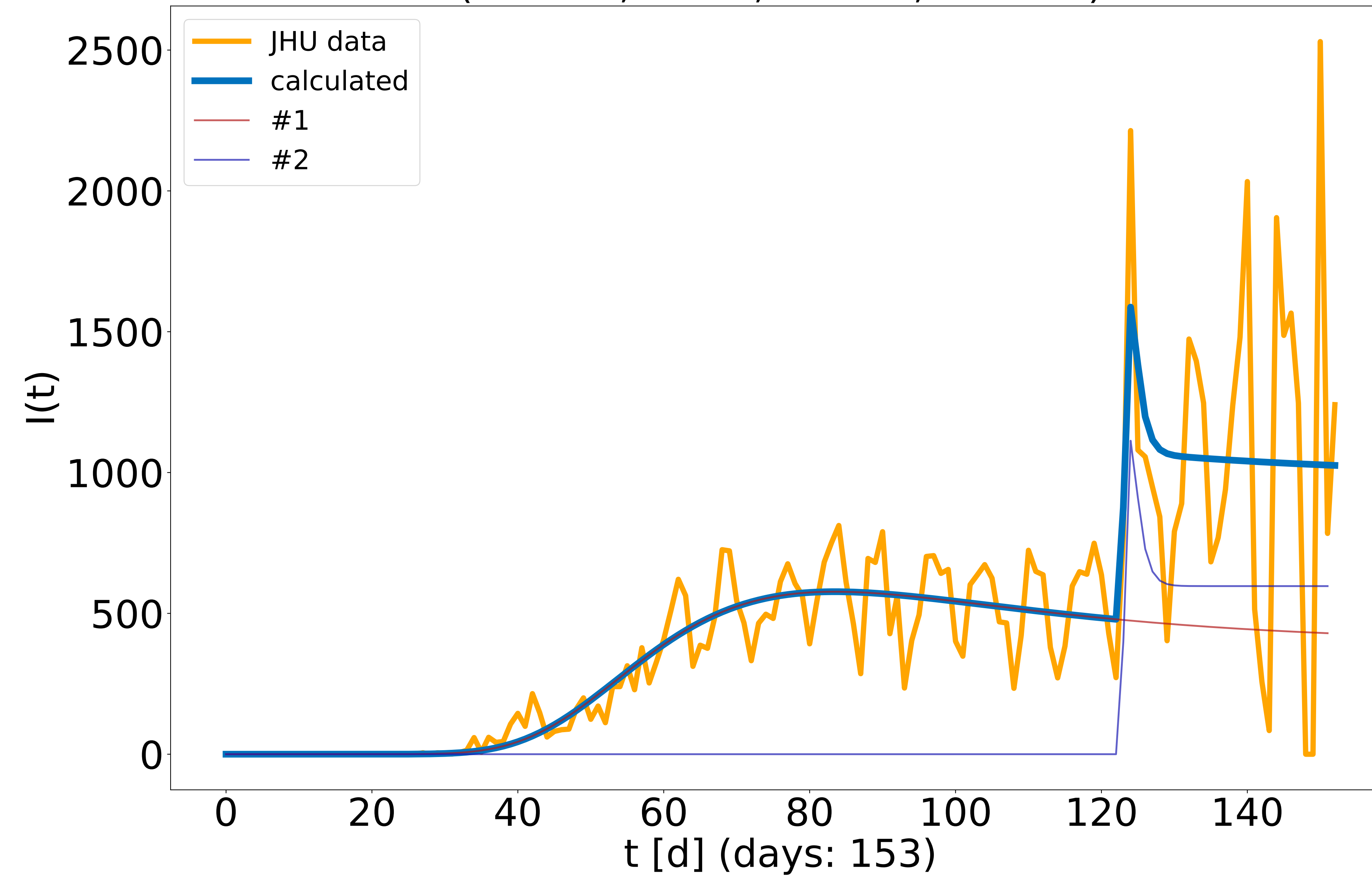
Sudan ($R^2 = 0.527$)
(i: 0.1, a: 0.402, b: 0.02, t: 22.1)
(i: 25.1, a: 2.0, b: 0.416, t: 92.3)



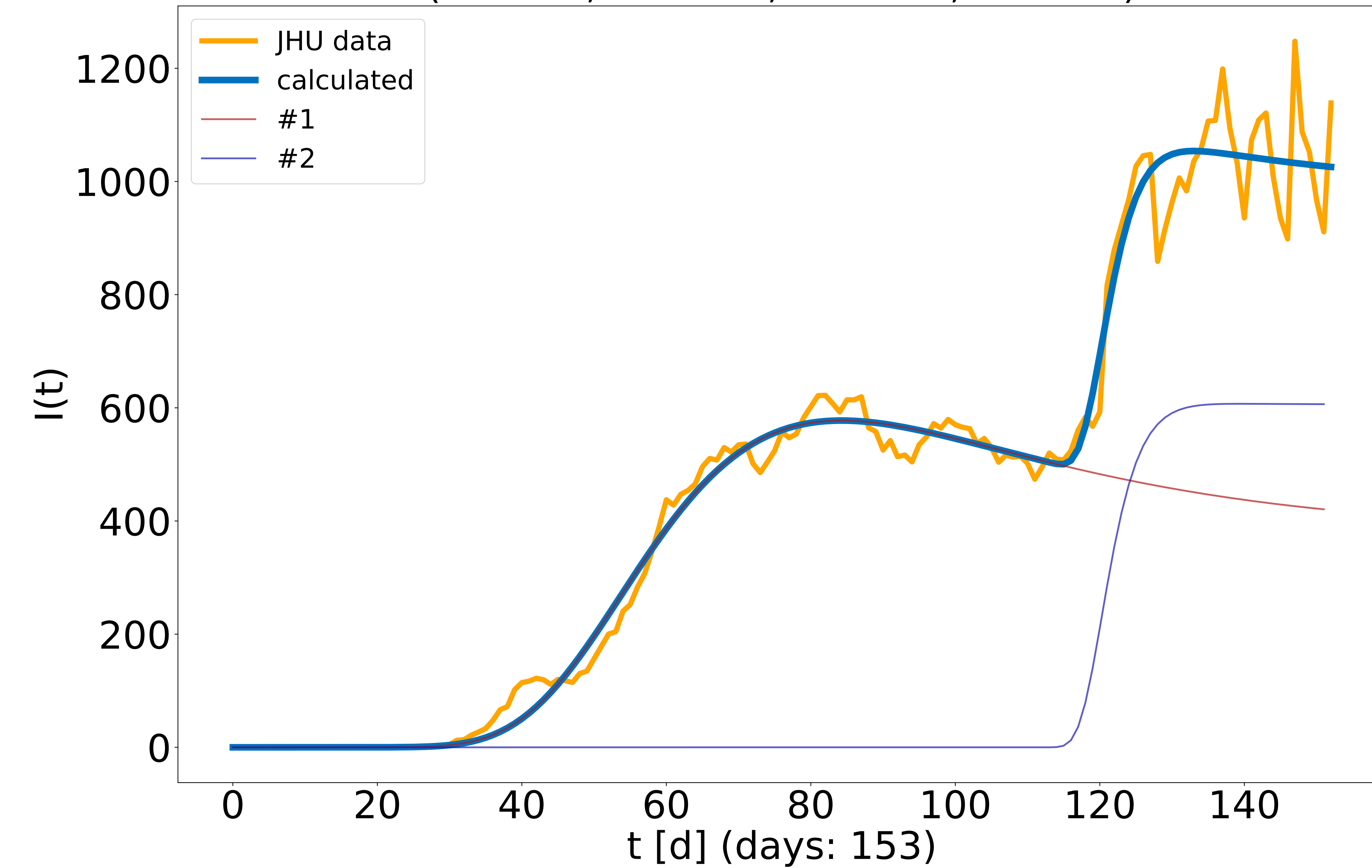
Sudan ($R^2 = 0.975$)
(i: 0.4, a: 0.354, b: 0.021, t: 25.2)
(i: 0.1, a: 2.0, b: 0.111, t: 86.3)



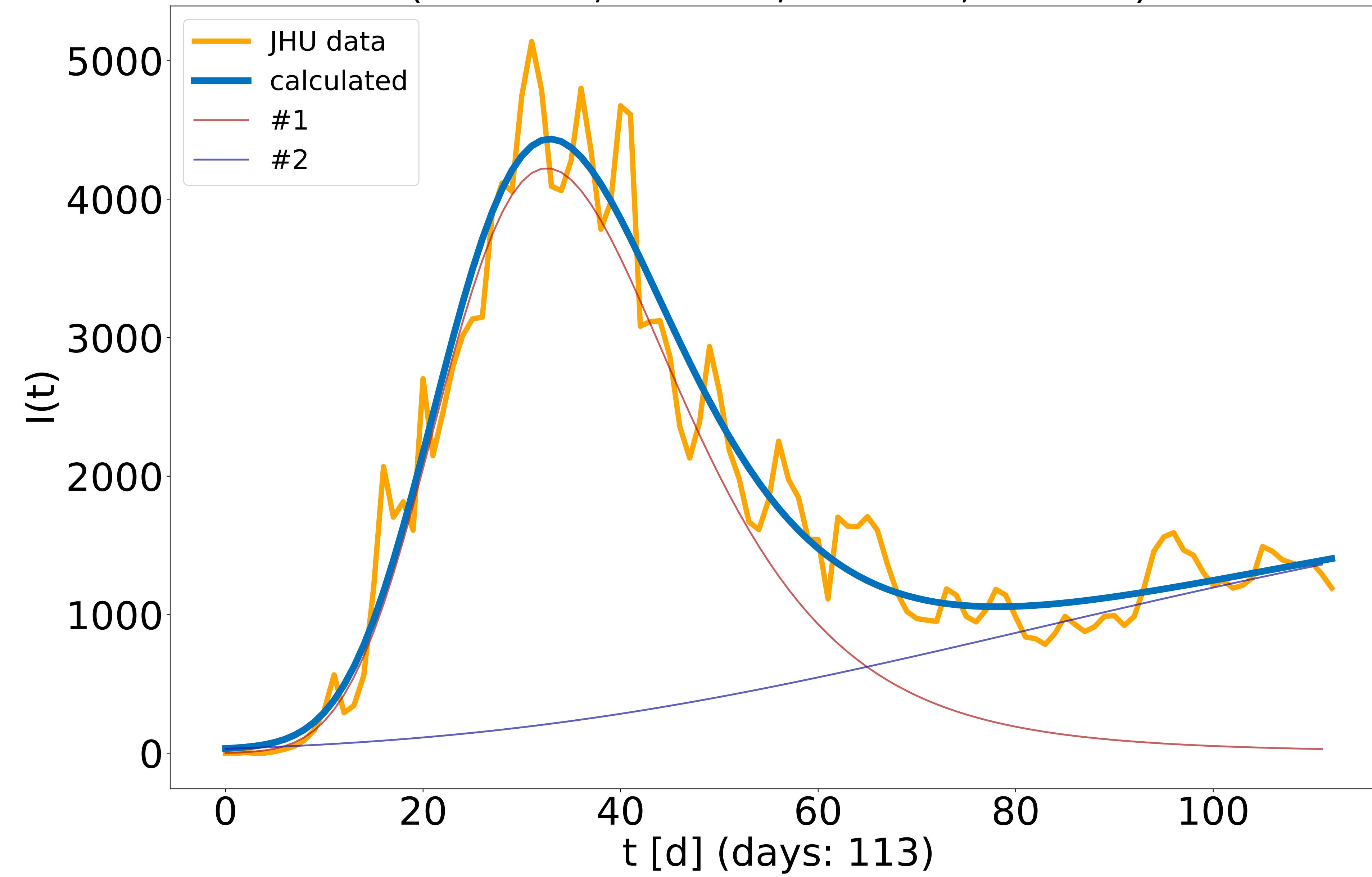
Sweden ($R^2 = 0.647$)
(i: 397.5, a: 0.044, b: 0.043, t: 60.5)
(i: 596.8, a: 2.0, b: 1.18, t: 123.2)



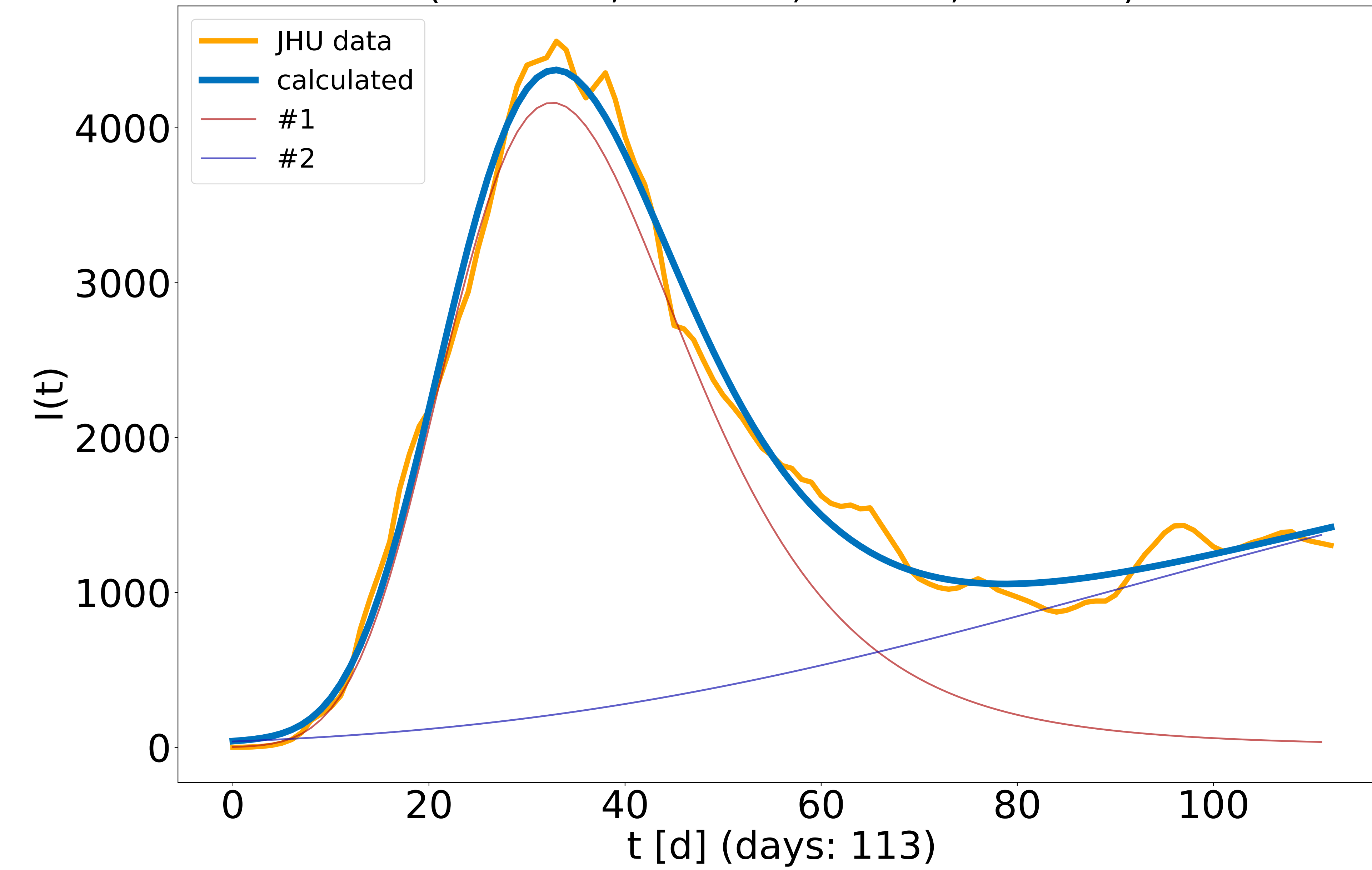
Sweden ($R^2 = 0.984$)
(i: 379.0, a: 0.046, b: 0.041, t: 59.6)
(i: 606.3, a: 0.001, b: 0.269, t: 135.6)



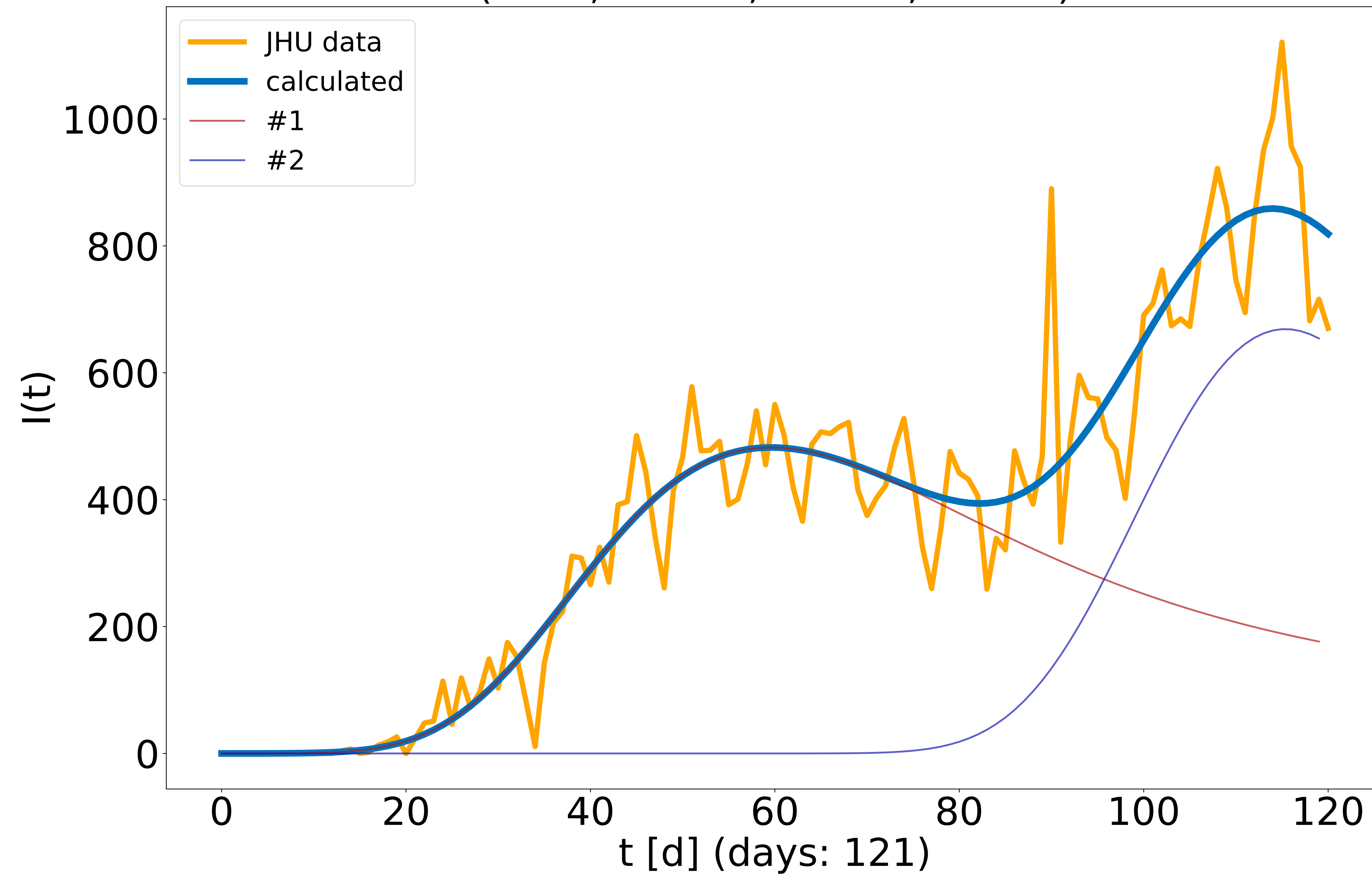
Turkey ($R^2 = 0.947$)
(i: 4.0, a: 0.601, b: 0.032, t: 1.0)
(i: 1713.7, a: 0.006, b: 0.012, t: 140.0)



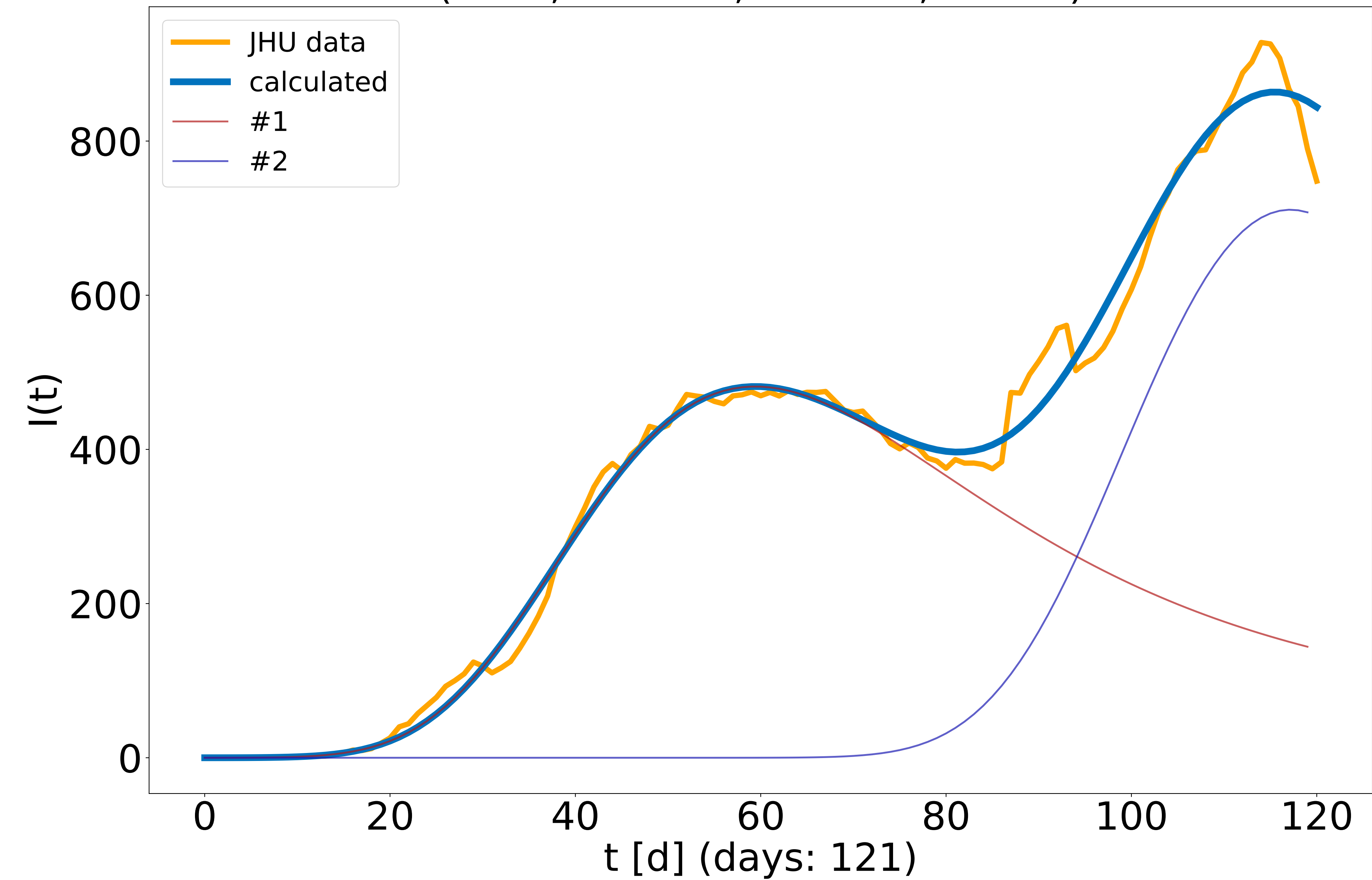
Turkey ($R^2 = 0.987$)
(i: 4.9, a: 0.58, b: 0.032, t: 1.0)
(i: 1790.5, a: 0.007, b: 0.01, t: 140.0)



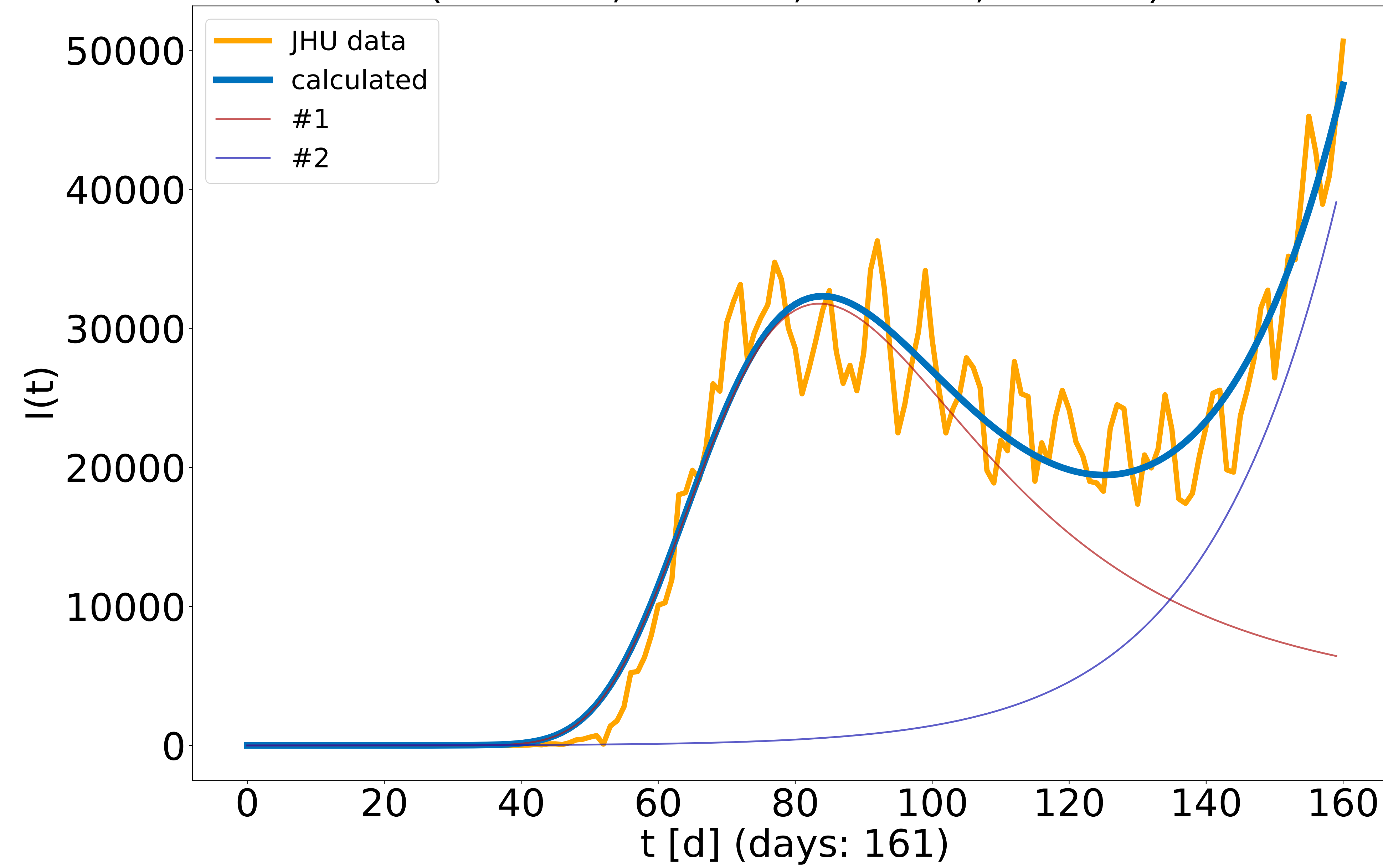
Ukraine ($R^2 = 0.913$)
(i: 76.5, a: 0.154, b: 0.031, t: 27.1)
(i: 0.1, a: 0.48, b: 0.02, t: 65.4)



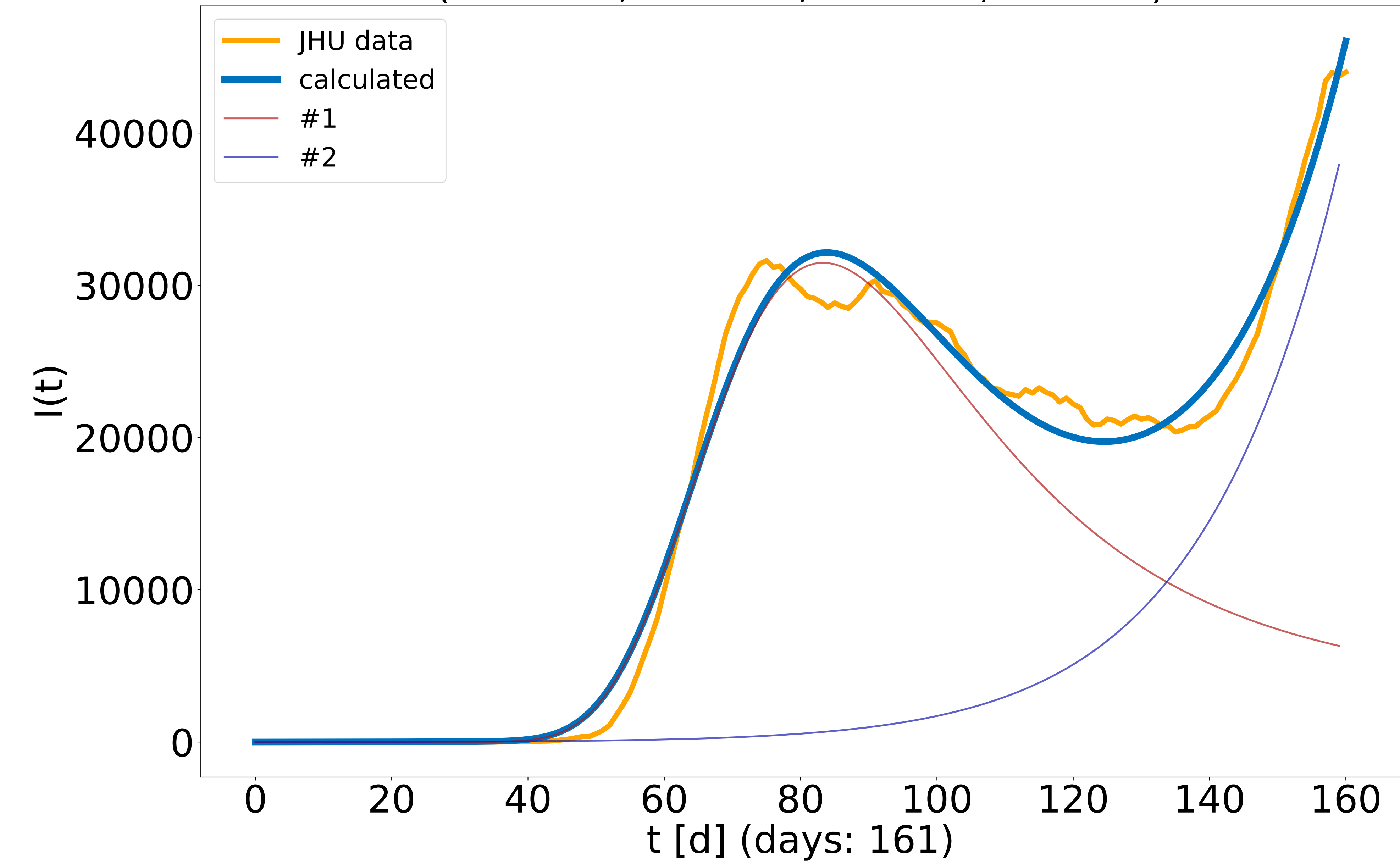
Ukraine ($R^2 = 0.99$)
(i: 40.6, a: 0.185, b: 0.028, t: 23.1)
(i: 0.1, a: 0.433, b: 0.018, t: 61.4)



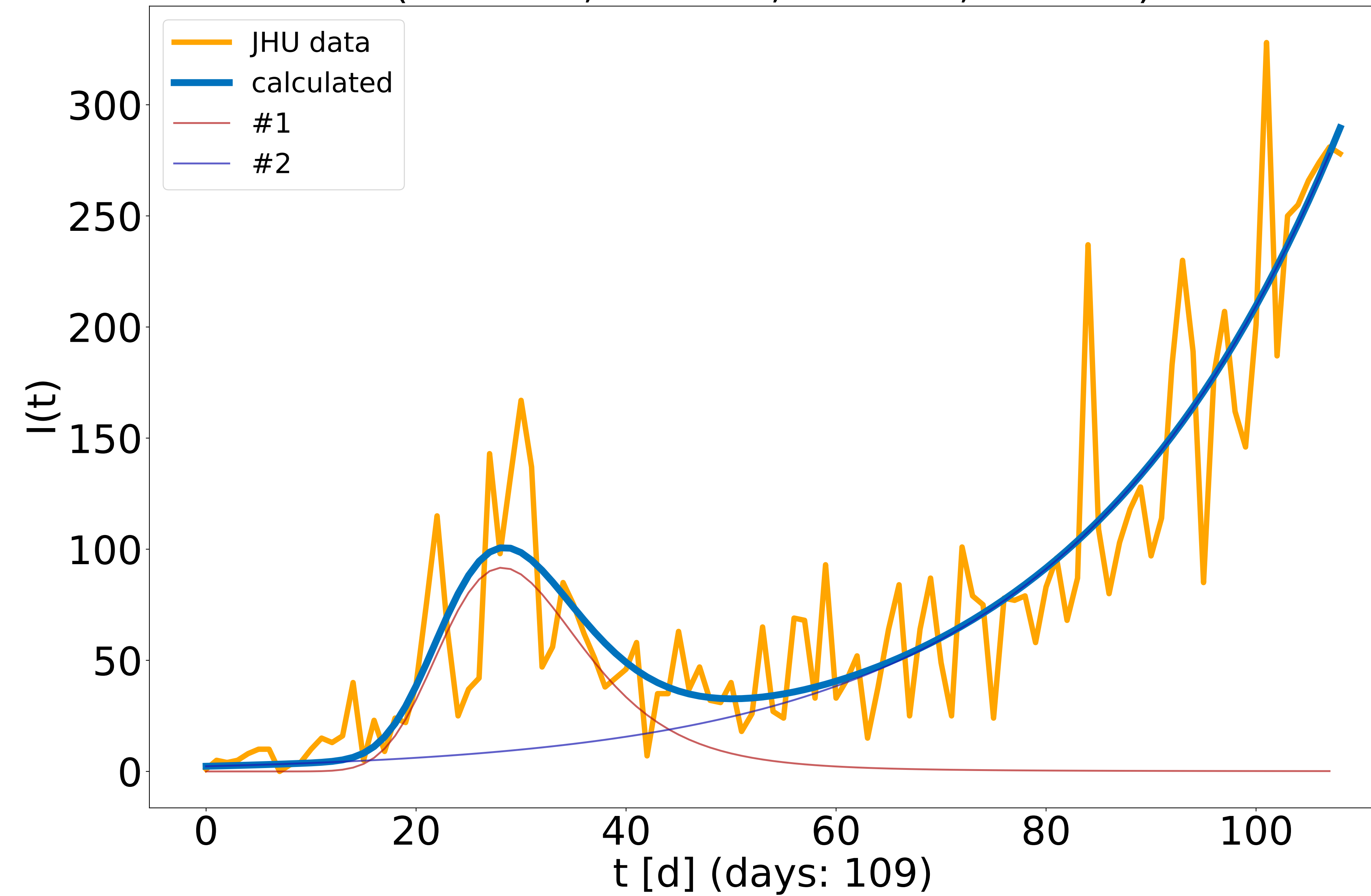
US ($R^2 = 0.959$)
(i: 3000.0, a: 0.198, b: 0.031, t: 51.2)
(i: 3000.0, a: 0.058, b: 0.001, t: 112.7)



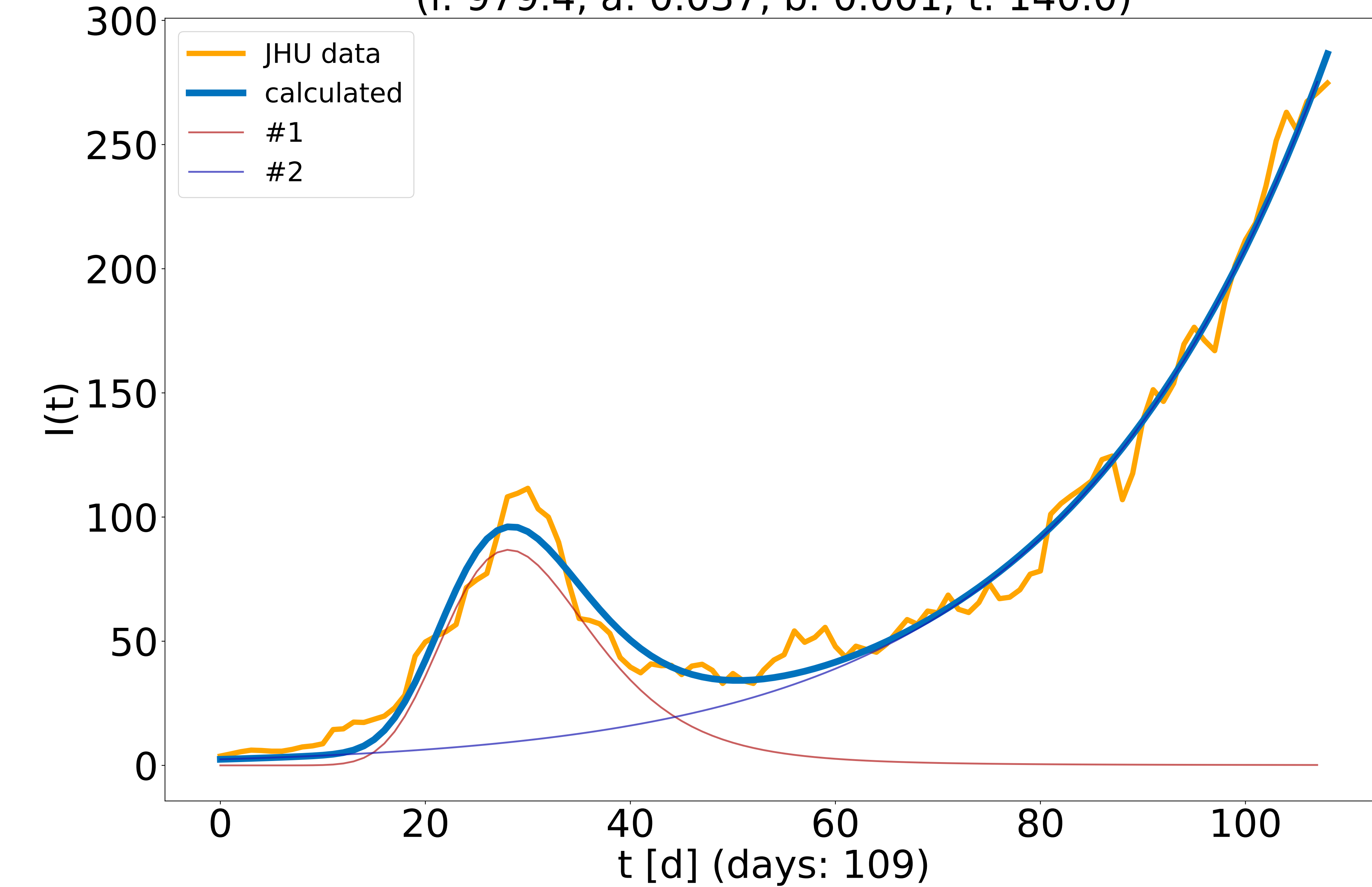
US ($R^2 = 0.986$)
(i: 3000.0, a: 0.199, b: 0.031, t: 51.2)
(i: 3000.0, a: 0.055, b: 0.001, t: 110.2)



Uzbekistan ($R^2 = 0.83$)
(i: 0.1, a: 1.064, b: 0.057, t: 10.8)
(i: 1005.2, a: 0.038, b: 0.001, t: 140.0)



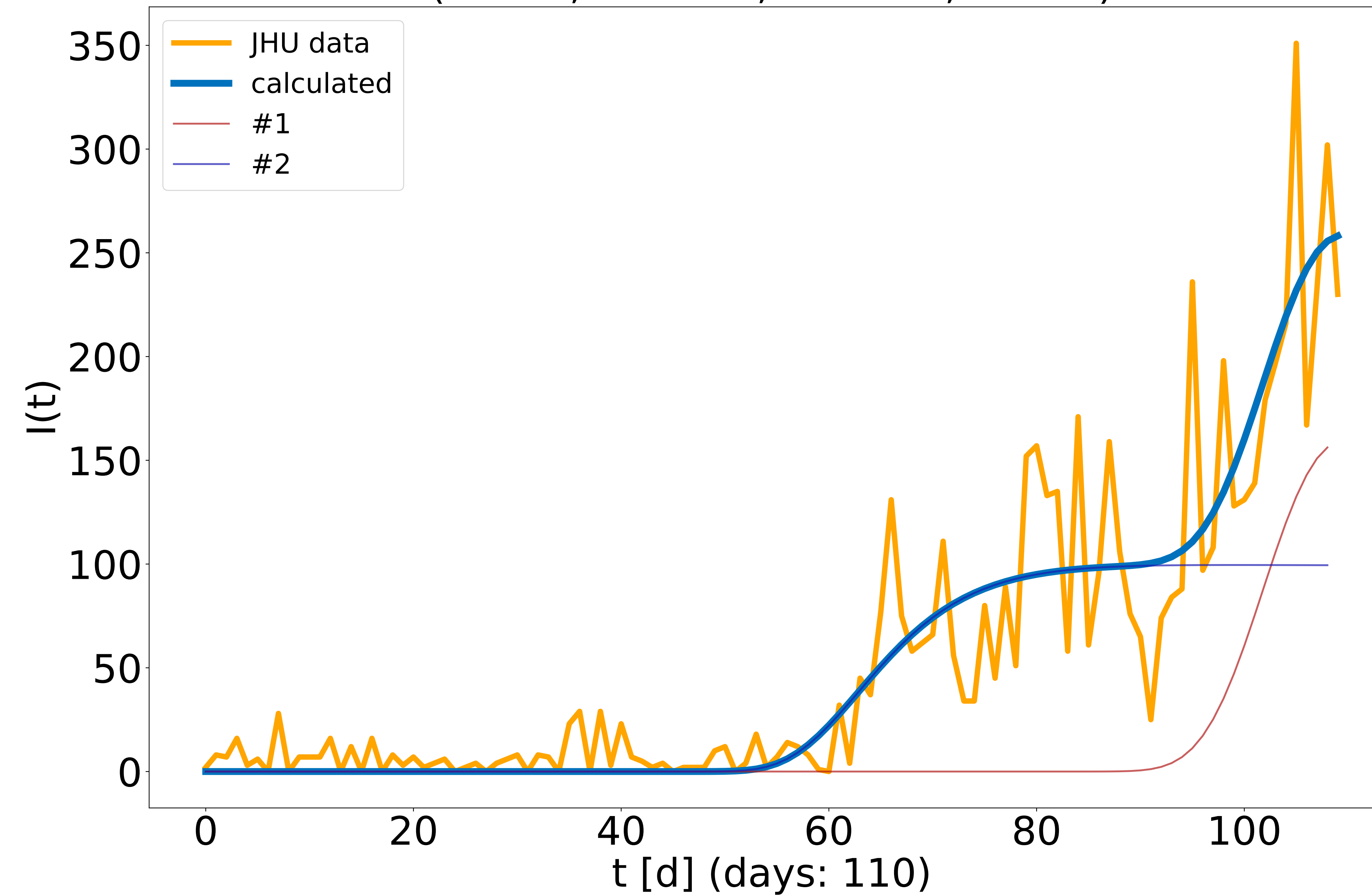
Uzbekistan ($R^2 = 0.985$)
(i: 0.1, a: 0.998, b: 0.054, t: 9.7)
(i: 979.4, a: 0.037, b: 0.001, t: 140.0)



Venezuela ($R^2 = 0.826$)

(i: 0.1, a: 0.933, b: 0.047, t: 88.0)

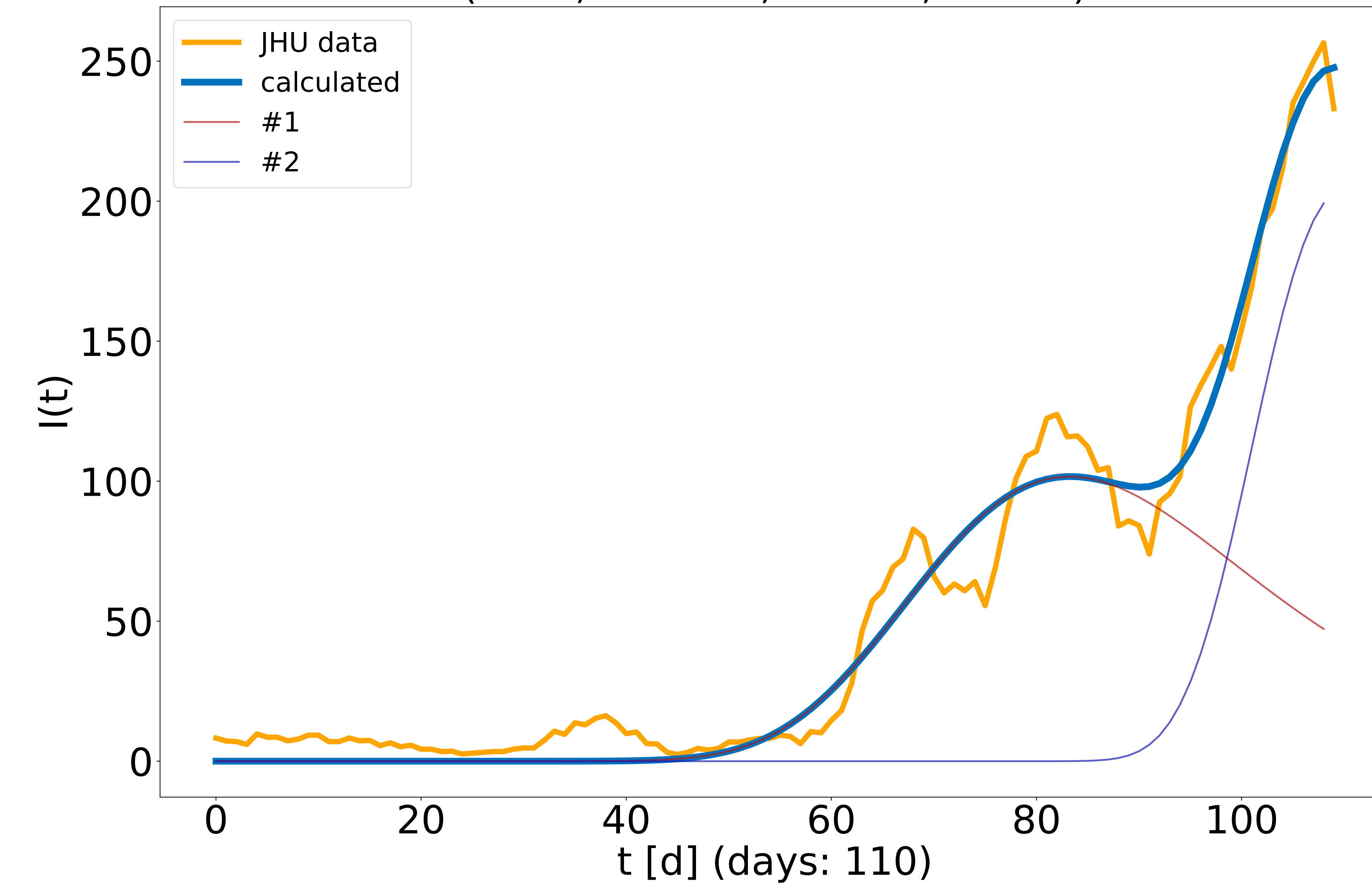
(i: 99.2, a: 0.001, b: 0.125, t: 91.0)



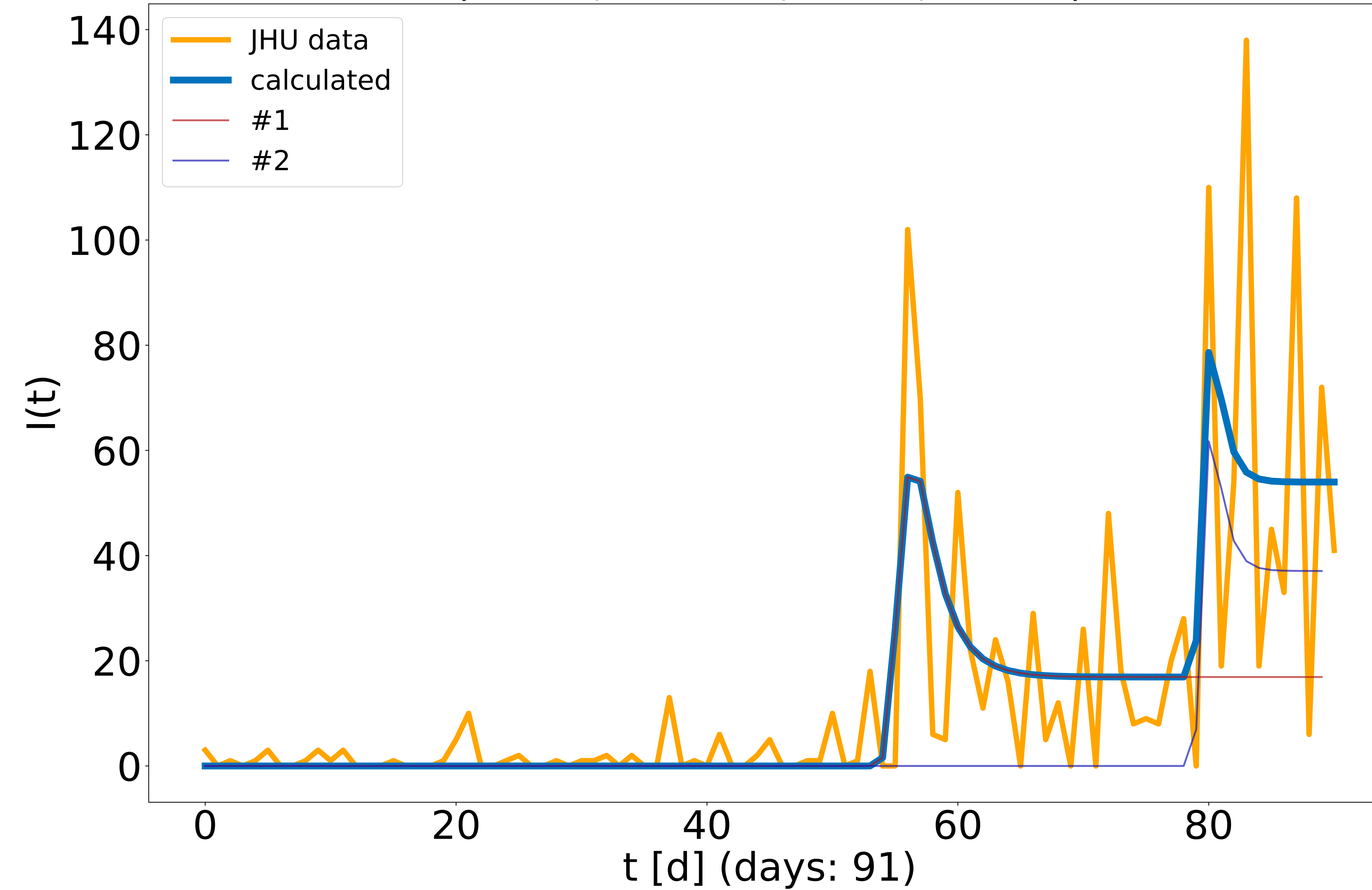
Venezuela ($R^2 = 0.973$)

(i: 0.1, a: 0.429, b: 0.023, t: 39.4)

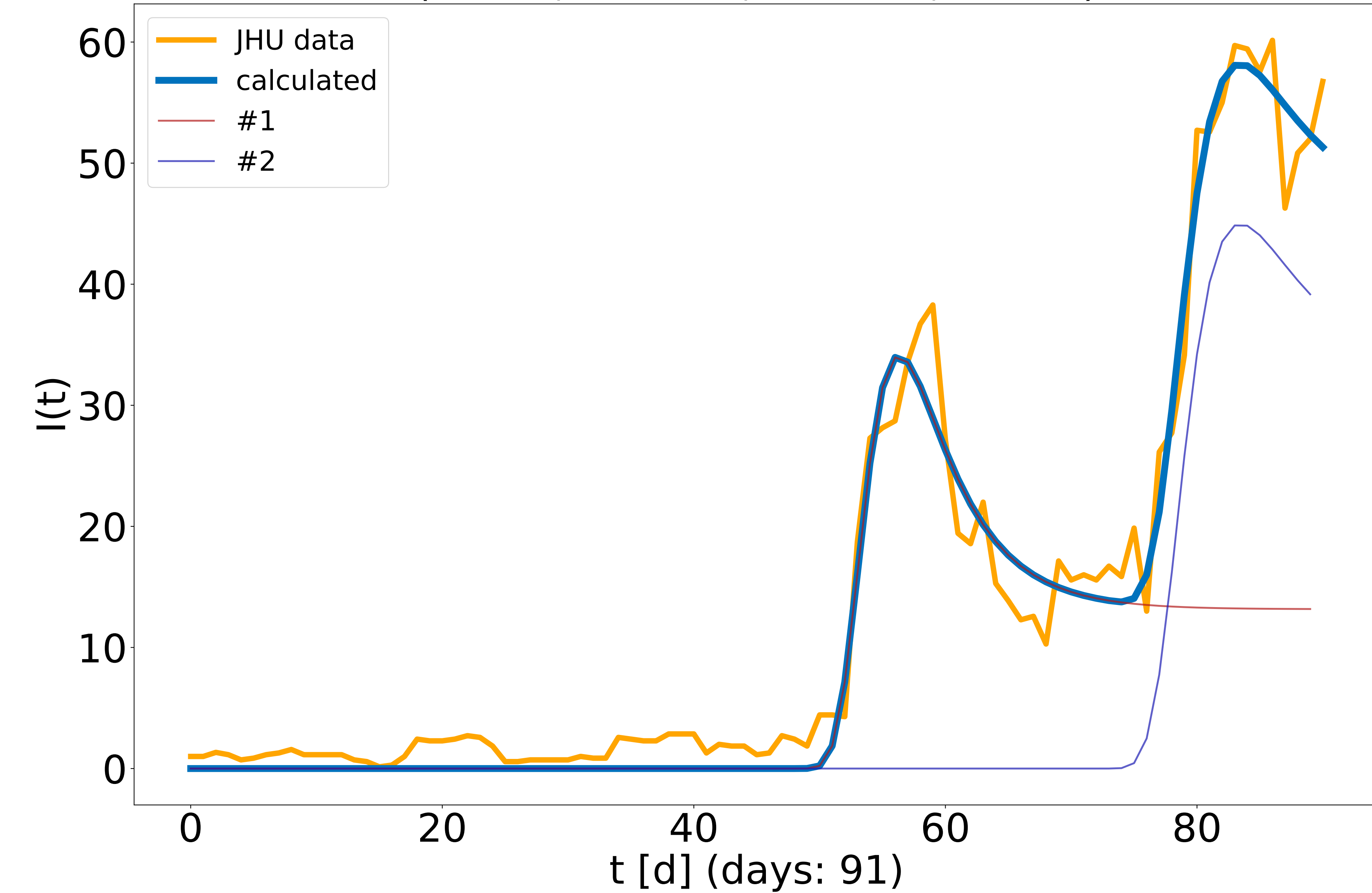
(i: 0.1, a: 0.818, b: 0.04, t: 84.6)



Malawi ($R^2 = 0.571$)
(i: 16.9, a: 2.0, b: 0.601, t: 54.8)
(i: 37.1, a: 1.999, b: 1.4, t: 79.4)



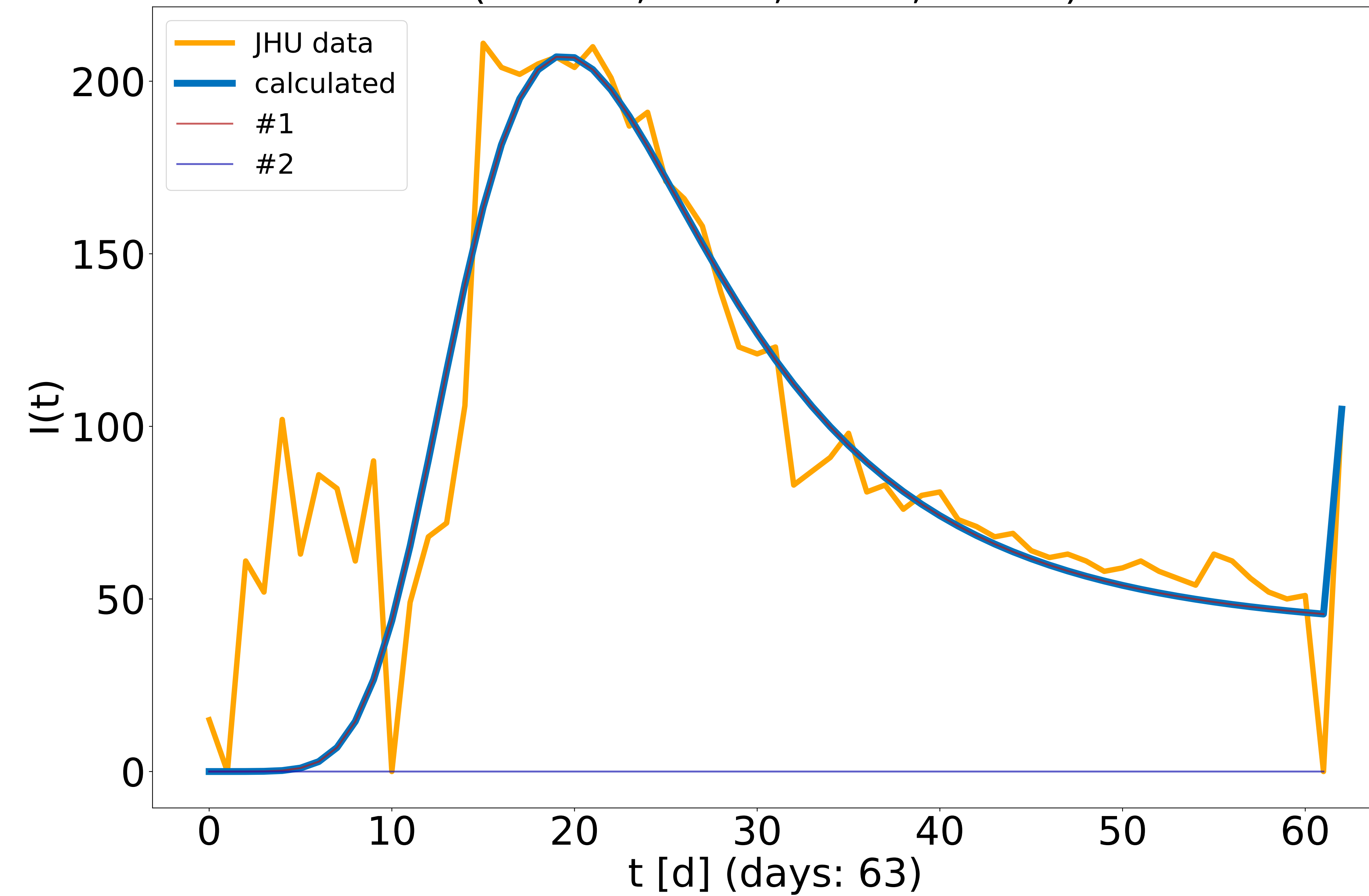
Malawi ($R^2 = 0.975$)
(i: 13.2, a: 0.717, b: 0.277, t: 52.7)
(i: 33.2, a: 0.229, b: 0.278, t: 79.9)



Tajikistan ($R^2 = 0.739$)

(i: 40.7, a: 0.462, b: 0.104, t: 9.8)

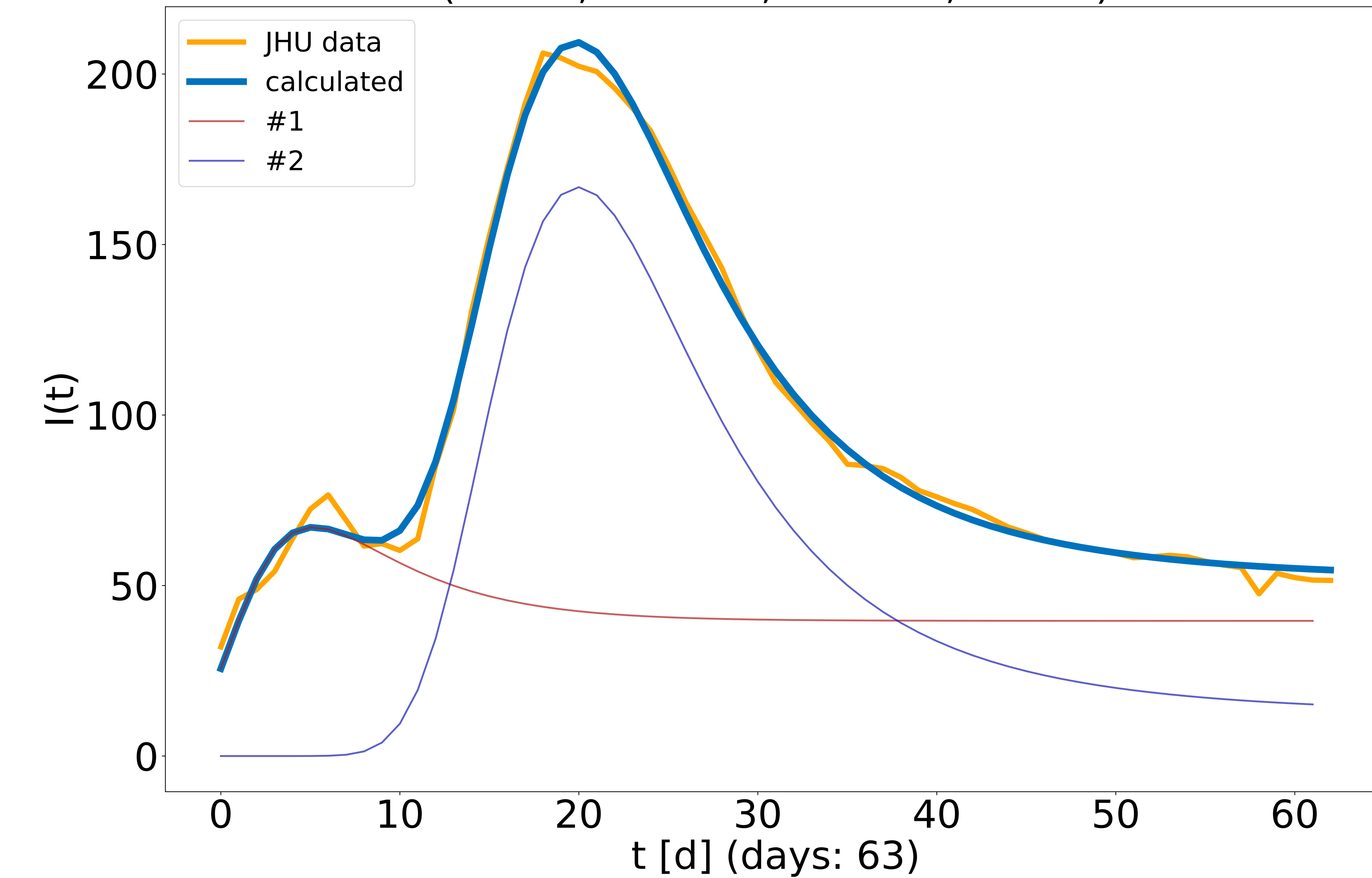
(i: 115.5, a: 2.0, b: 1.4, t: 62.2)



Tajikistan ($R^2 = 0.994$)

(i: 39.6, a: 0.343, b: 0.24, t: 1.0)

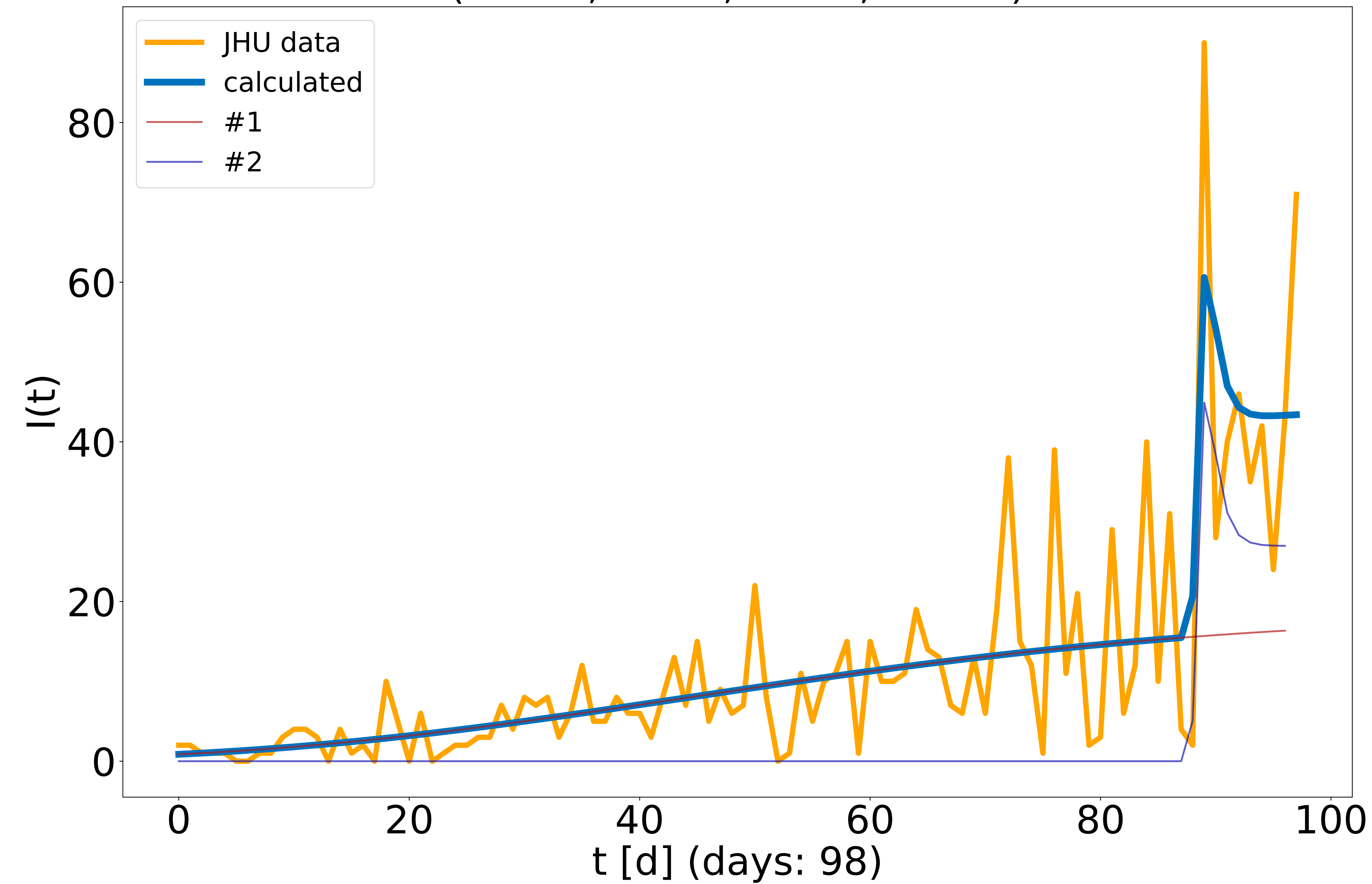
(i: 12.5, a: 0.734, b: 0.104, t: 10.4)



Mohave, Arizona, US, Mohave ($R^2 = 0.67$)

(i: 14.2, a: 0.01, b: 0.016, t: 77.0)

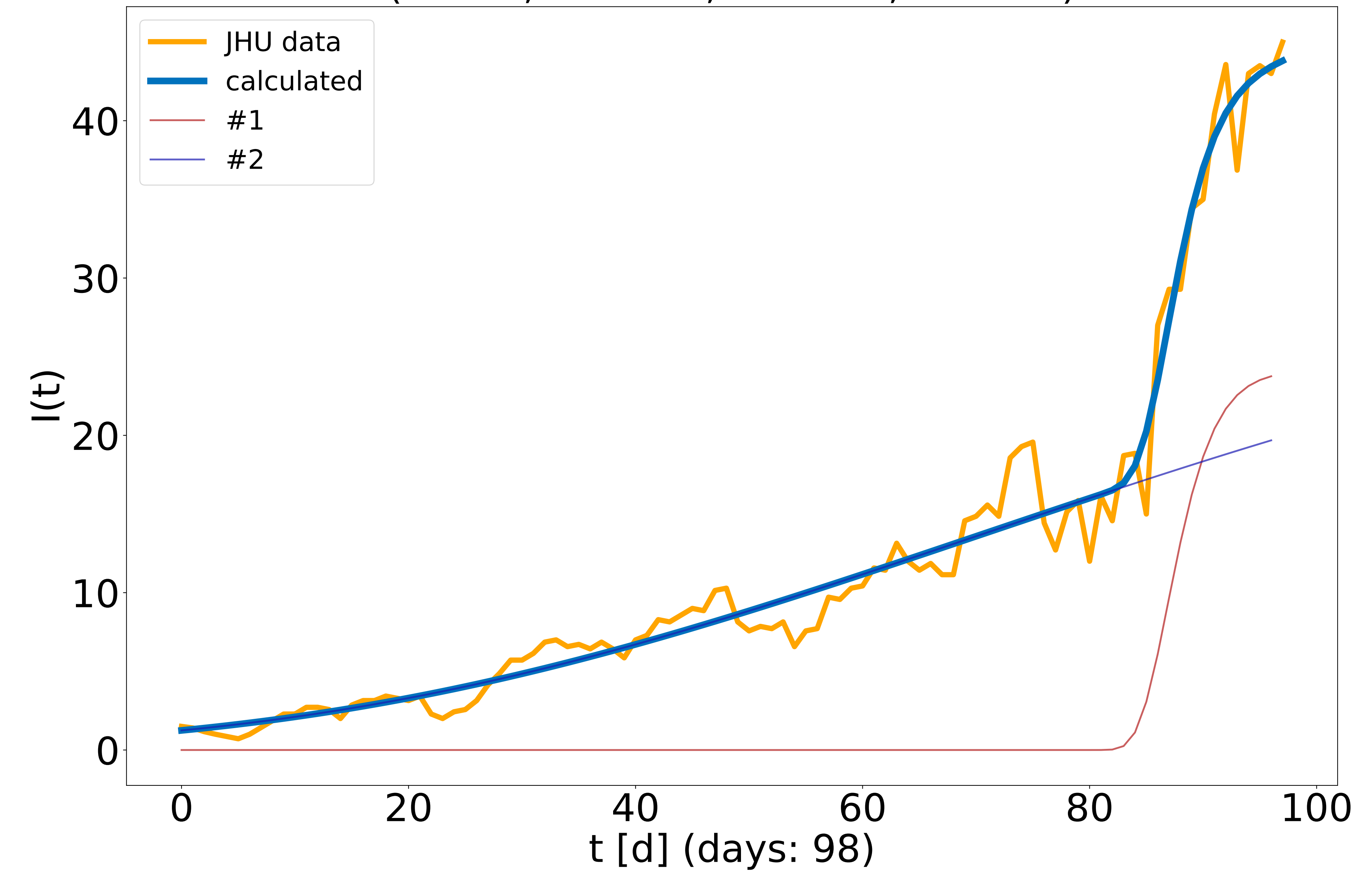
(i: 27.0, a: 2.0, b: 1.4, t: 88.4)



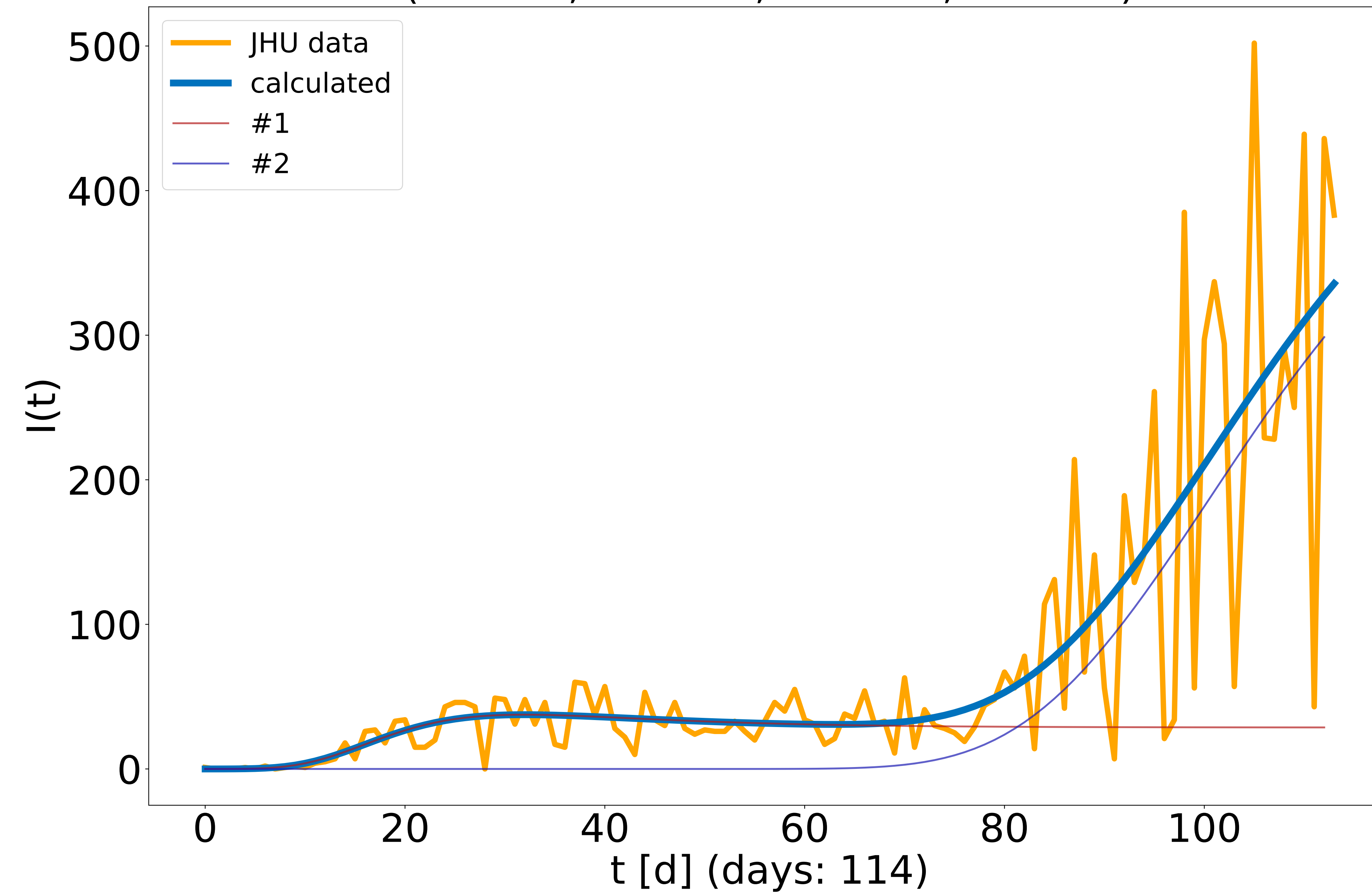
Mohave, Arizona, US, Mohave ($R^2 = 0.977$)

(i: 24.1, a: 0.001, b: 0.334, t: 99.8)

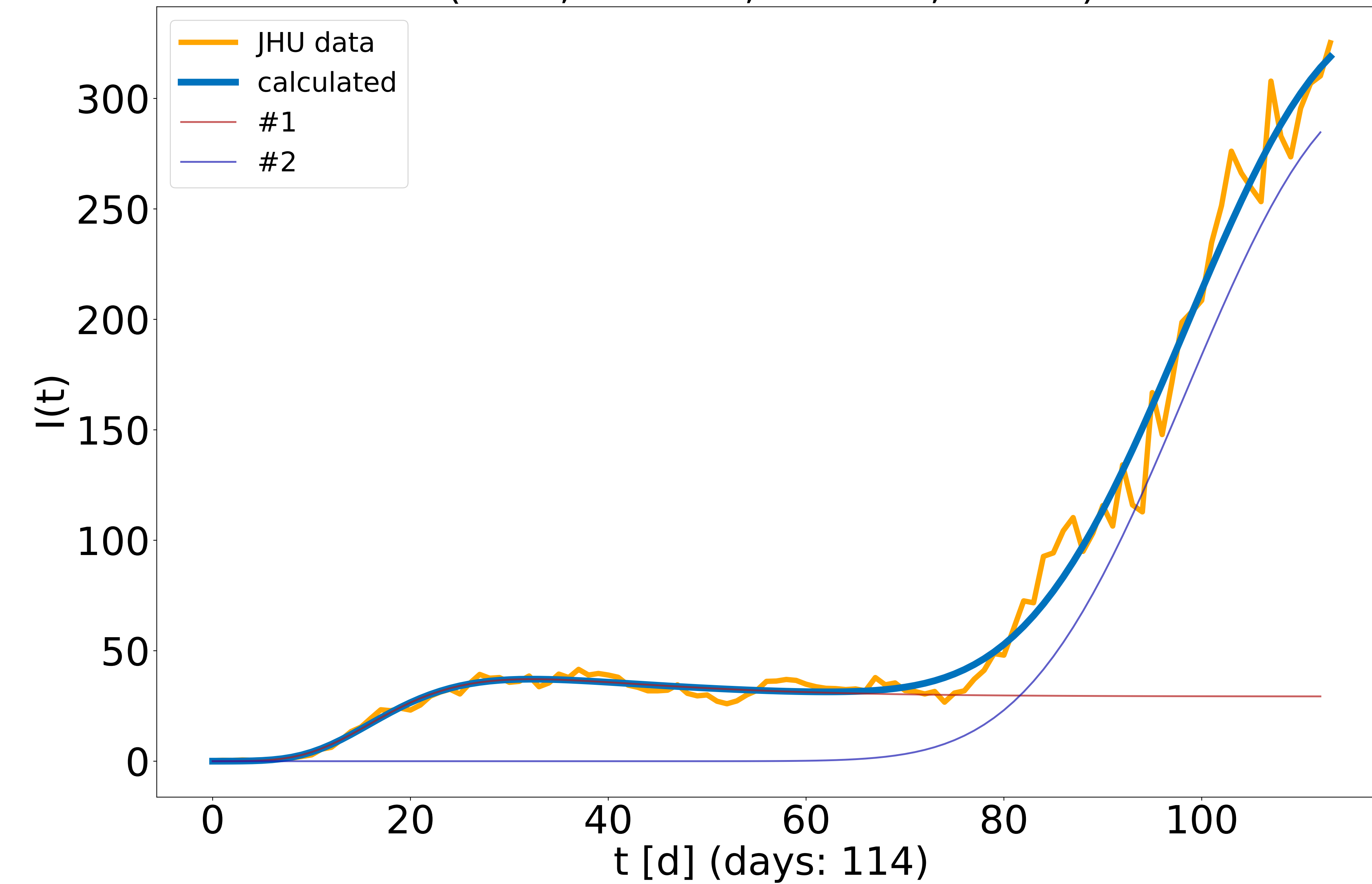
(i: 23.6, a: 0.007, b: 0.011, t: 116.1)



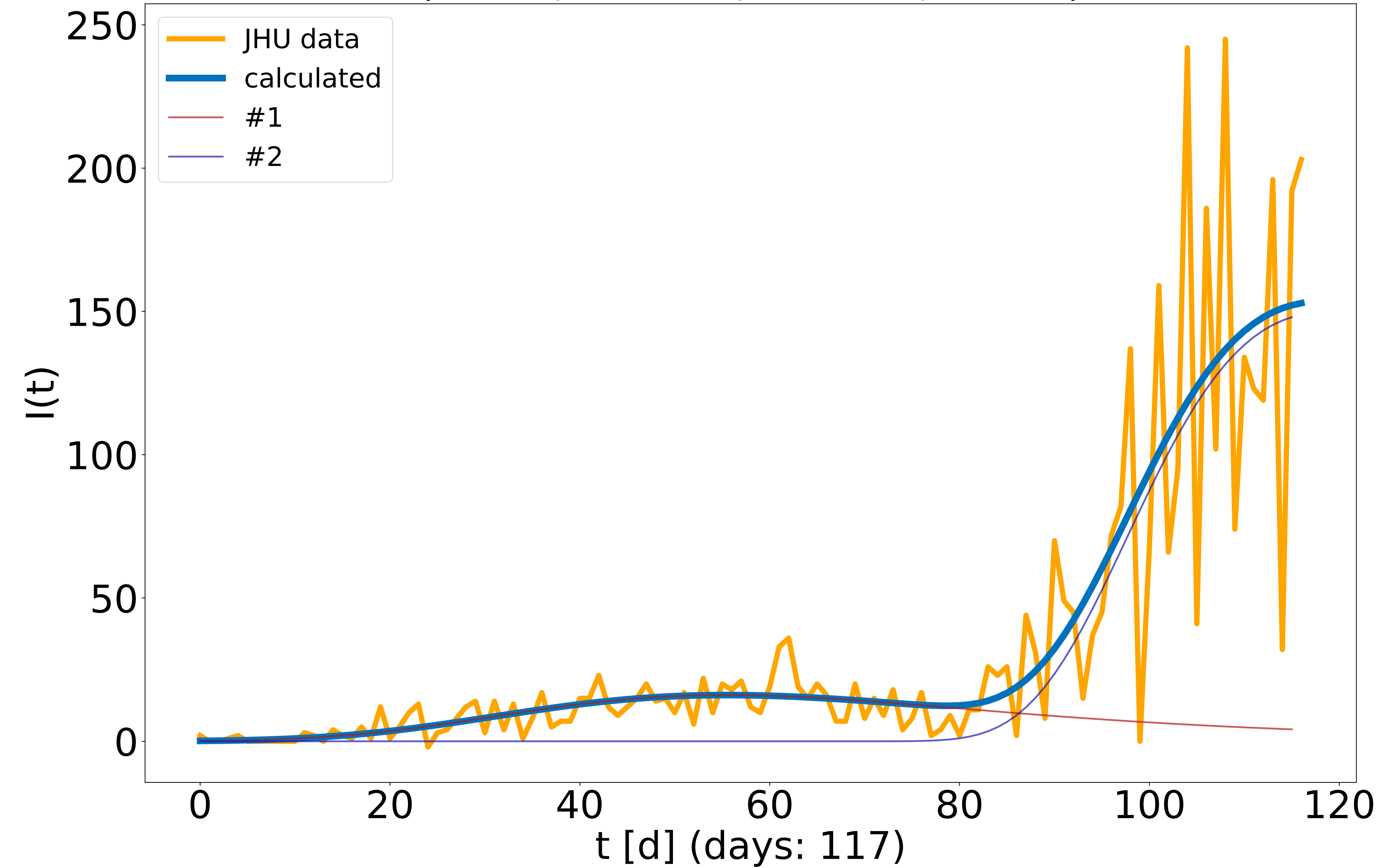
Pima, Arizona, US, Pima ($R^2 = 0.678$)
(i: 28.7, a: 0.067, b: 0.091, t: 21.0)
(i: 370.3, a: 0.014, b: 0.035, t: 122.3)



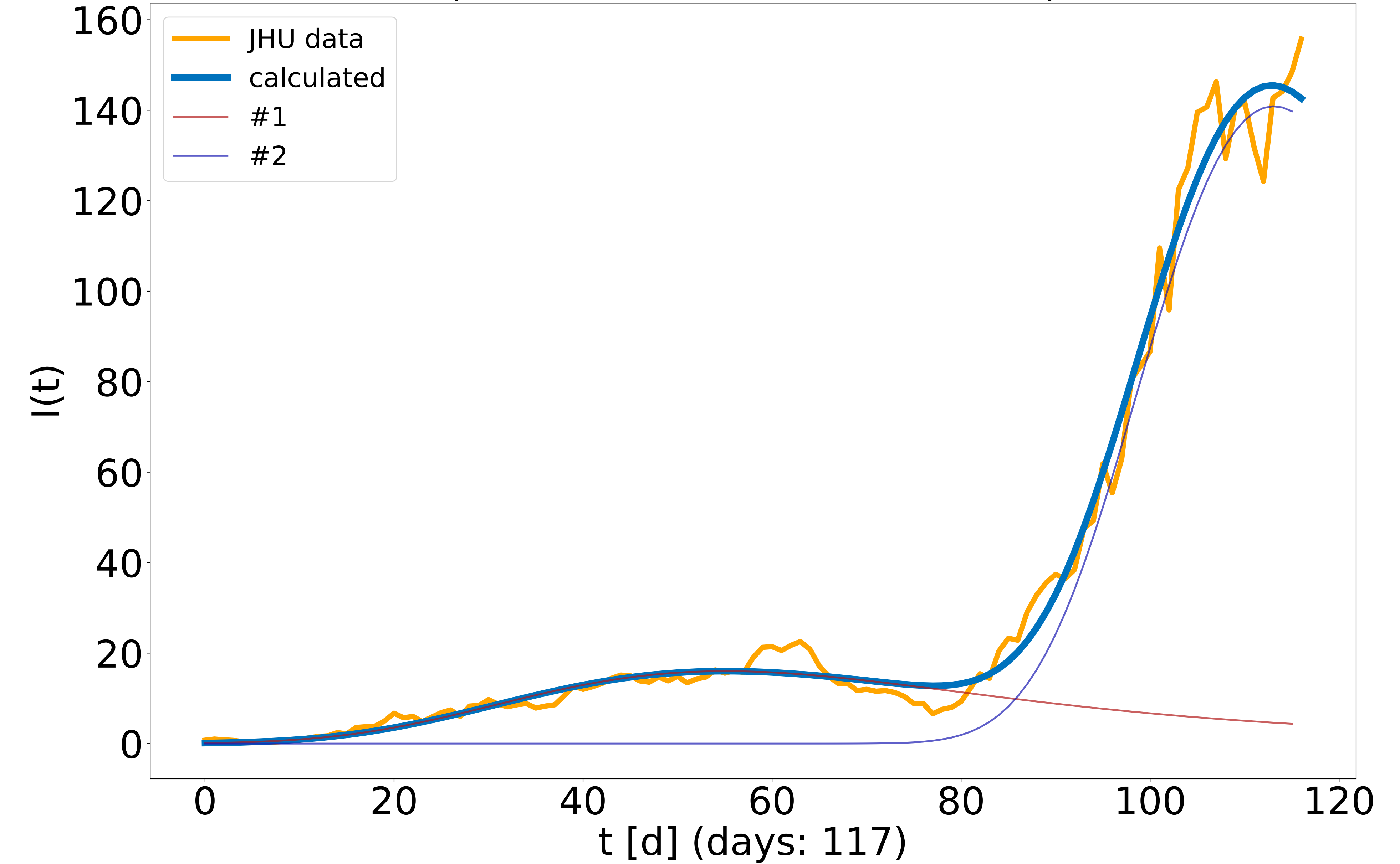
Pima, Arizona, US, Pima ($R^2 = 0.989$)
(i: 29.3, a: 0.06, b: 0.092, t: 21.5)
(i: 0.1, a: 0.354, b: 0.016, t: 58.1)



Pinal, Arizona, US, Pinal ($R^2 = 0.721$)
(i: 0.2, a: 0.226, b: 0.018, t: 1.0)
(i: 80.4, a: 0.087, b: 0.051, t: 99.0)



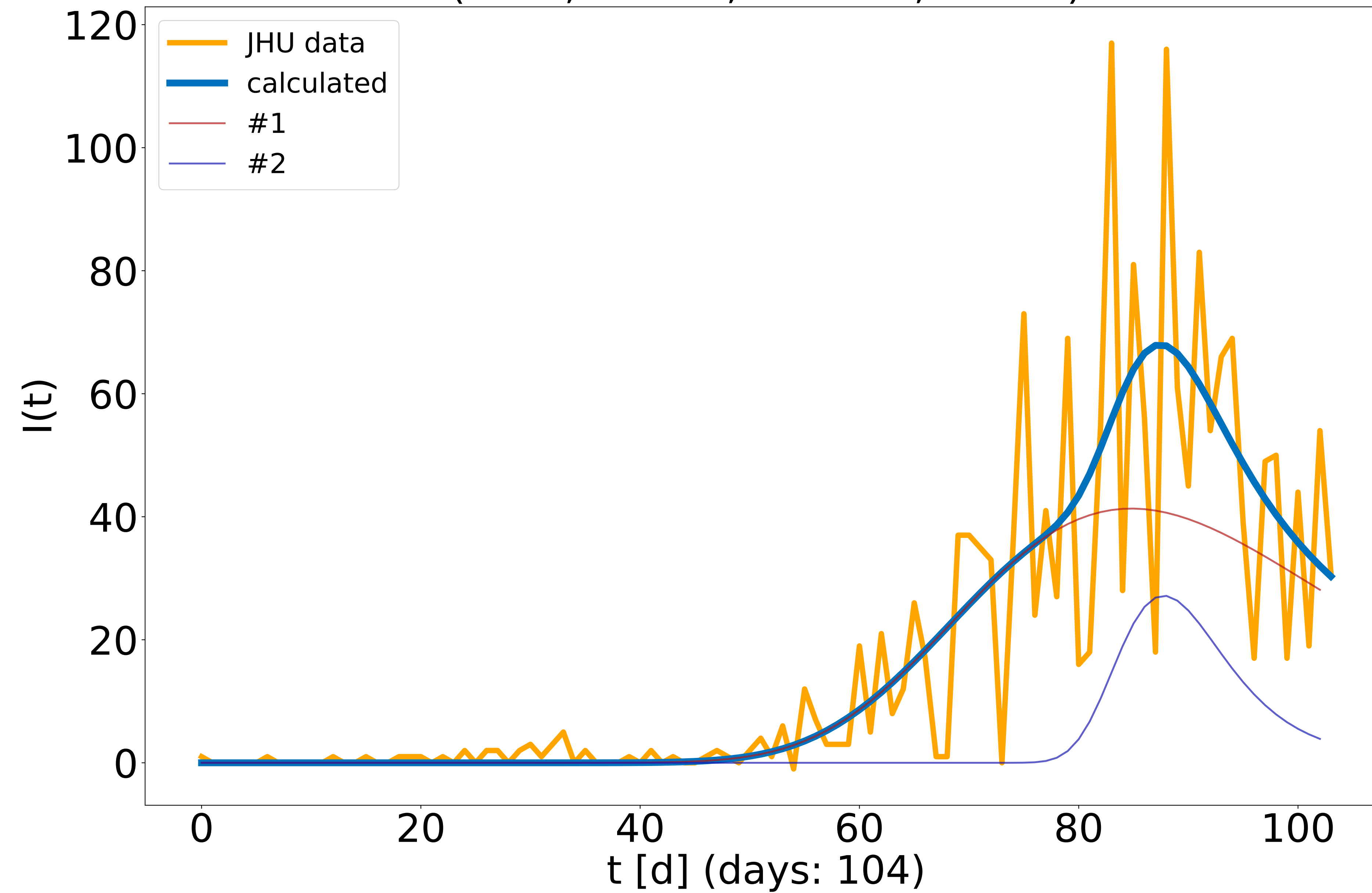
Pinal, Arizona, US, Pinal ($R^2 = 0.988$)
(i: 0.3, a: 0.21, b: 0.02, t: 4.4)
(i: 0.1, a: 0.49, b: 0.025, t: 72.8)



Santa Cruz, Arizona, US, Santa Cruz ($R^2 = 0.707$)

(i: 0.1, a: 0.389, b: 0.024, t: 42.7)

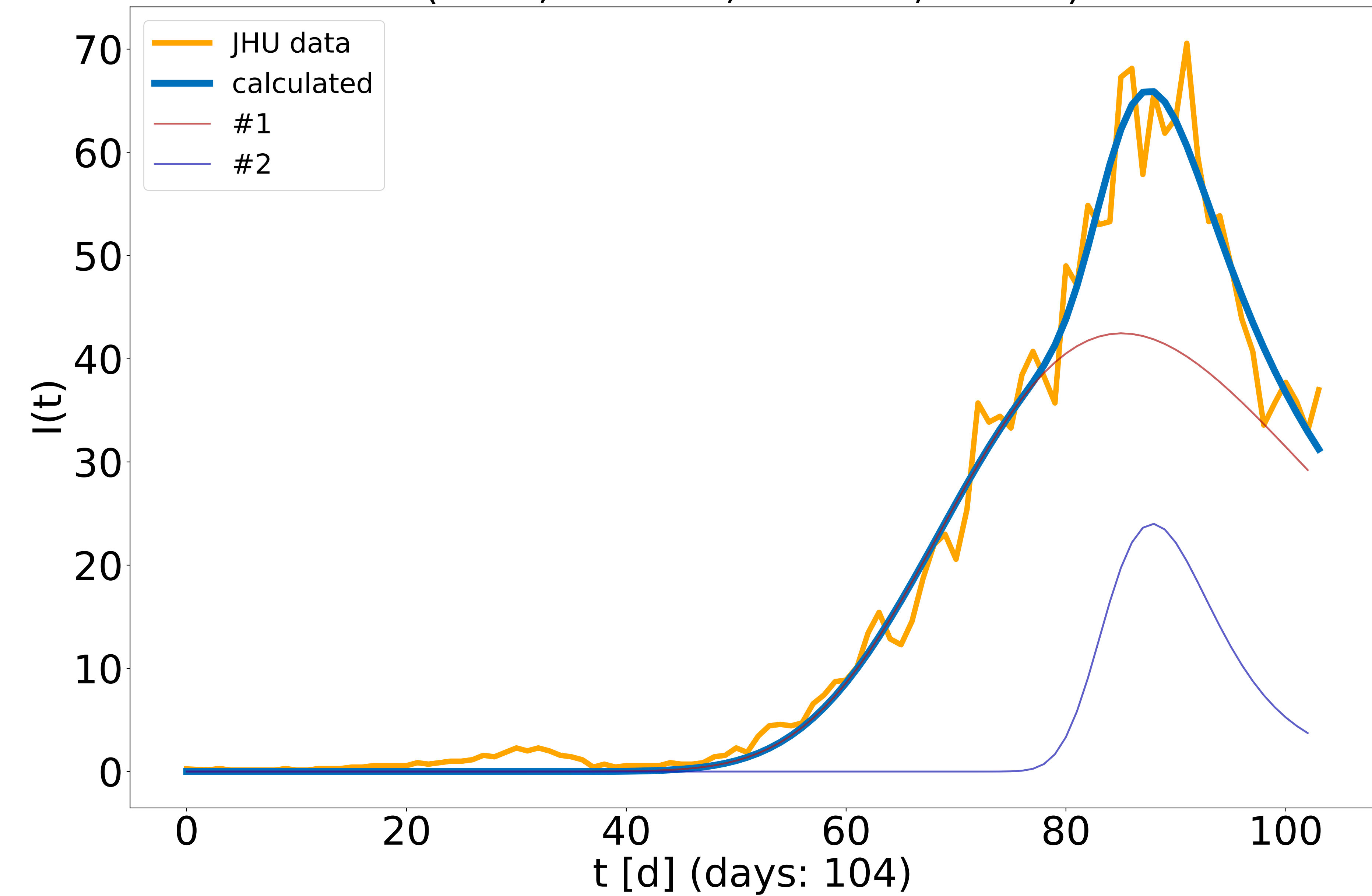
(i: 0.1, a: 1.31, b: 0.086, t: 76.1)



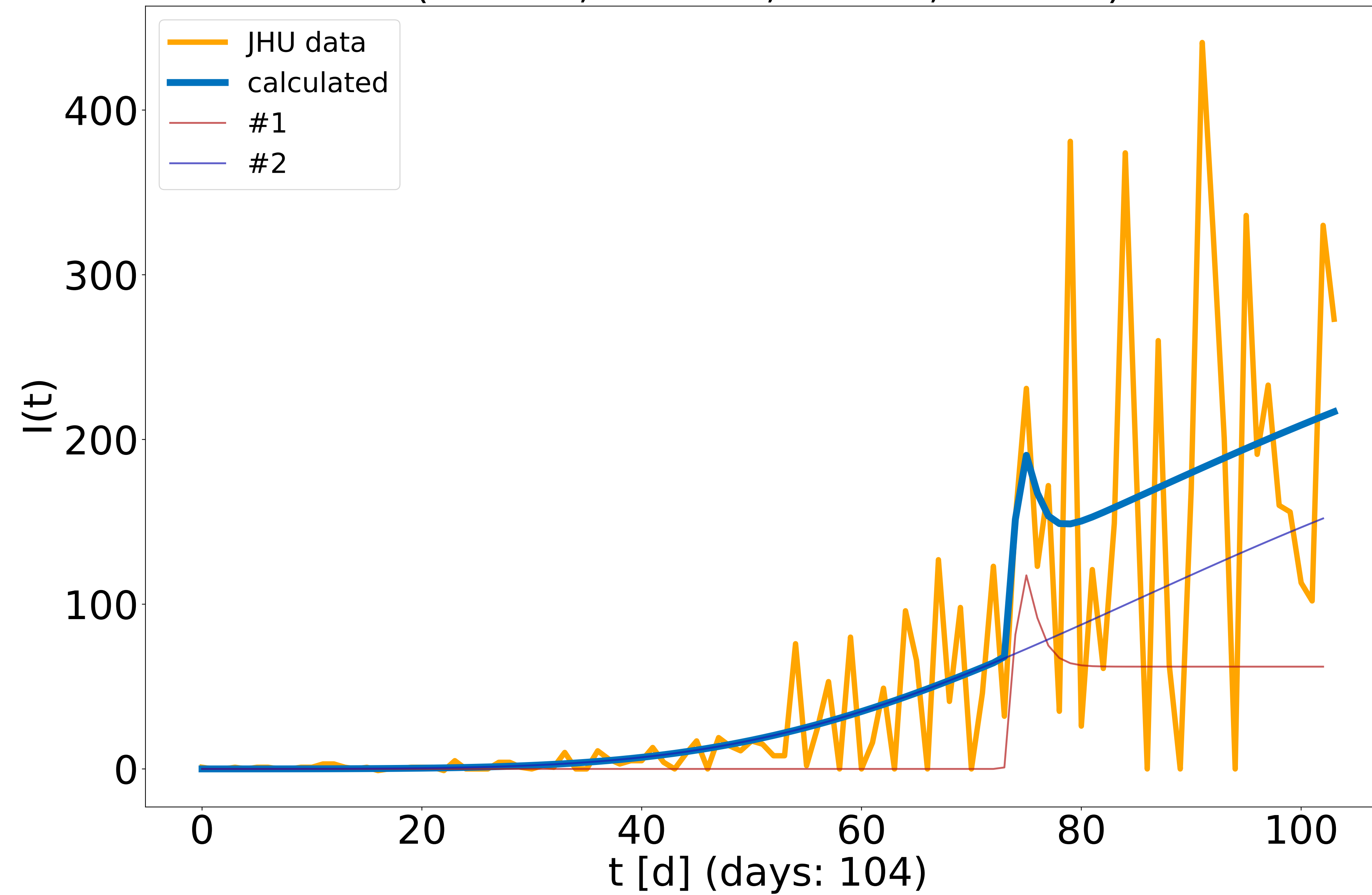
Santa Cruz, Arizona, US, Santa Cruz ($R^2 = 0.987$)

(i: 0.1, a: 0.389, b: 0.024, t: 42.8)

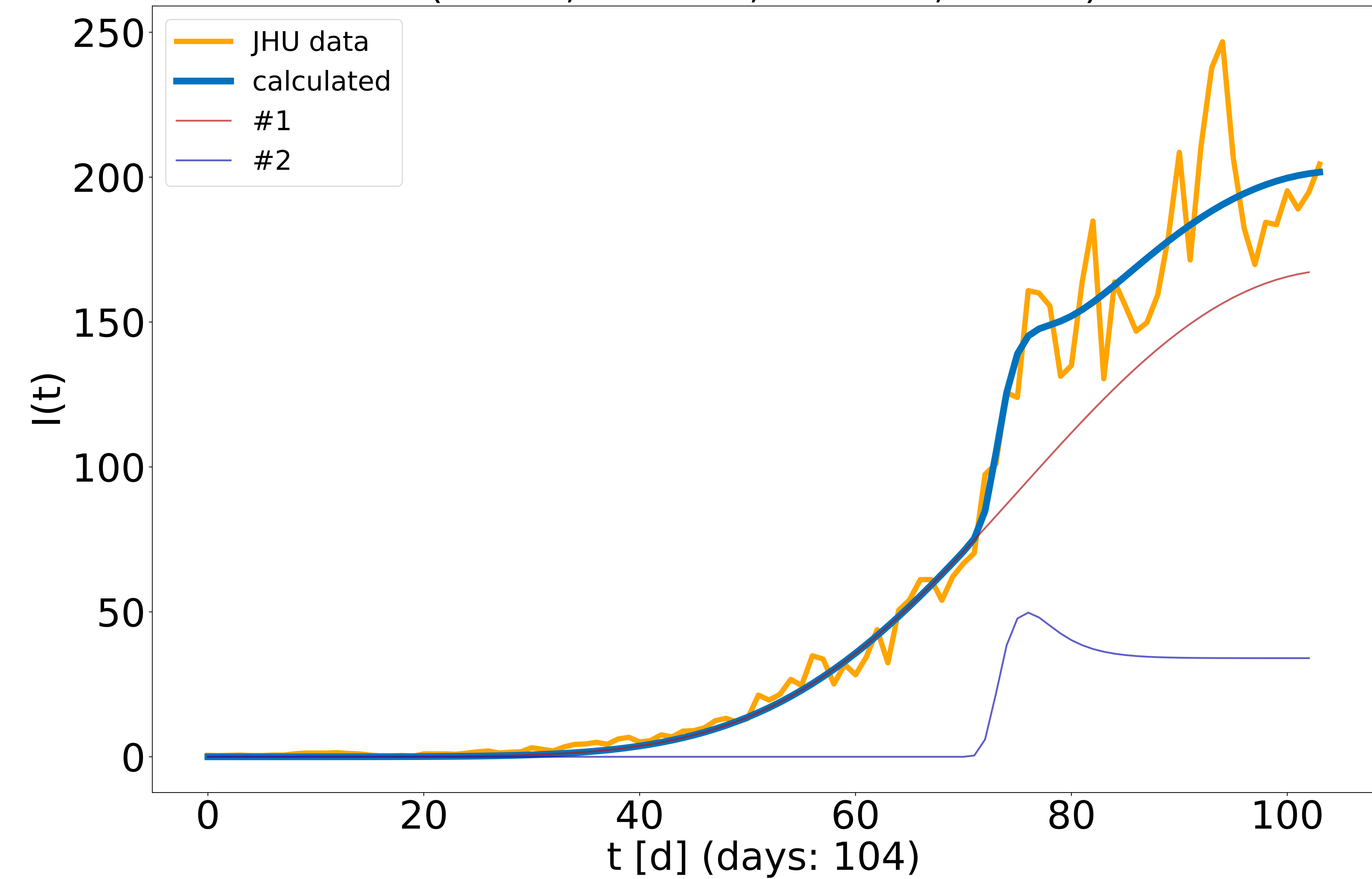
(i: 0.1, a: 1.274, b: 0.085, t: 76.2)



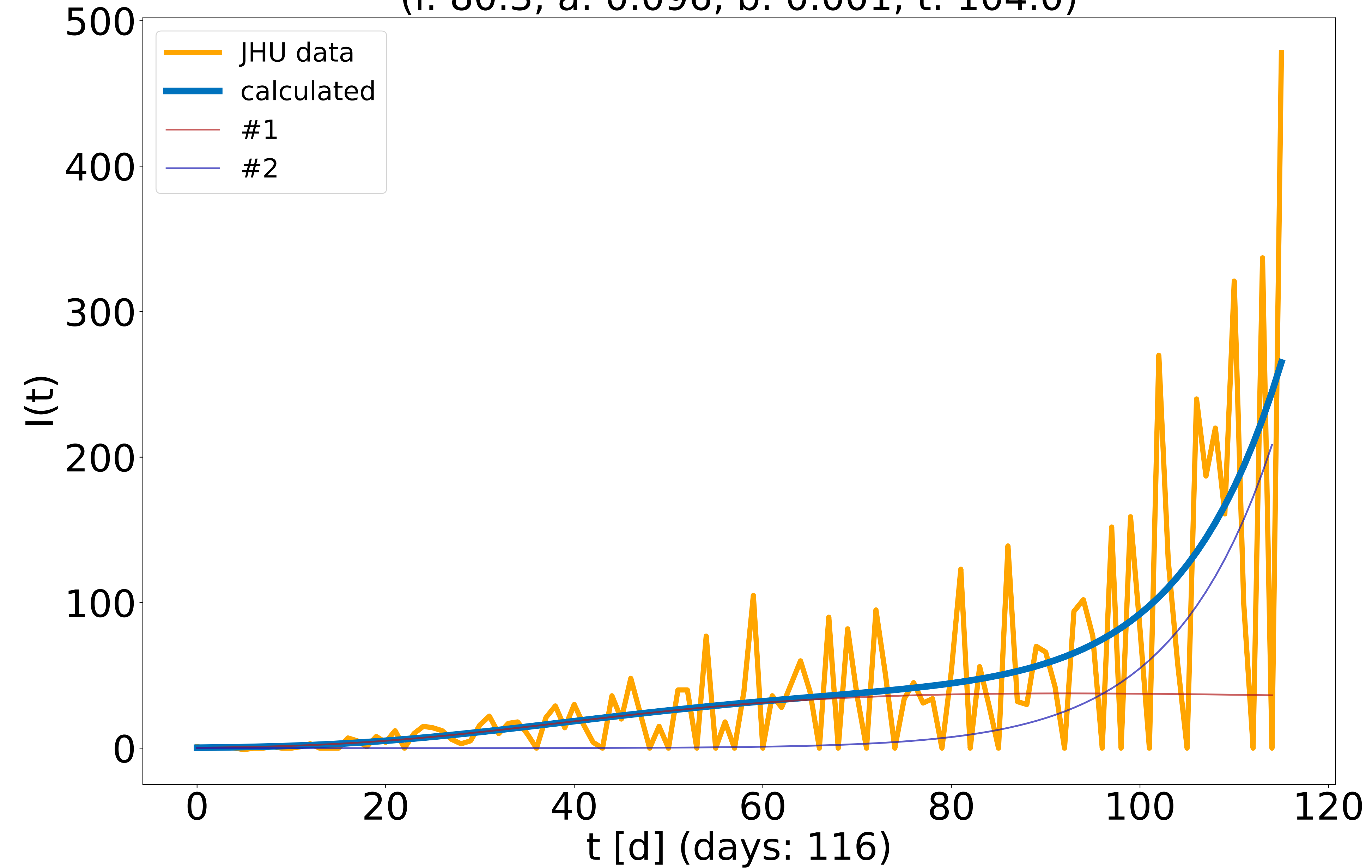
Yuma, Arizona, US, Yuma ($R^2 = 0.583$)
(i: 62.1, a: 2.0, b: 1.112, t: 73.8)
(i: 222.6, a: 0.005, b: 0.02, t: 140.0)



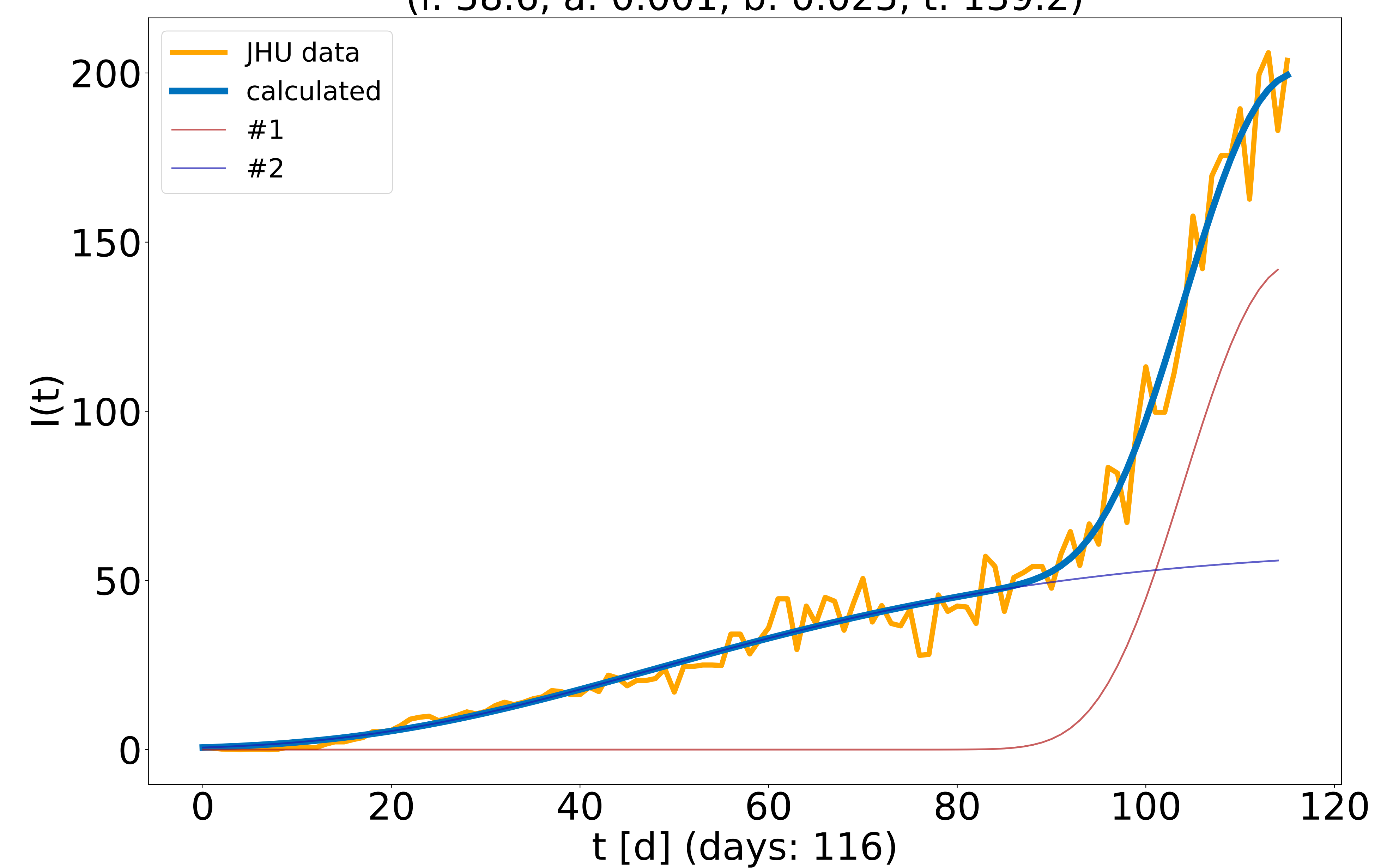
Yuma, Arizona, US, Yuma ($R^2 = 0.976$)
(i: 0.1, a: 0.24, b: 0.012, t: 21.2)
(i: 34.0, a: 0.471, b: 0.456, t: 73.7)



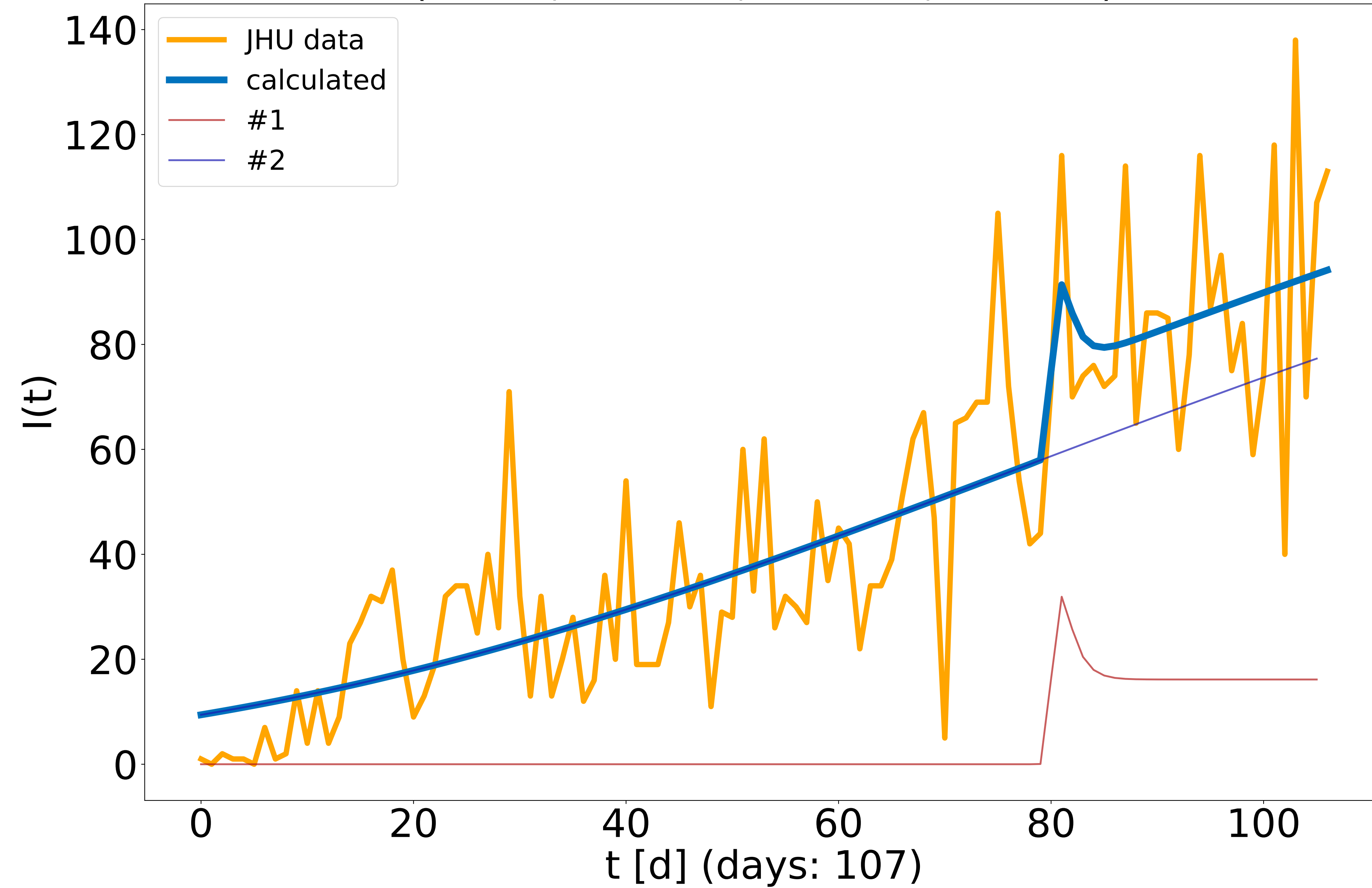
Fresno, California, US, Fresno ($R^2 = 0.492$)
(i: 27.5, a: 0.022, b: 0.026, t: 53.1)
(i: 80.3, a: 0.096, b: 0.001, t: 104.0)



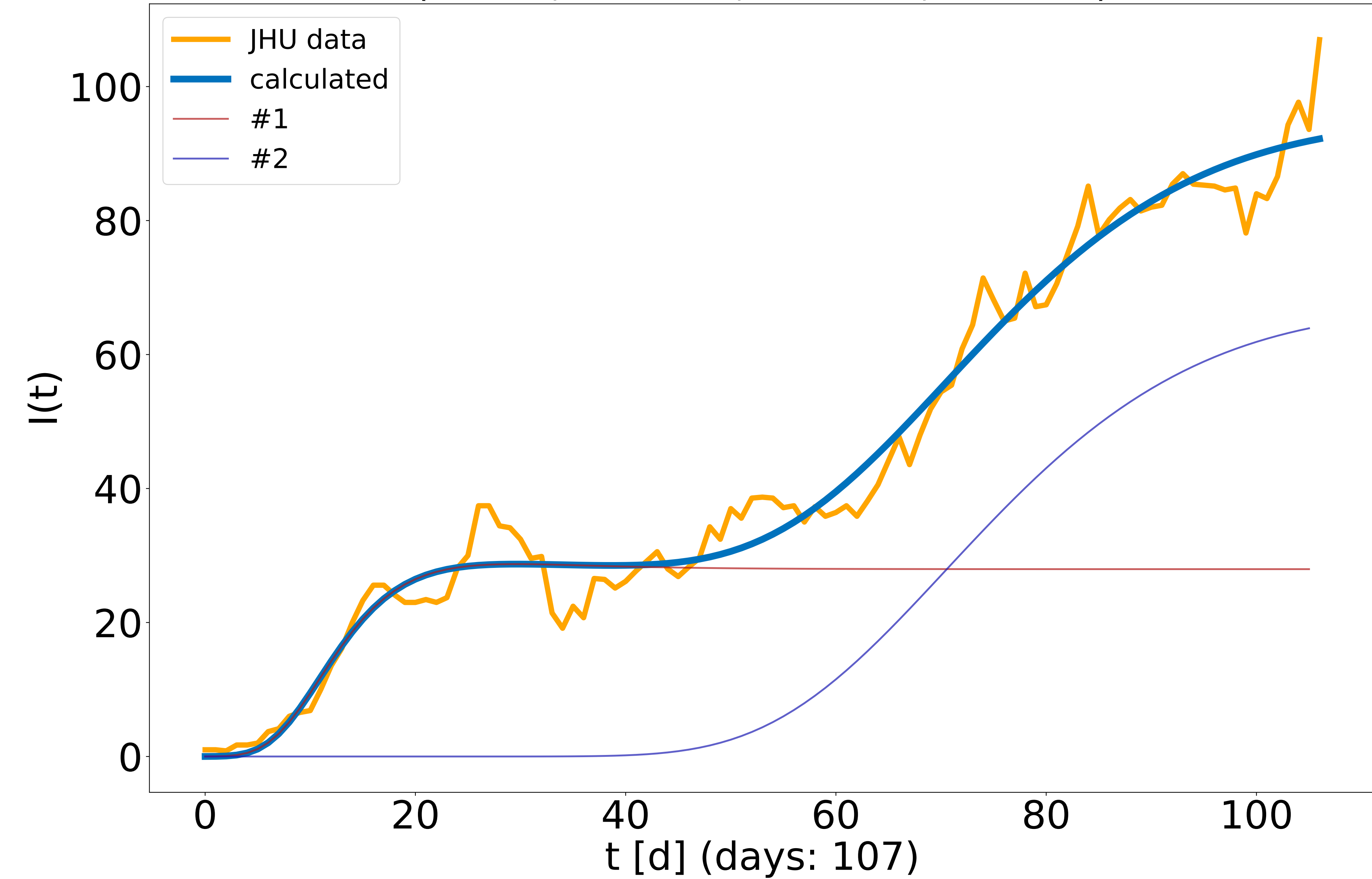
Fresno, California, US, Fresno ($R^2 = 0.985$)
(i: 0.1, a: 0.598, b: 0.03, t: 82.9)
(i: 58.6, a: 0.001, b: 0.025, t: 139.2)



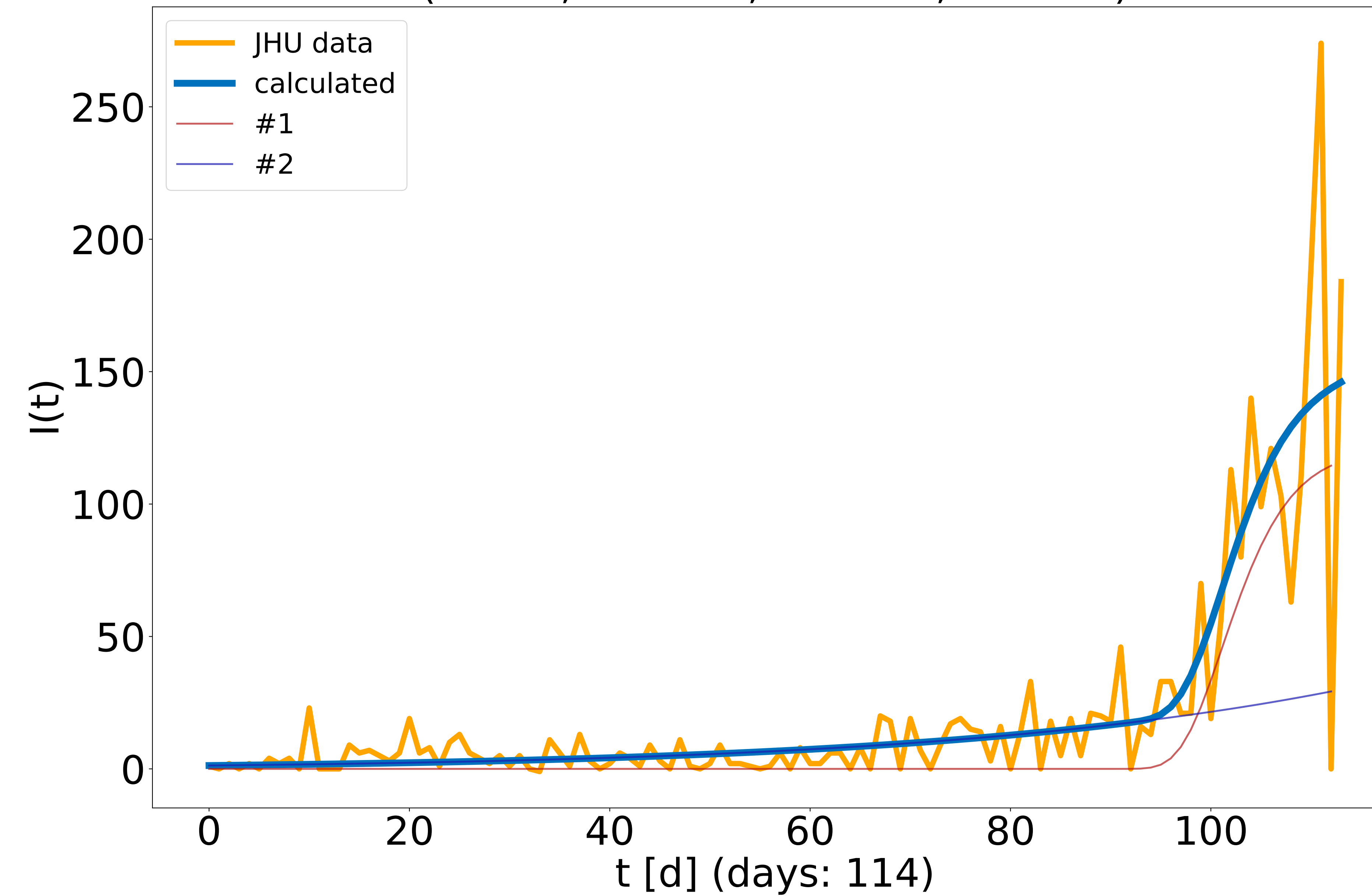
Kern, California, US, Kern ($R^2 = 0.729$)
(i: 16.1, a: 2.0, b: 1.077, t: 80.0)
(i: 95.4, a: 0.006, b: 0.008, t: 133.2)



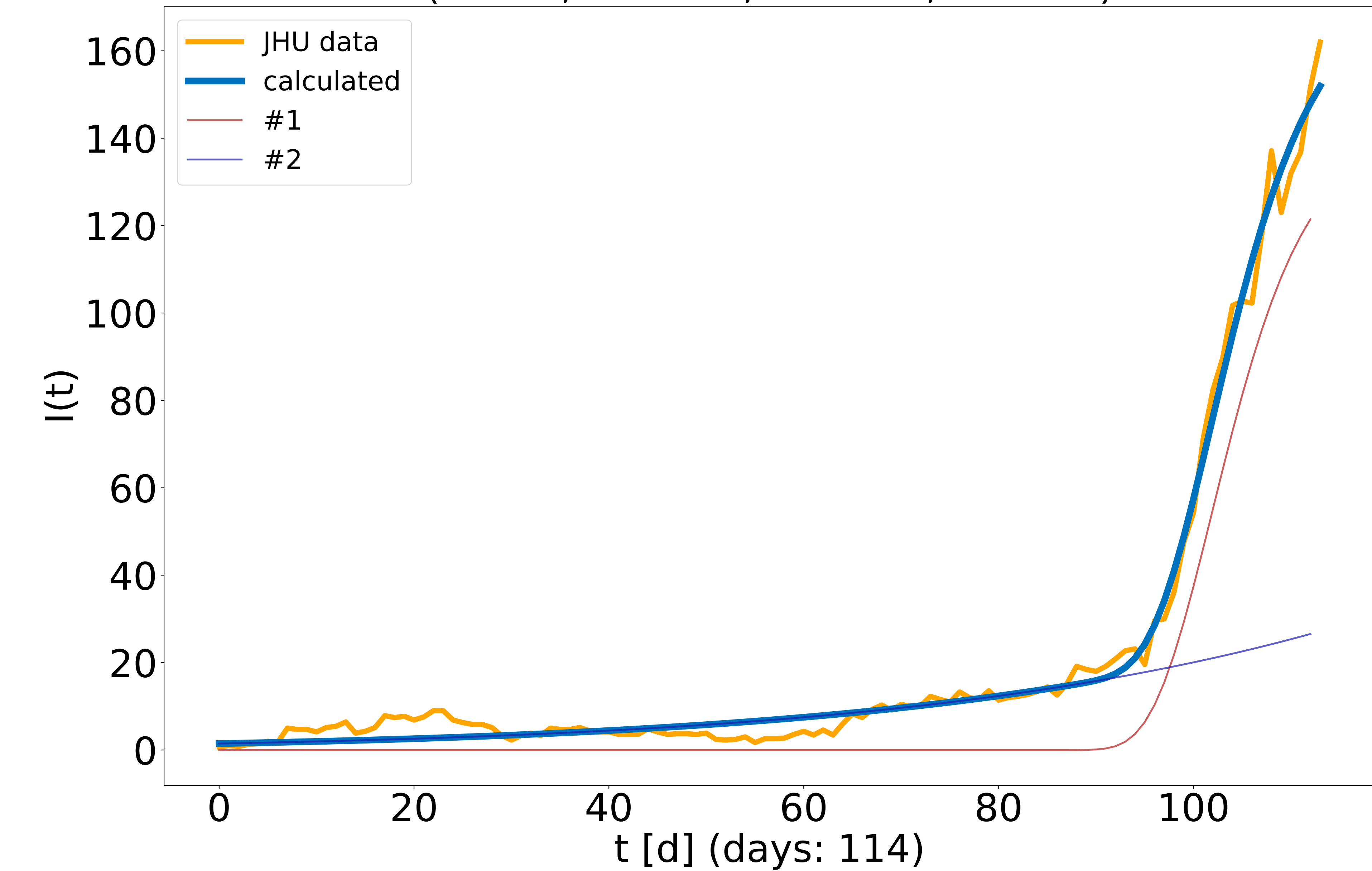
Kern, California, US, Kern ($R^2 = 0.977$)
(i: 28.0, a: 0.011, b: 0.154, t: 23.1)
(i: 62.7, a: 0.007, b: 0.043, t: 101.8)



Marin, California, US, Marin ($R^2 = 0.719$)
(i: 120.1, a: 0.001, b: 0.201, t: 120.6)
(i: 57.9, a: 0.024, b: 0.001, t: 140.0)



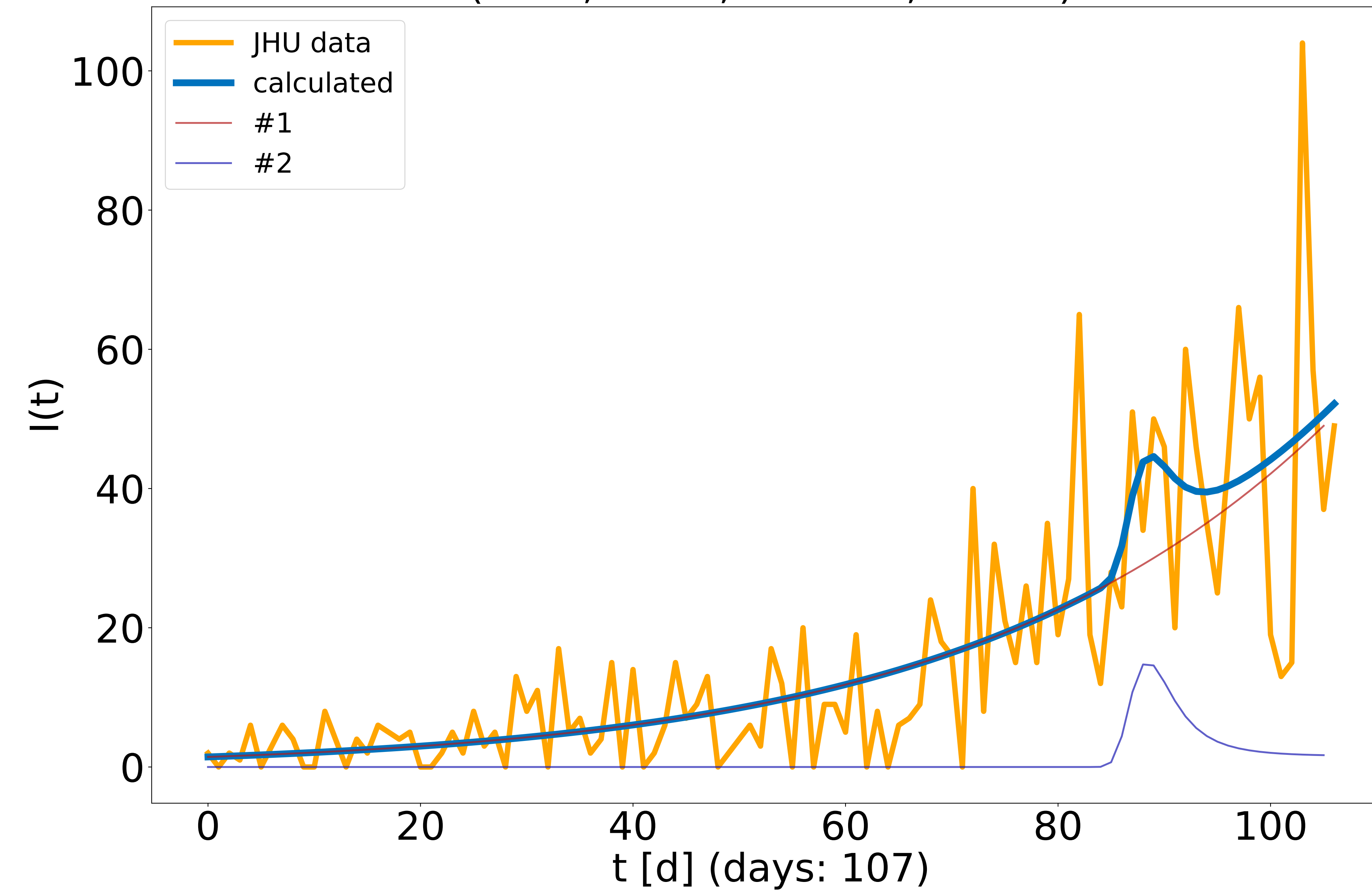
Marin, California, US, Marin ($R^2 = 0.991$)
(i: 140.7, a: 0.001, b: 0.137, t: 128.1)
(i: 49.8, a: 0.022, b: 0.001, t: 140.0)



Monterey, California, US, Monterey ($R^2 = 0.635$)

(i: 13.7, a: 0.033, b: 0.001, t: 64.4)

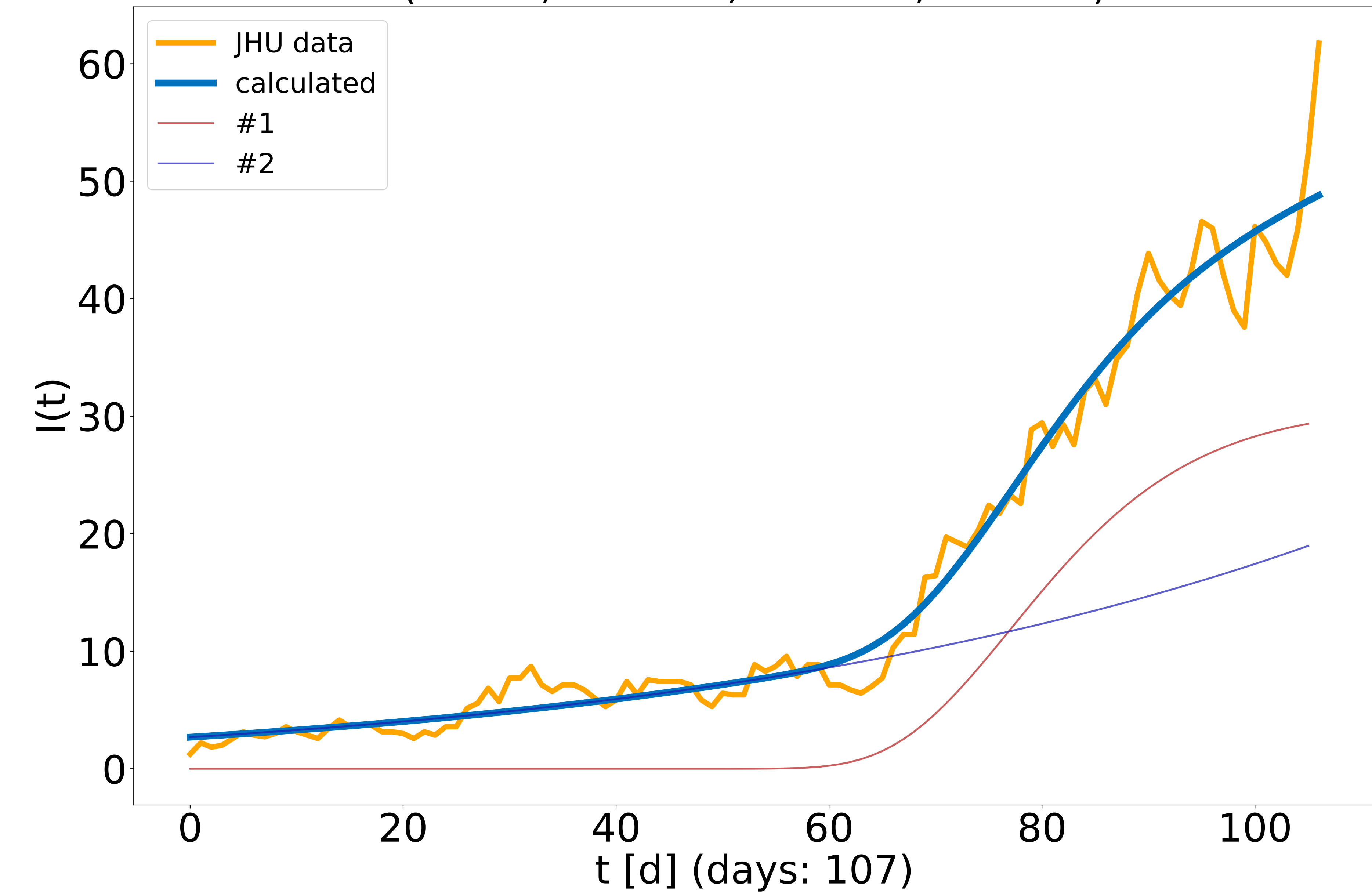
(i: 1.6, a: 2.0, b: 0.327, t: 85.4)



Monterey, California, US, Monterey ($R^2 = 0.976$)

(i: 30.5, a: 0.001, b: 0.075, t: 118.6)

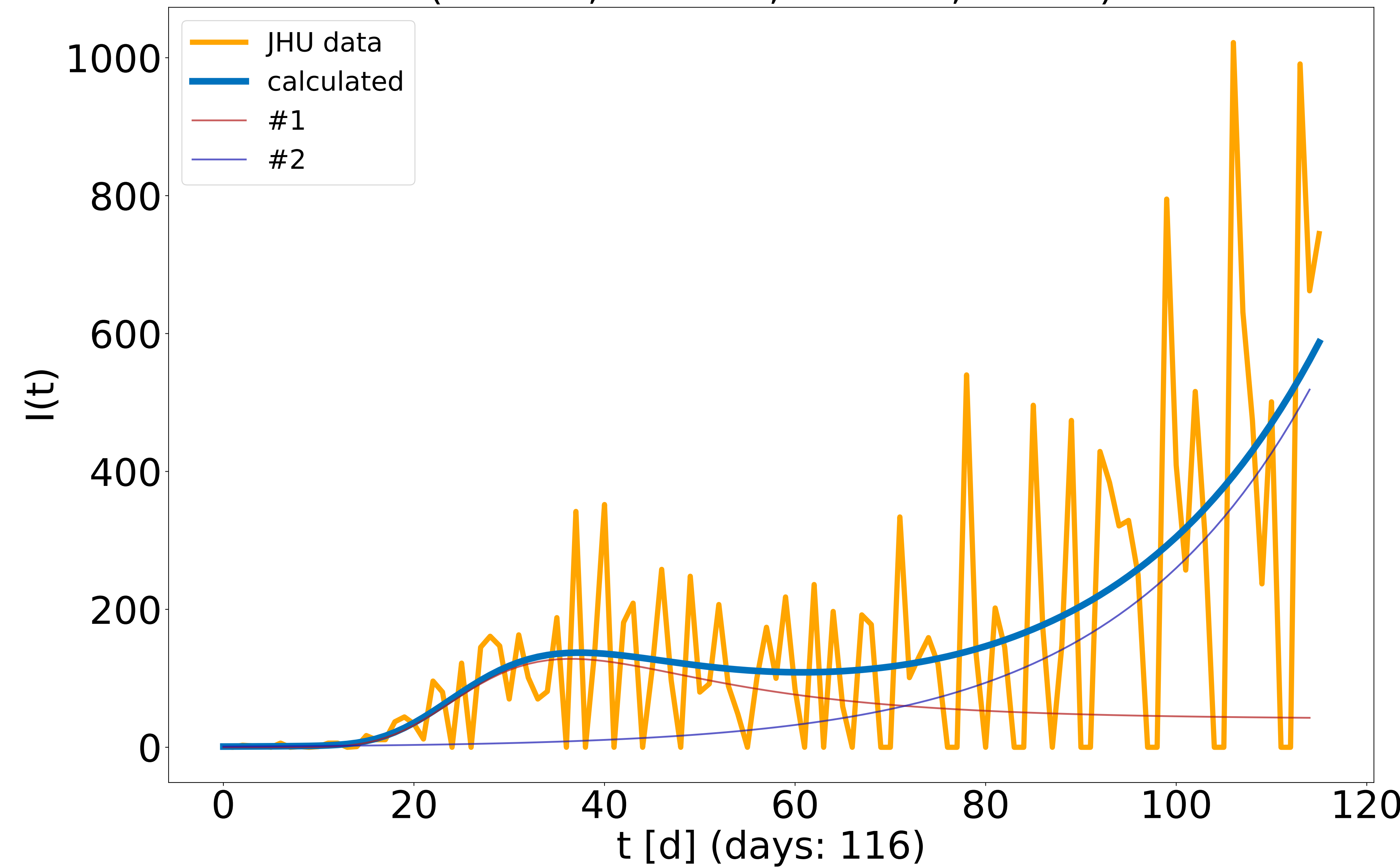
(i: 33.5, a: 0.016, b: 0.001, t: 140.0)



Riverside, California, US, Riverside ($R^2 = 0.394$)

(i: 40.9, a: 0.202, b: 0.065, t: 21.1)

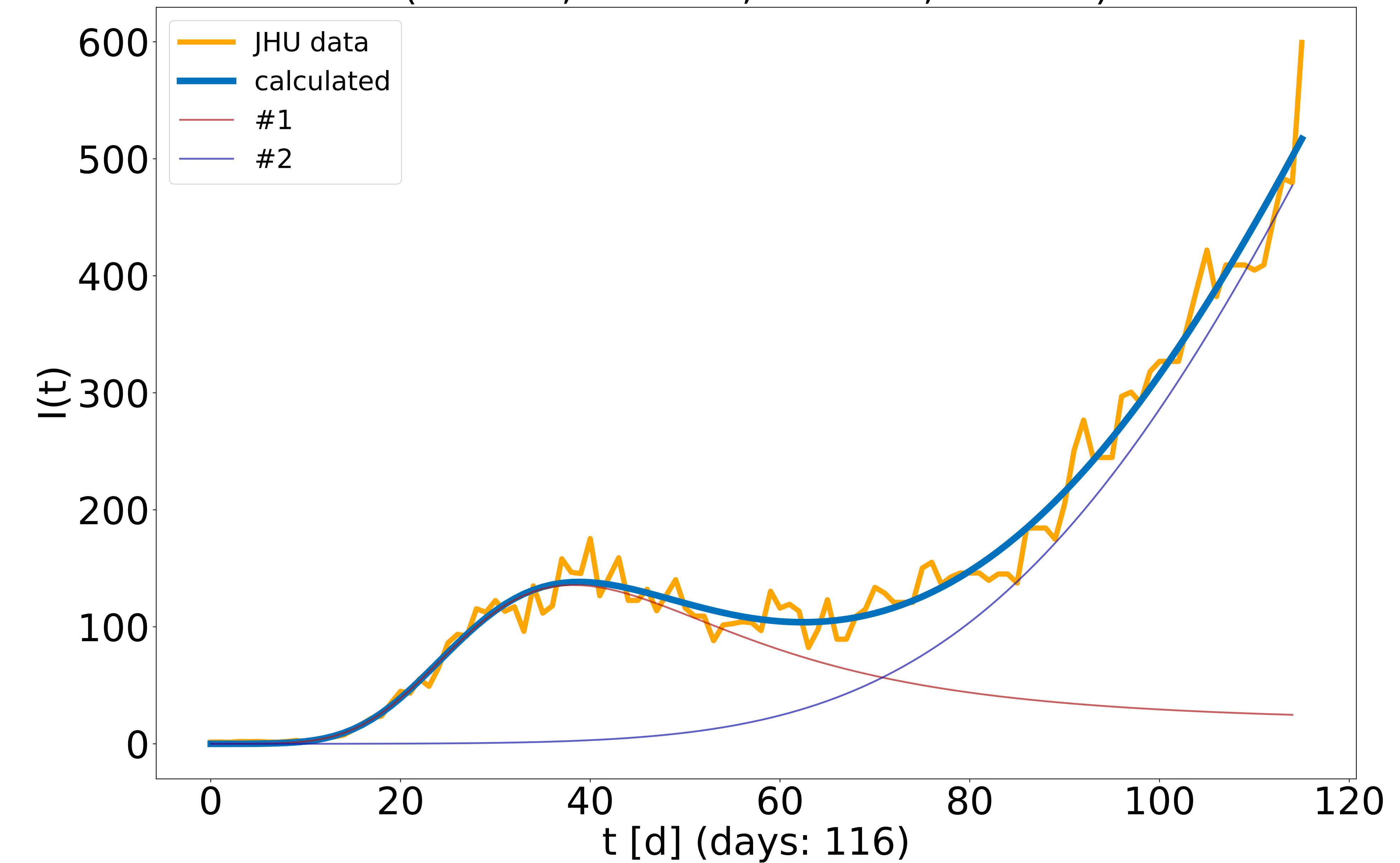
(i: 156.6, a: 0.051, b: 0.001, t: 90.0)



Riverside, California, US, Riverside ($R^2 = 0.981$)

(i: 19.0, a: 0.247, b: 0.046, t: 16.6)

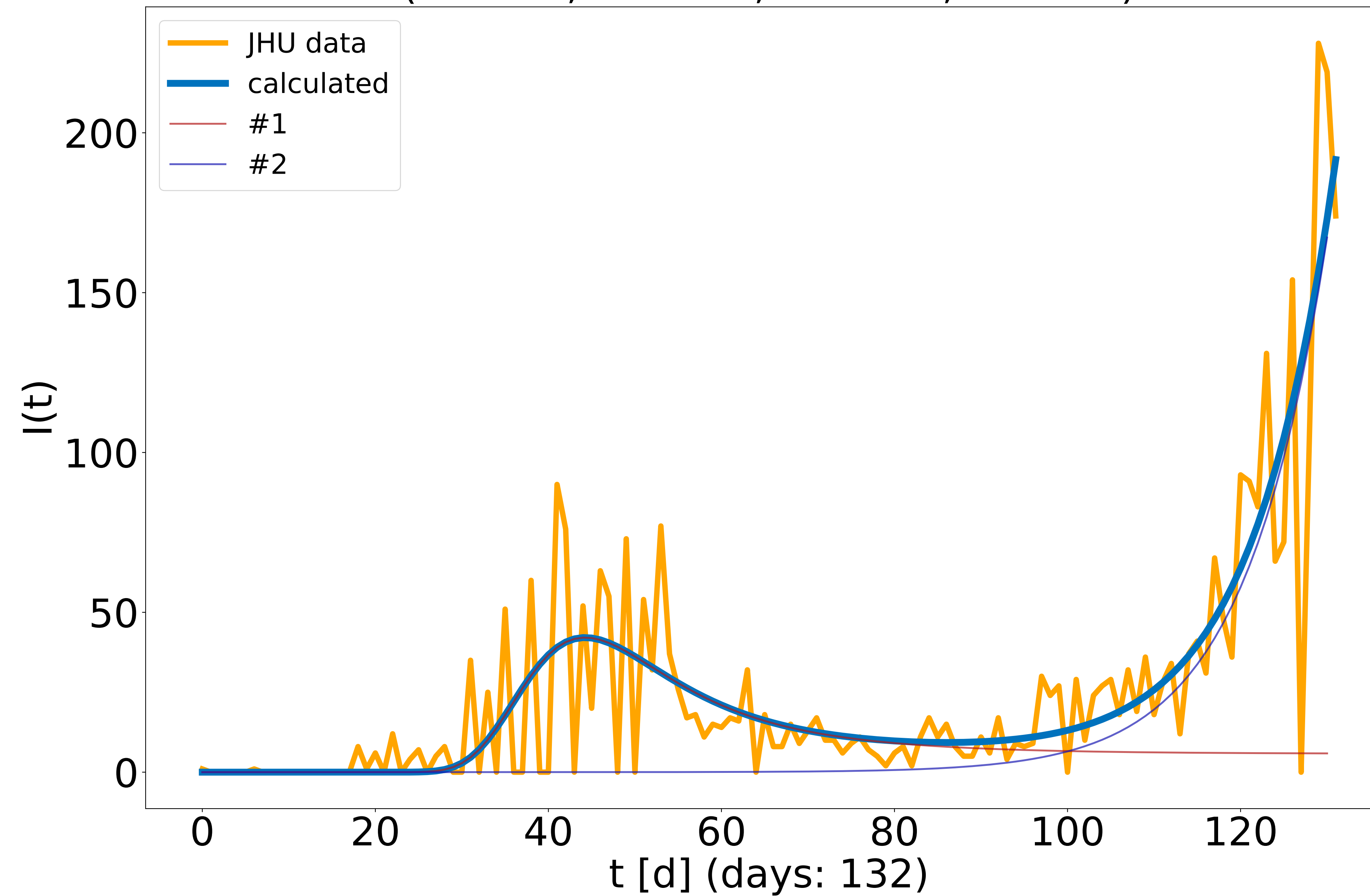
(i: 903.6, a: 0.018, b: 0.011, t: 140.0)



Sacramento, California, US, Sacramento ($R^2 = 0.724$)

(i: 5.8, a: 0.424, b: 0.079, t: 31.5)

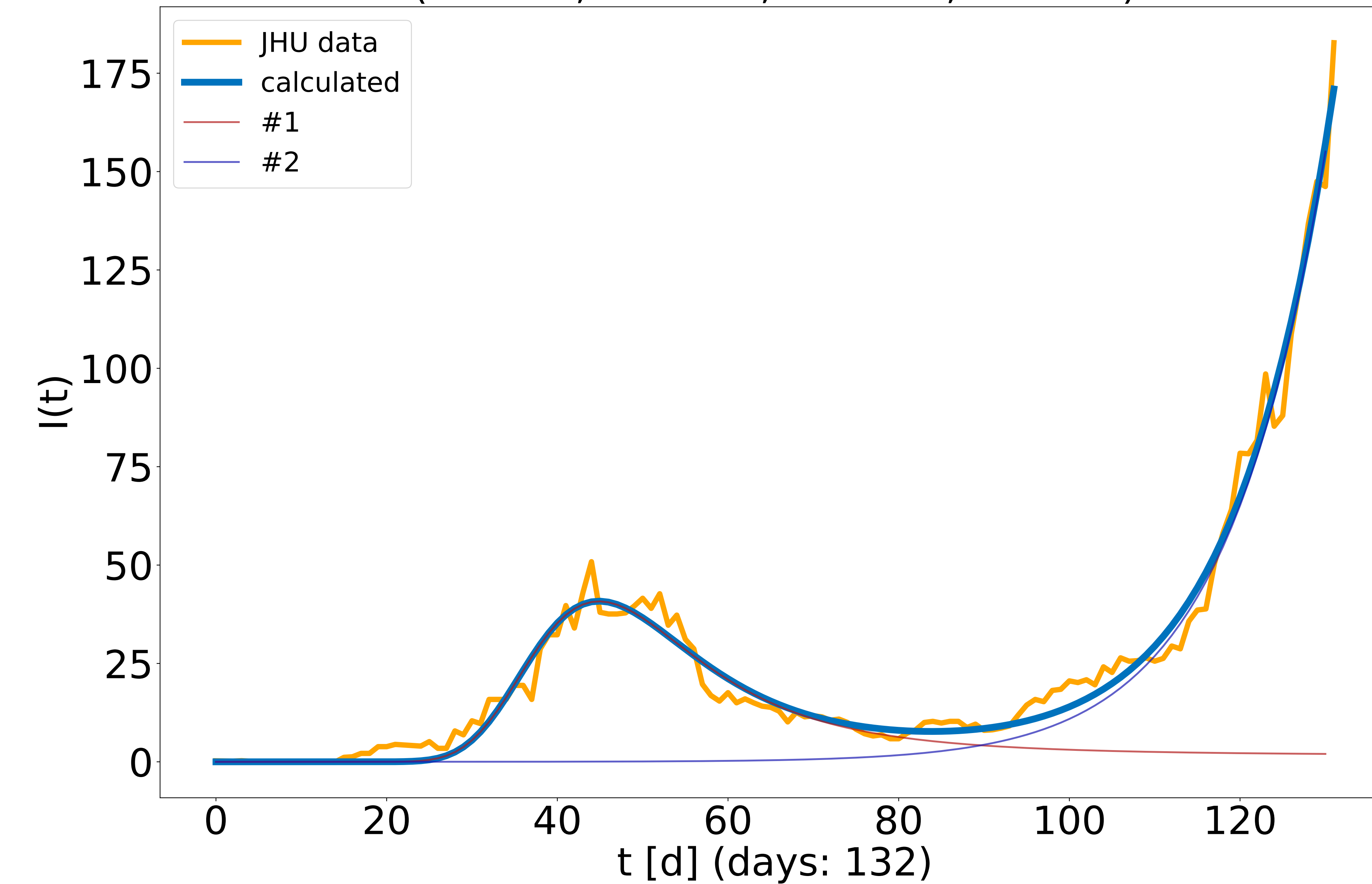
(i: 473.4, a: 0.103, b: 0.001, t: 140.0)



Sacramento, California, US, Sacramento ($R^2 = 0.982$)

(i: 1.7, a: 0.487, b: 0.057, t: 27.2)

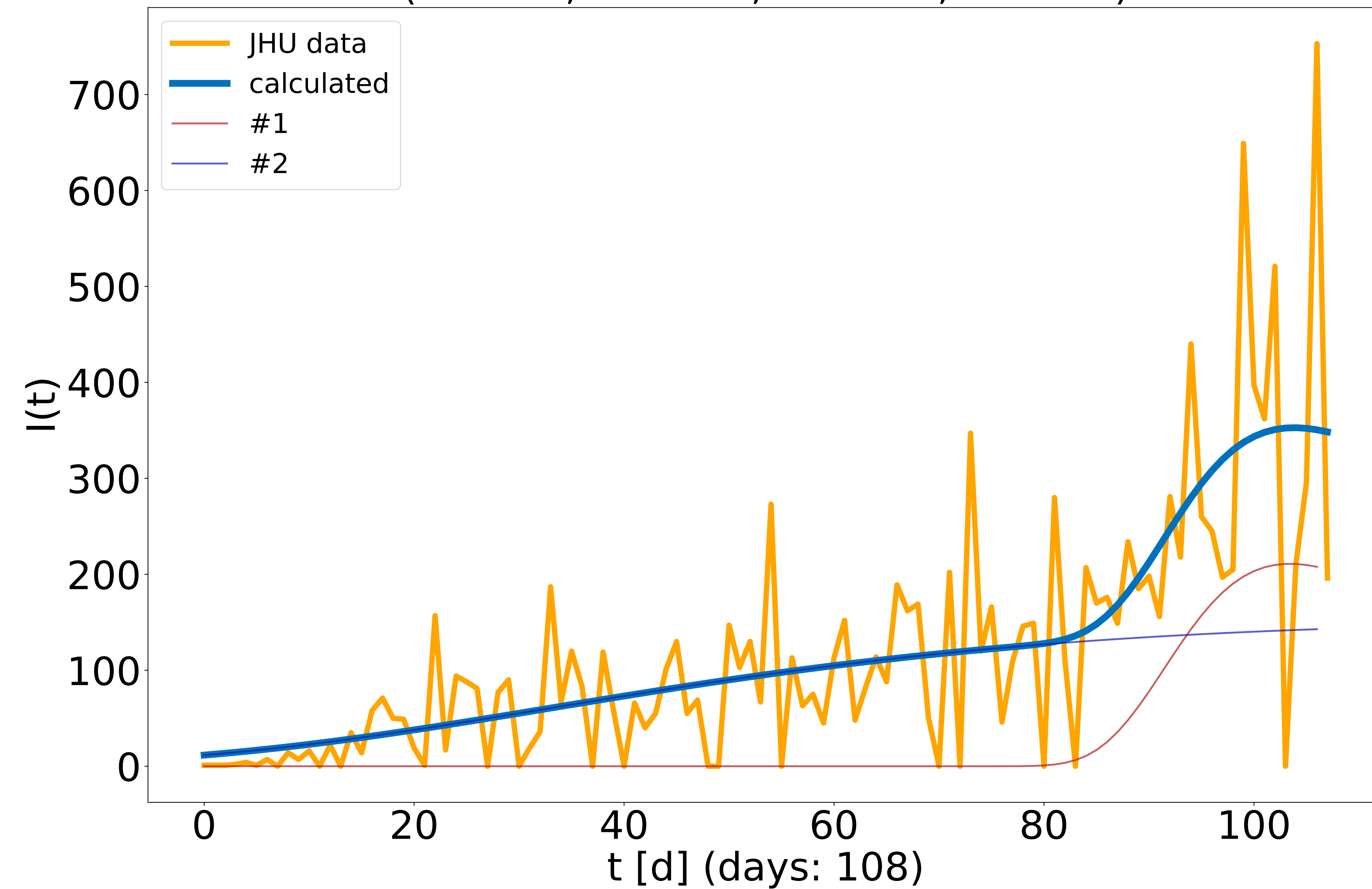
(i: 363.0, a: 0.084, b: 0.001, t: 140.0)



San Bernardino, California, US, San Bernardino ($R^2 = 0.545$)

(i: 94.7, a: 0.176, b: 0.081, t: 91.0)

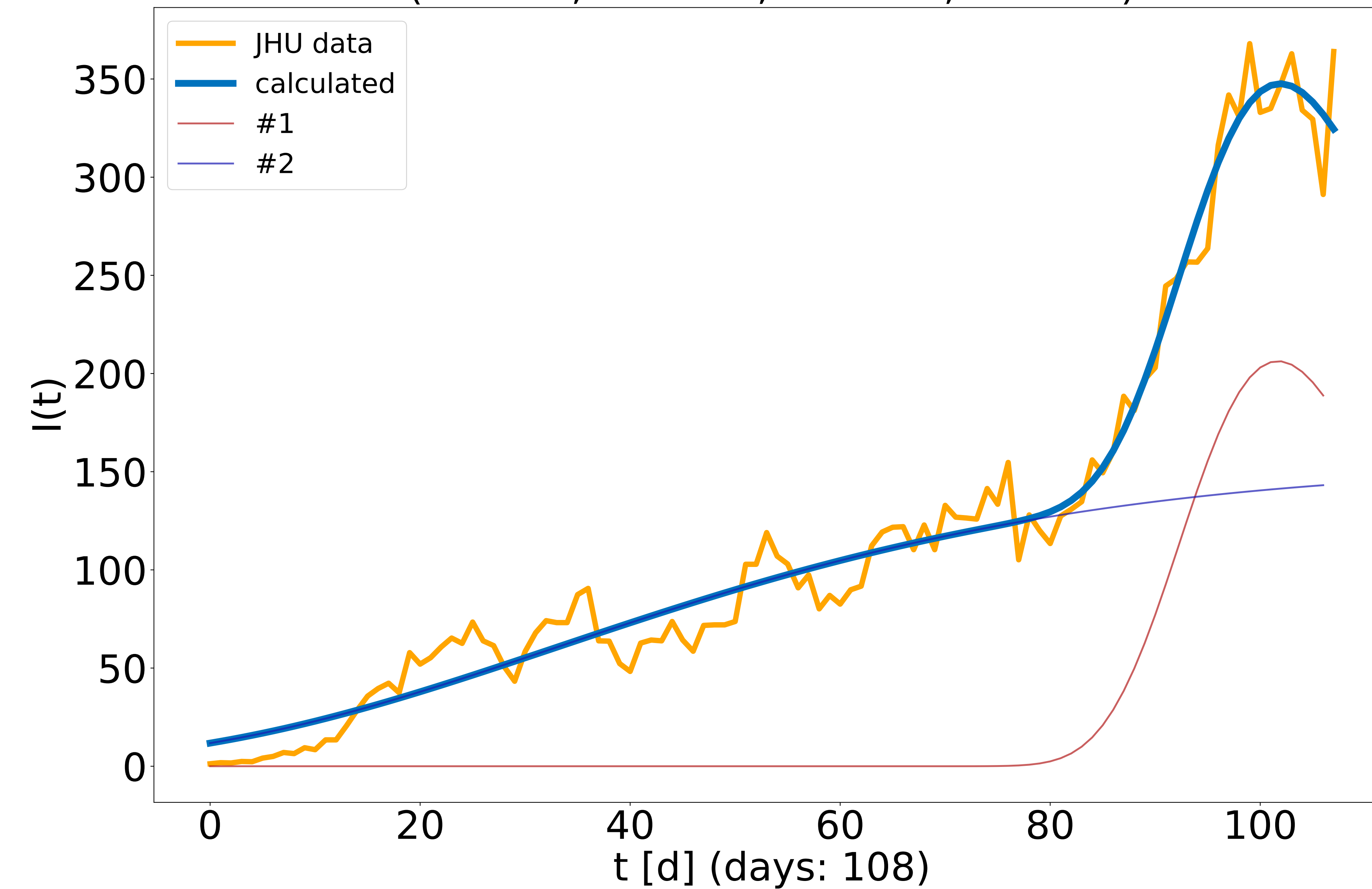
(i: 149.1, a: 0.001, b: 0.023, t: 130.6)



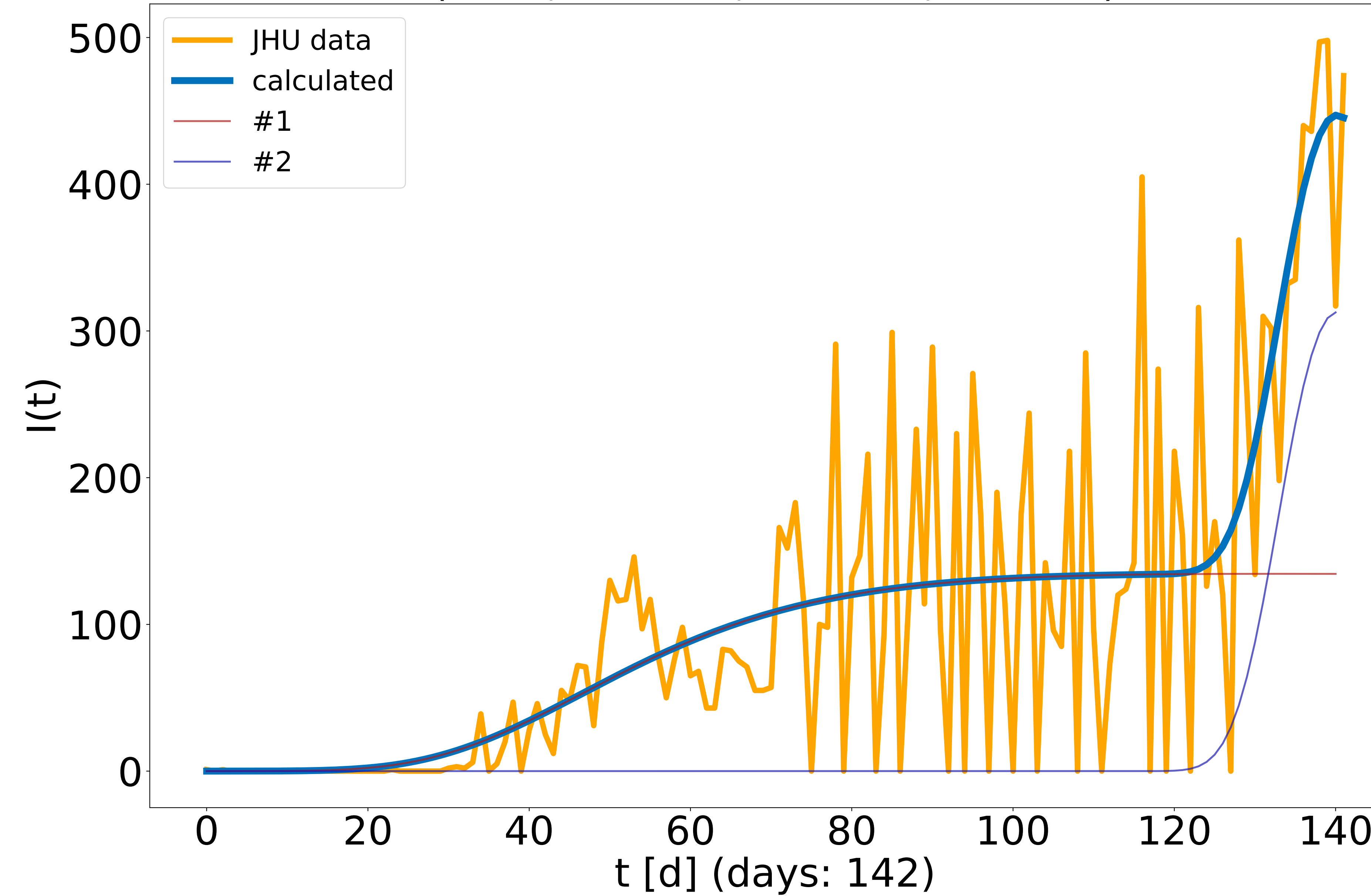
San Bernardino, California, US, San Bernardino ($R^2 = 0.976$)

(i: 0.1, a: 0.758, b: 0.038, t: 75.5)

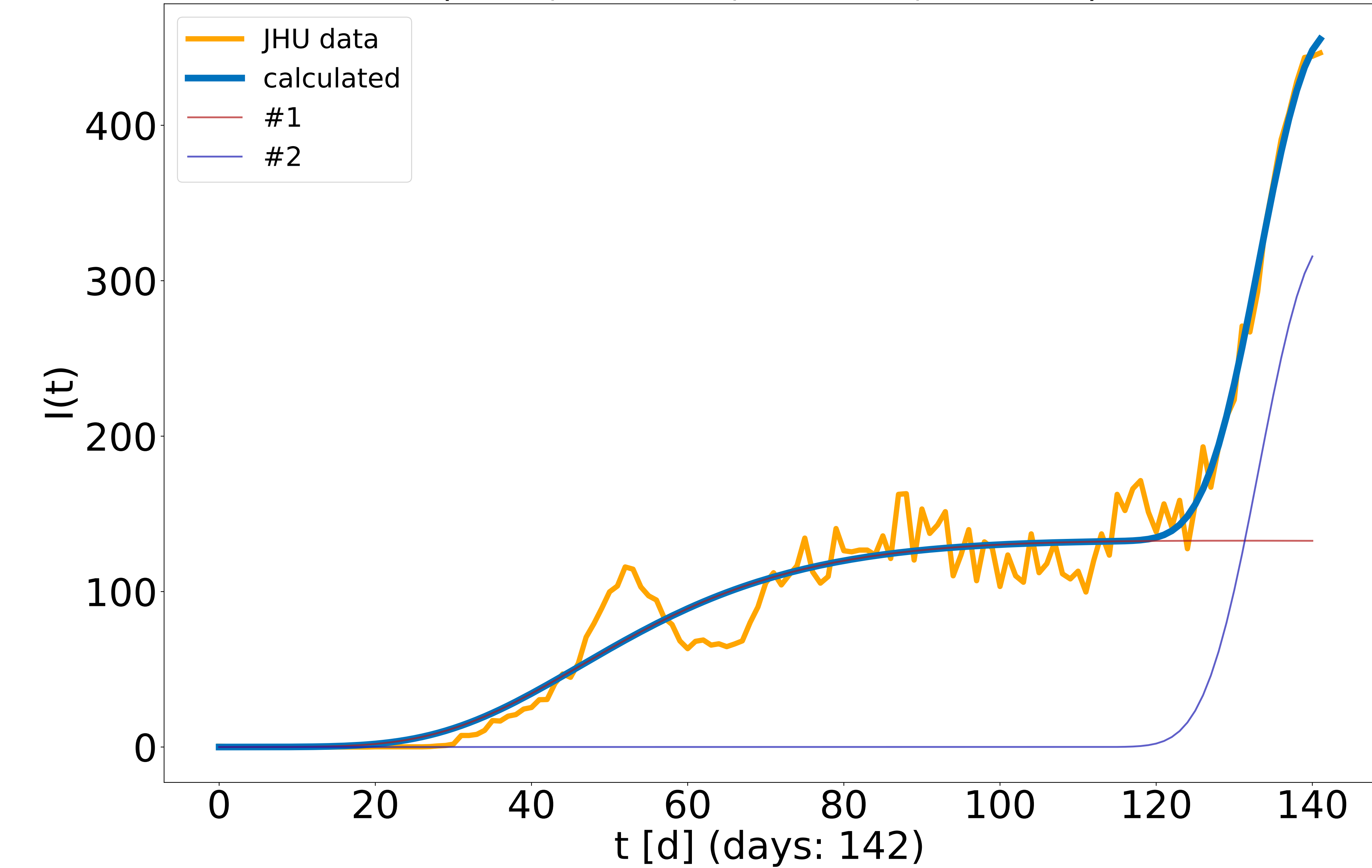
(i: 149.7, a: 0.001, b: 0.023, t: 131.4)



San Diego, California, US, San Diego ($R^2 = 0.651$)
(i: 133.3, a: 0.001, b: 0.043, t: 109.3)
(i: 0.1, a: 1.027, b: 0.047, t: 118.9)



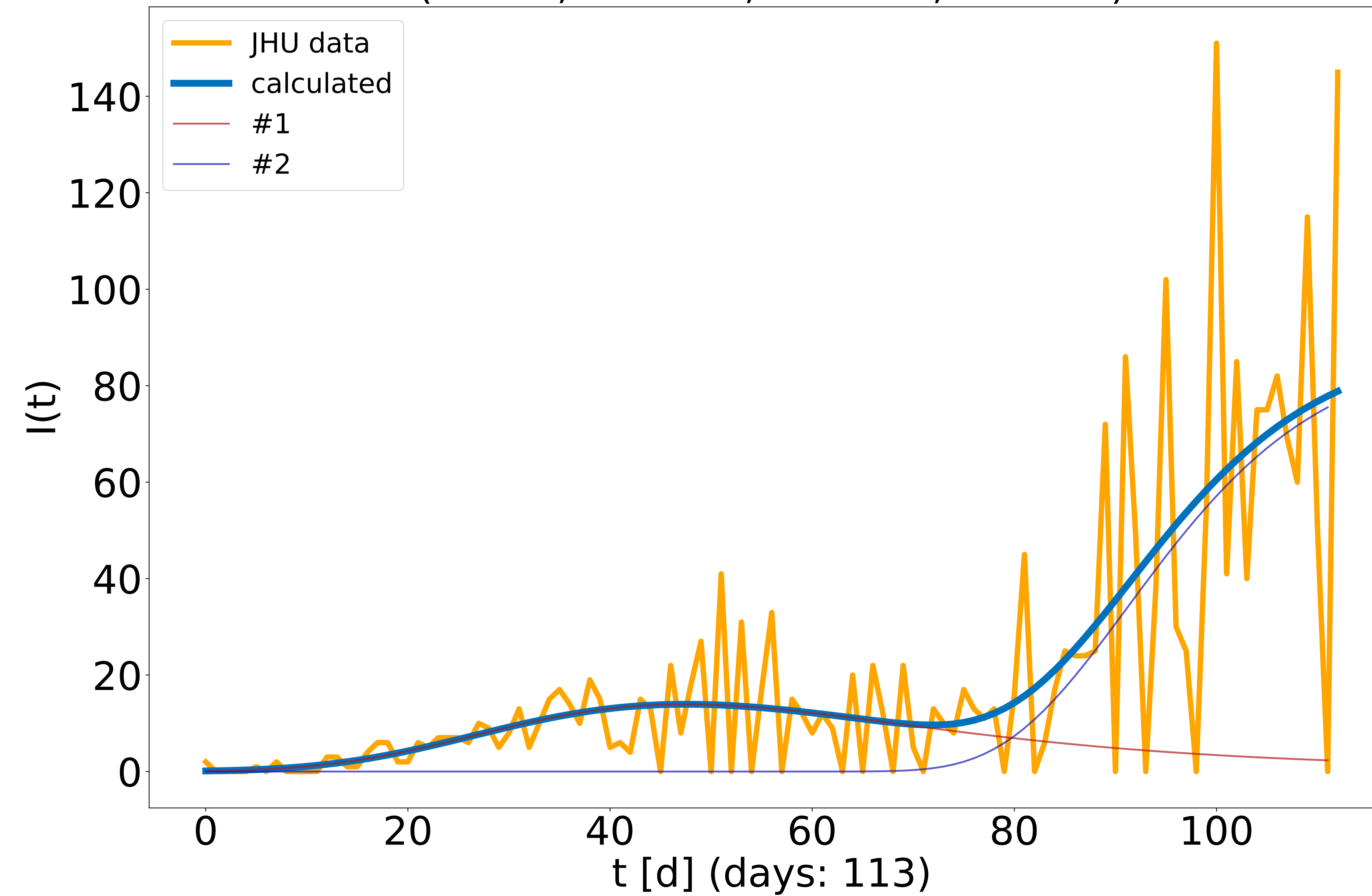
San Diego, California, US, San Diego ($R^2 = 0.972$)
(i: 131.6, a: 0.001, b: 0.044, t: 107.7)
(i: 0.1, a: 0.821, b: 0.037, t: 115.5)



Stanislaus, California, US, Stanislaus ($R^2 = 0.56$)

(i: 0.2, a: 0.265, b: 0.022, t: 1.0)

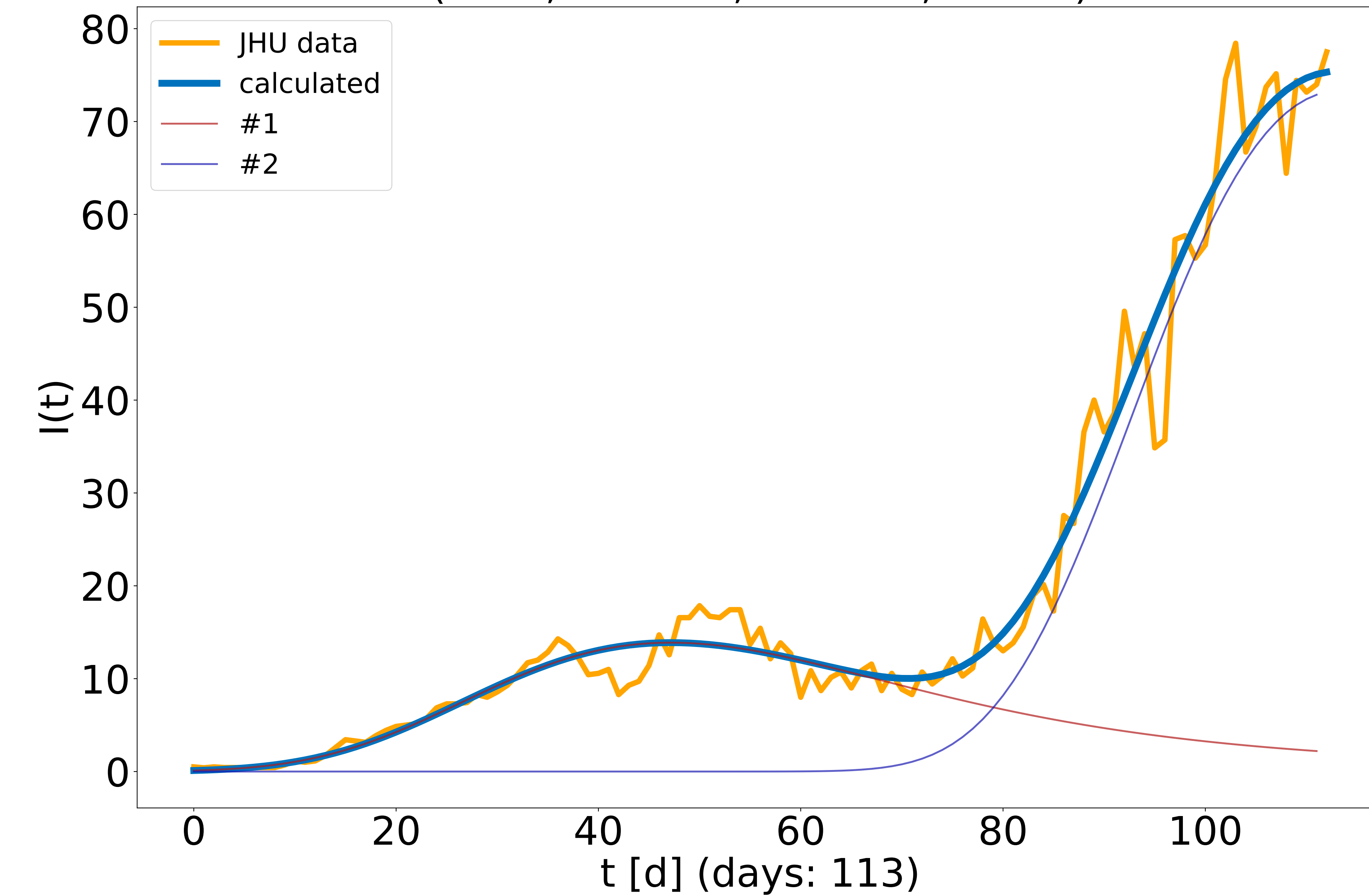
(i: 86.9, a: 0.001, b: 0.067, t: 136.5)



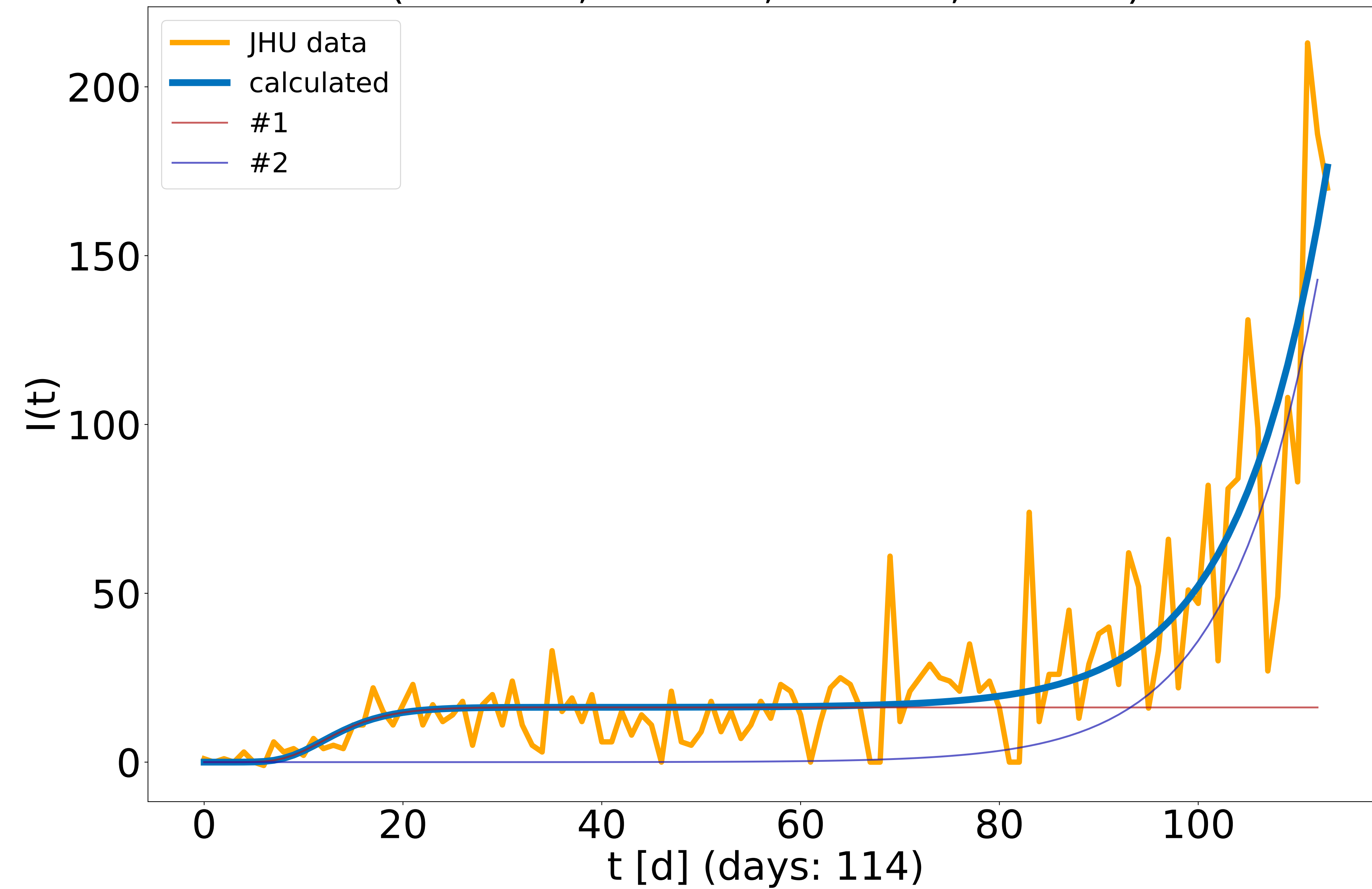
Stanislaus, California, US, Stanislaus ($R^2 = 0.976$)

(i: 0.1, a: 0.269, b: 0.022, t: 1.0)

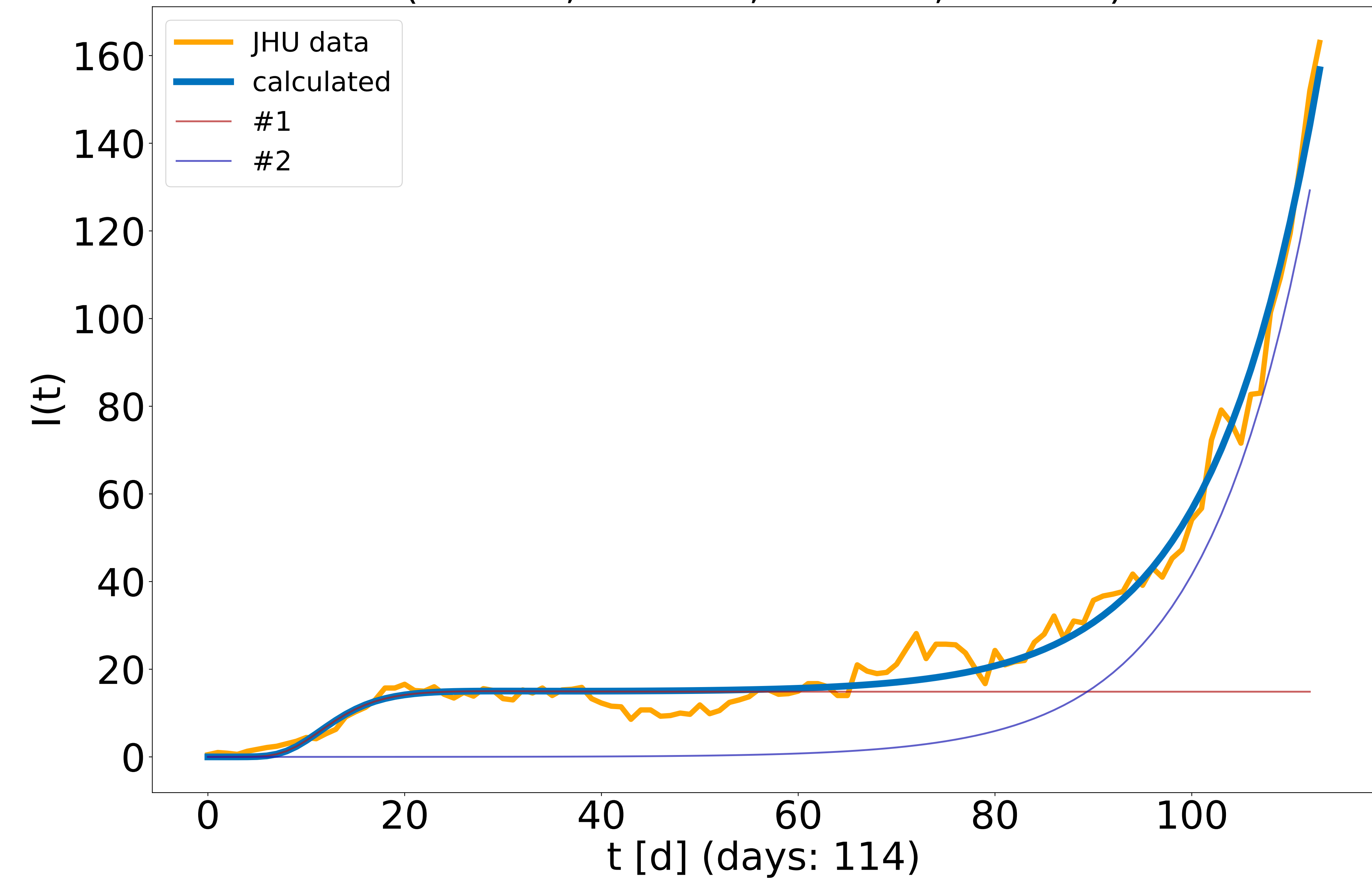
(i: 6.0, a: 0.193, b: 0.028, t: 78.3)



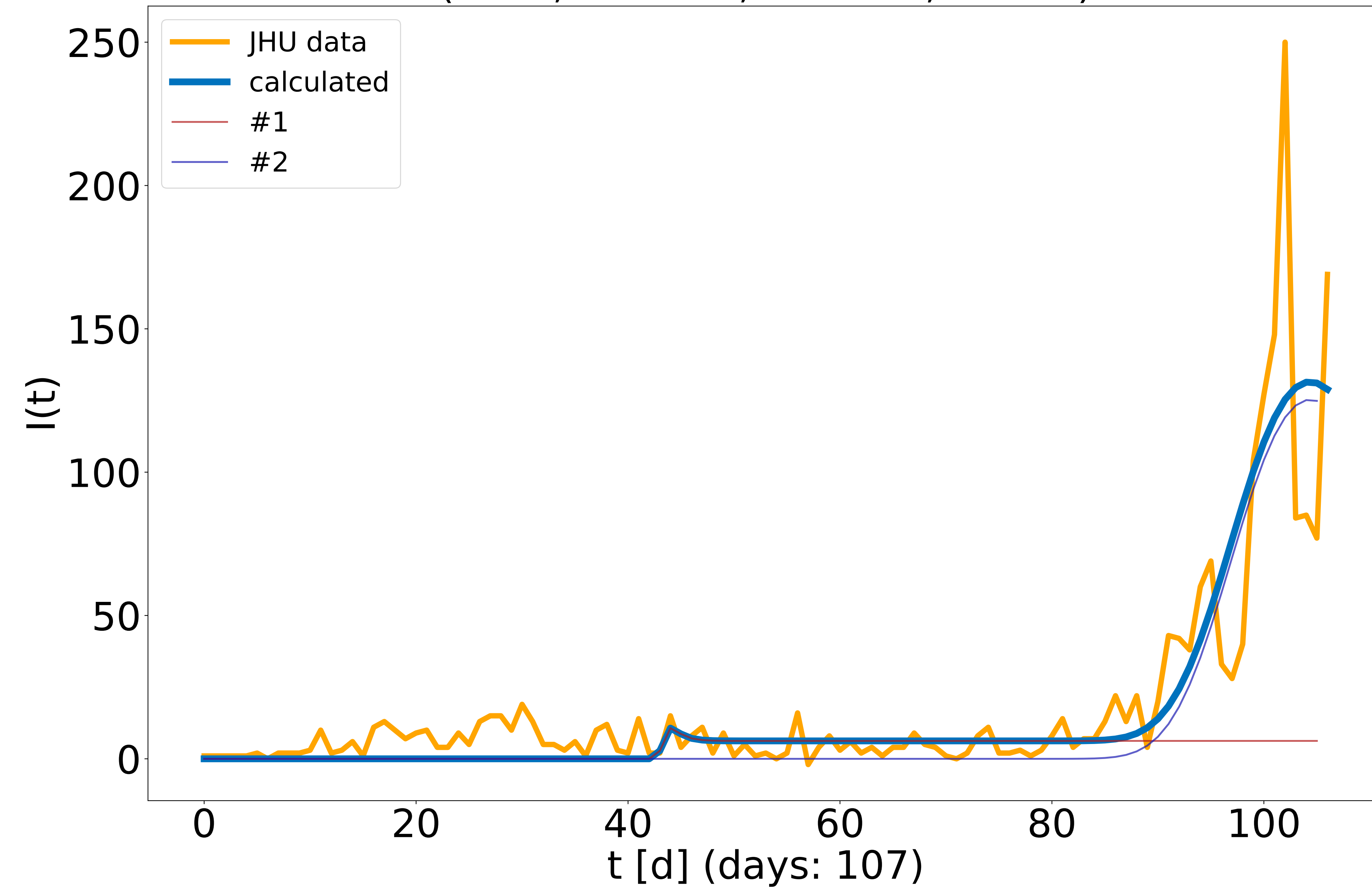
Ventura, California, US, Ventura ($R^2 = 0.771$)
(i: 16.2, a: 0.001, b: 0.212, t: 30.5)
(i: 3000.0, a: 0.108, b: 0.001, t: 139.5)



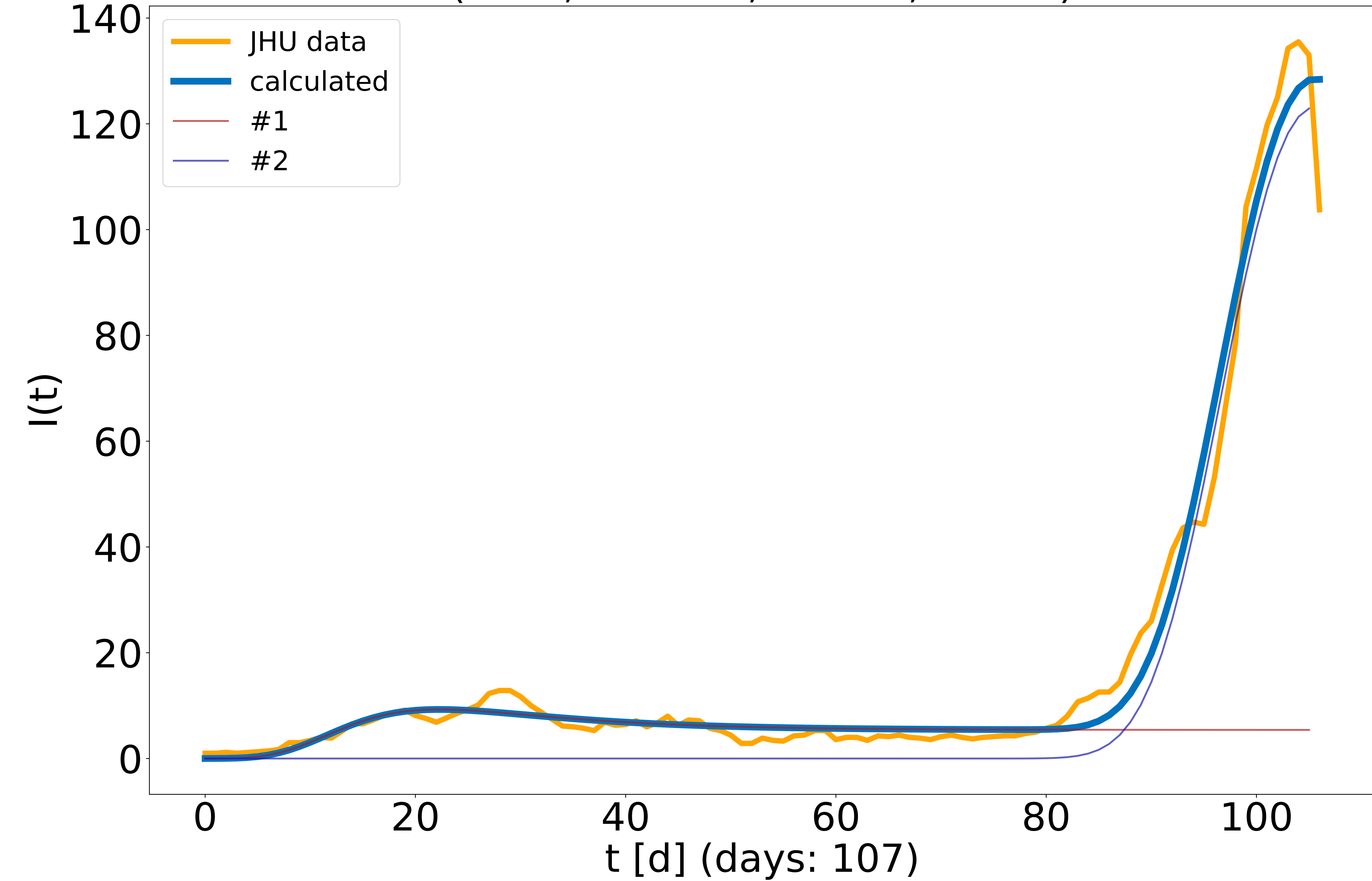
Ventura, California, US, Ventura ($R^2 = 0.984$)
(i: 14.9, a: 0.004, b: 0.213, t: 24.4)
(i: 342.7, a: 0.091, b: 0.001, t: 122.5)



Brevard, Florida, US, Brevard ($R^2 = 0.751$)
(i: 6.2, a: 2.0, b: 1.366, t: 43.3)
(i: 0.1, a: 0.941, b: 0.049, t: 83.8)



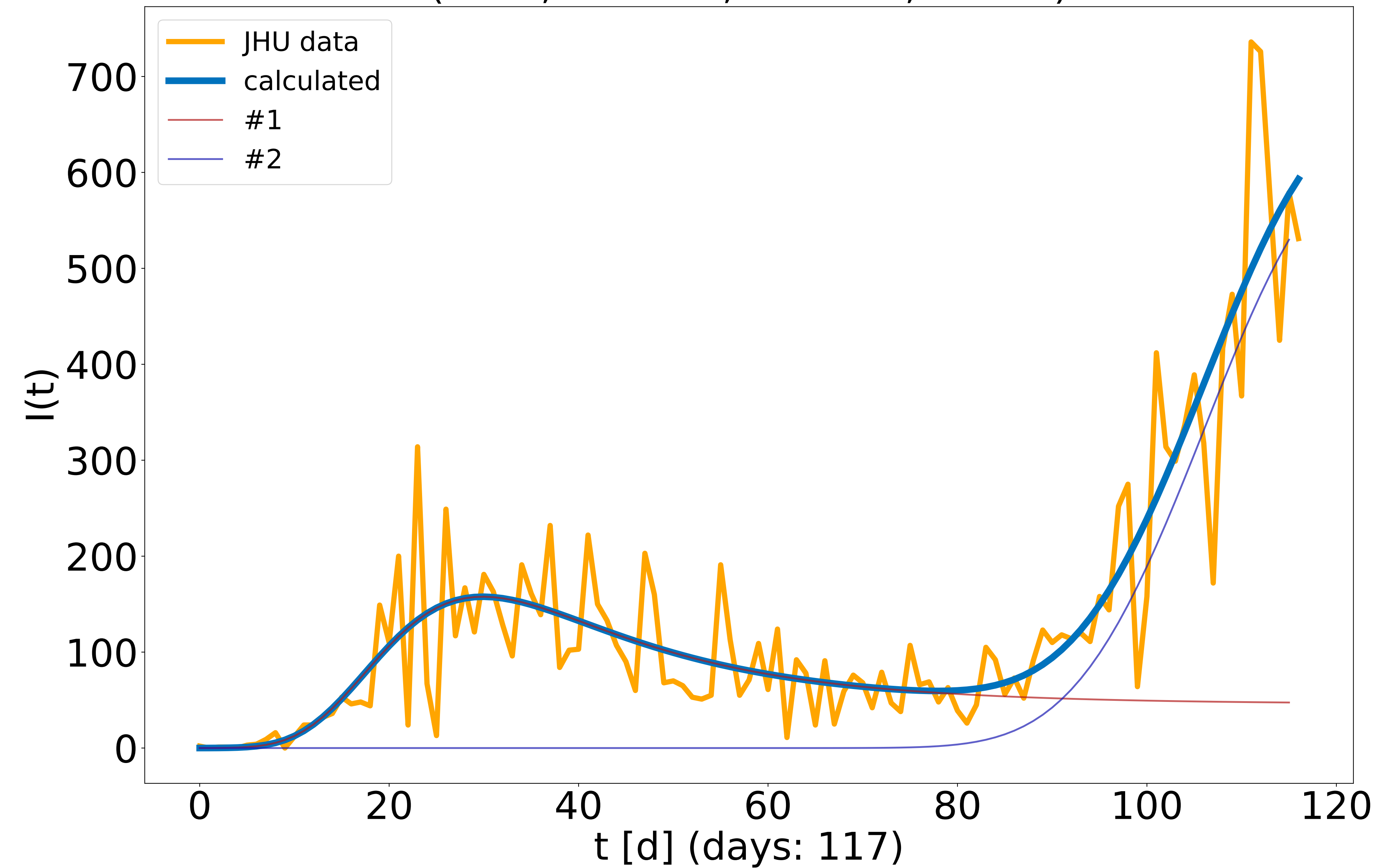
Brevard, Florida, US, Brevard ($R^2 = 0.98$)
(i: 5.4, a: 0.154, b: 0.105, t: 12.8)
(i: 0.1, a: 0.779, b: 0.04, t: 80.7)



Broward, Florida, US, Broward ($R^2 = 0.826$)

(i: 46.0, a: 0.217, b: 0.065, t: 14.5)

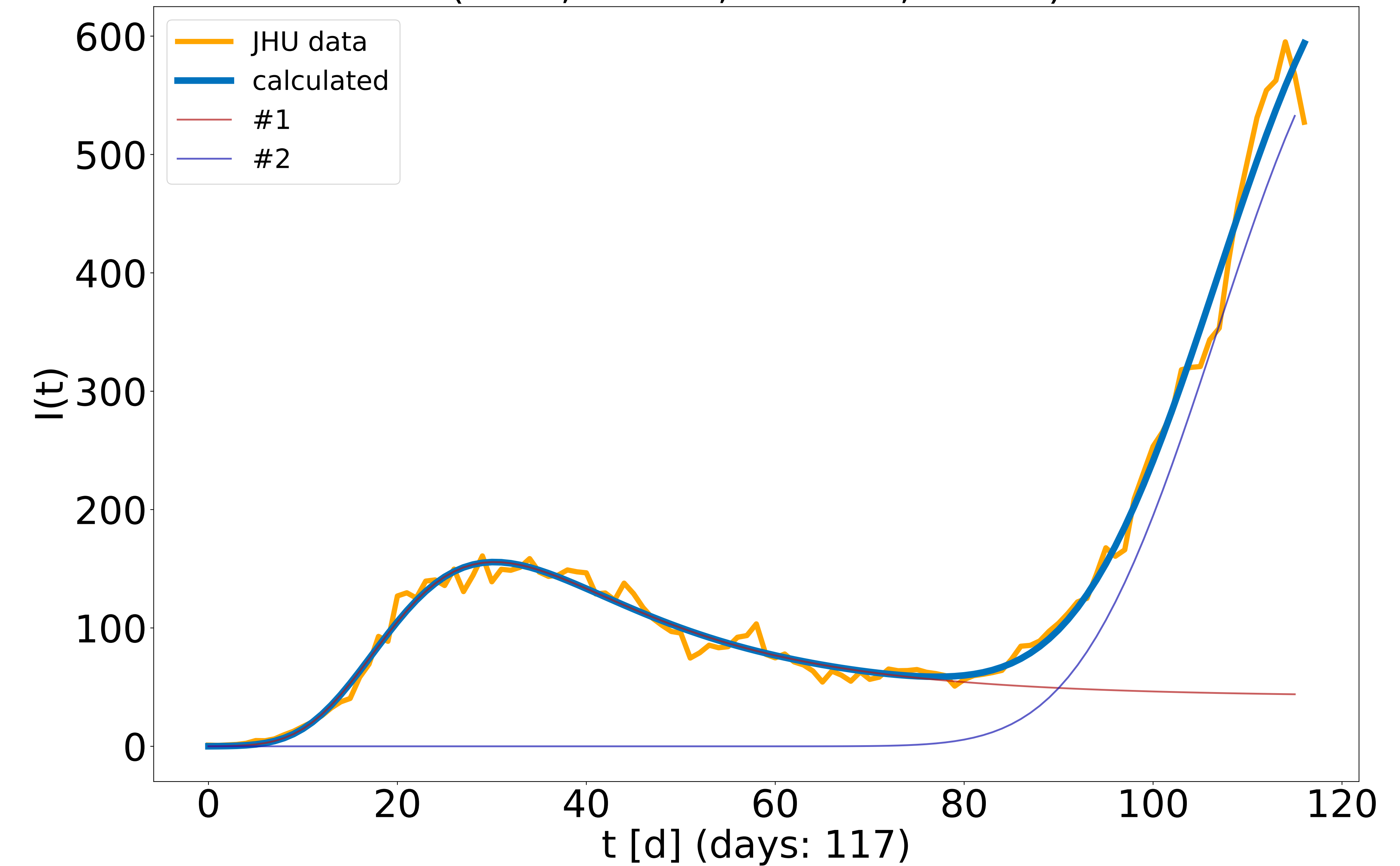
(i: 0.1, a: 0.441, b: 0.019, t: 70.2)



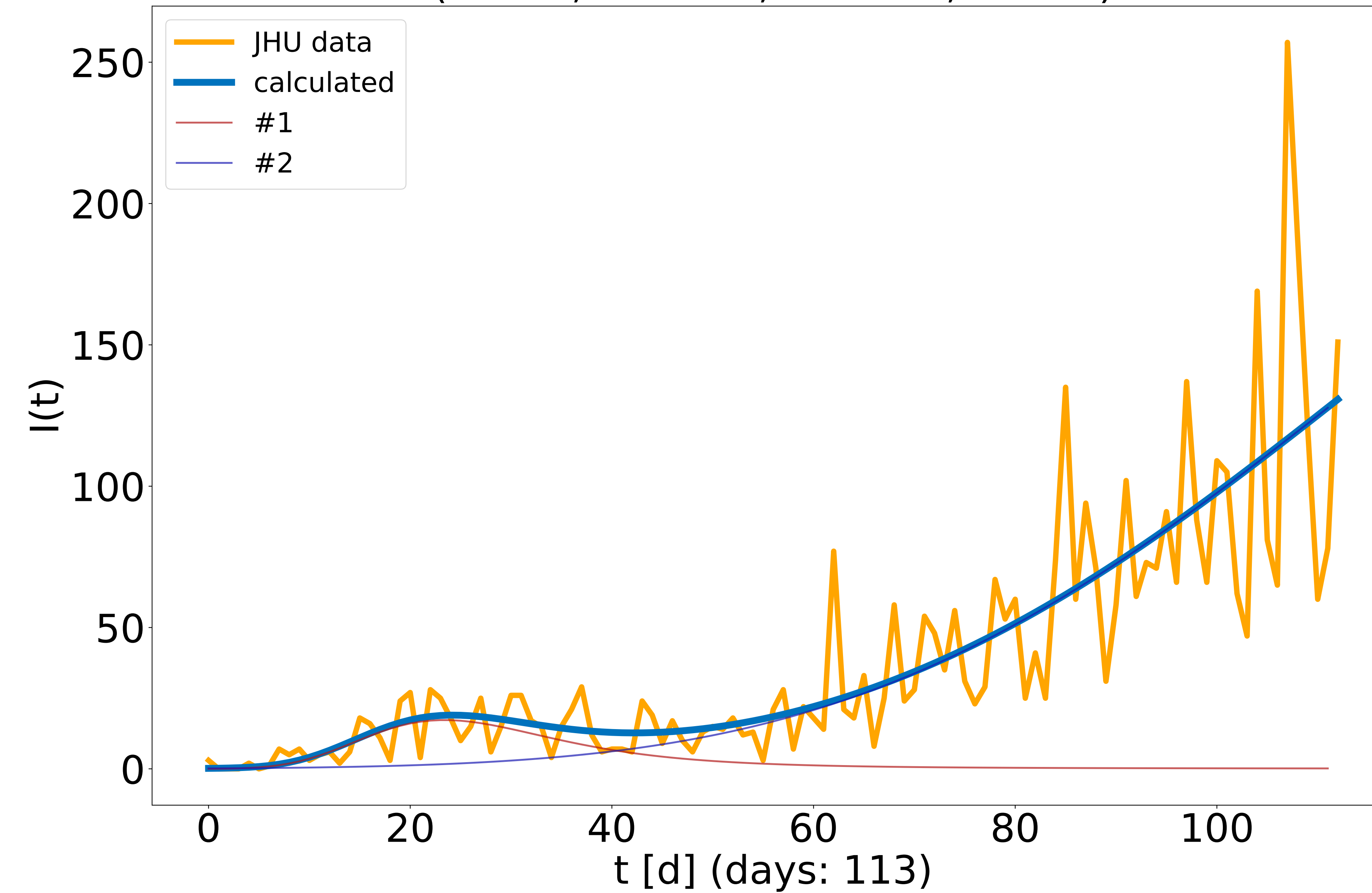
Broward, Florida, US, Broward ($R^2 = 0.99$)

(i: 42.0, a: 0.217, b: 0.061, t: 13.8)

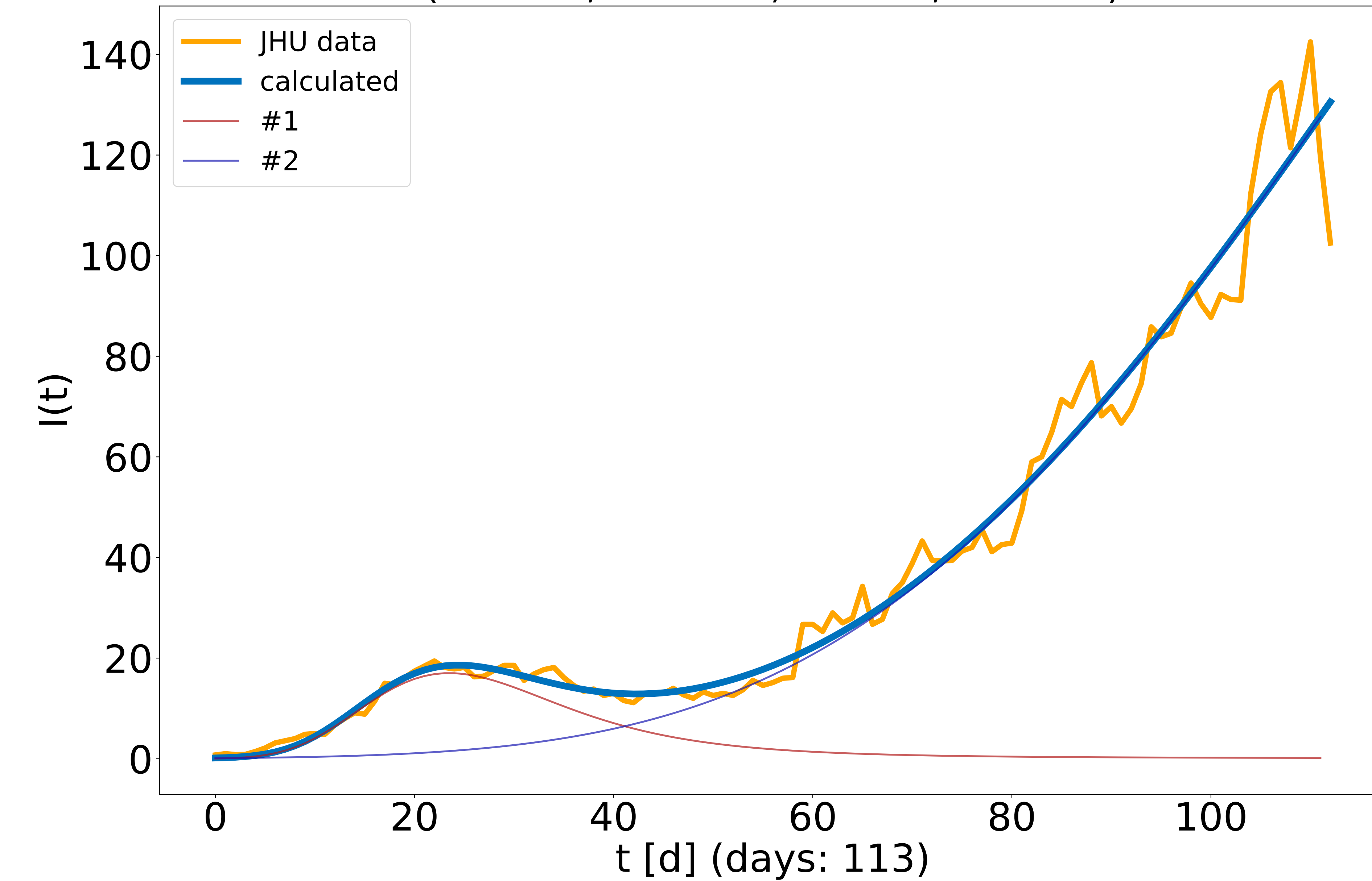
(i: 0.1, a: 0.41, b: 0.017, t: 67.9)



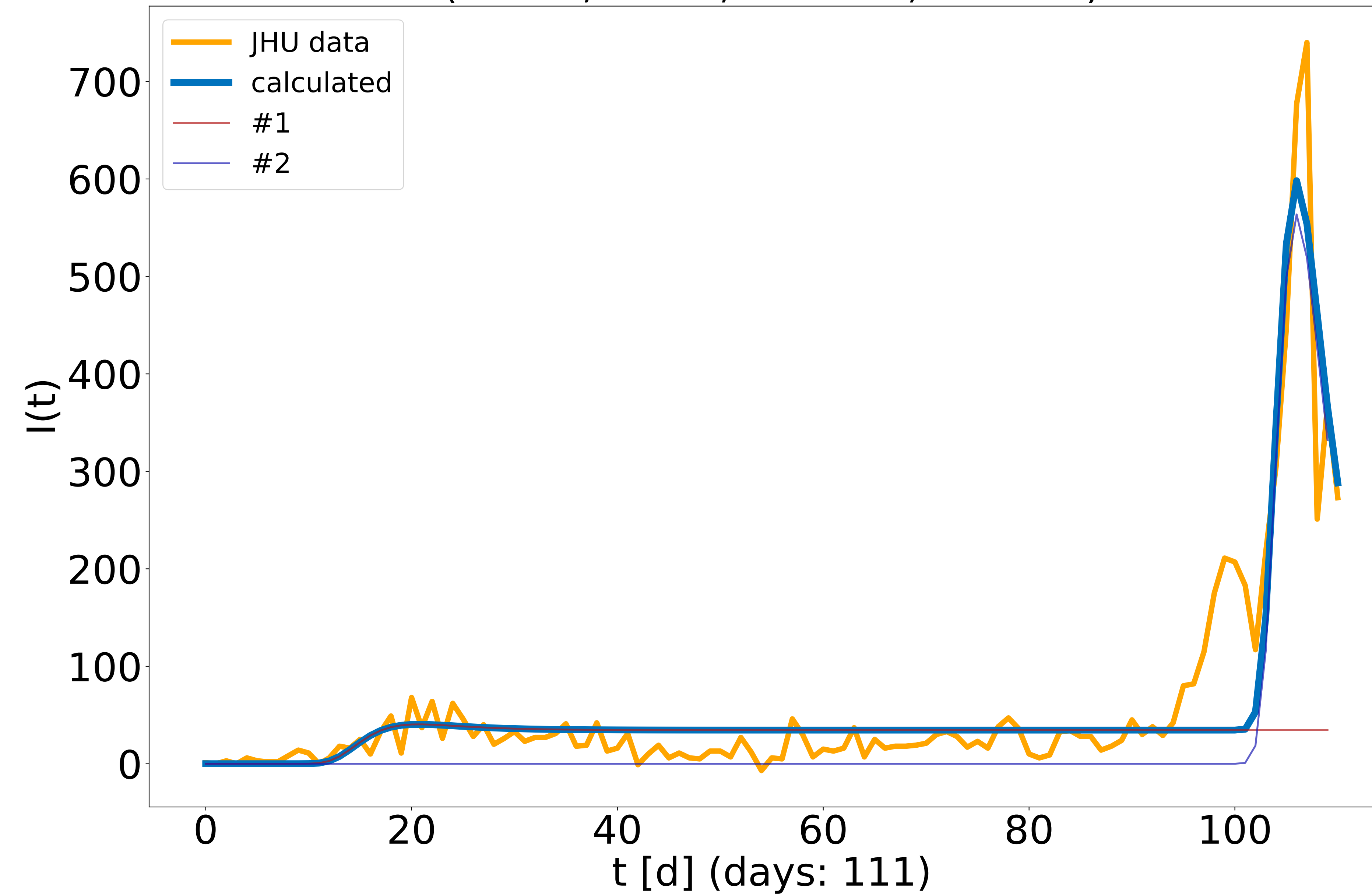
Collier, Florida, US, Collier ($R^2 = 0.683$)
(i: 0.1, a: 0.657, b: 0.047, t: 2.1)
(i: 21.4, a: 0.052, b: 0.008, t: 60.6)



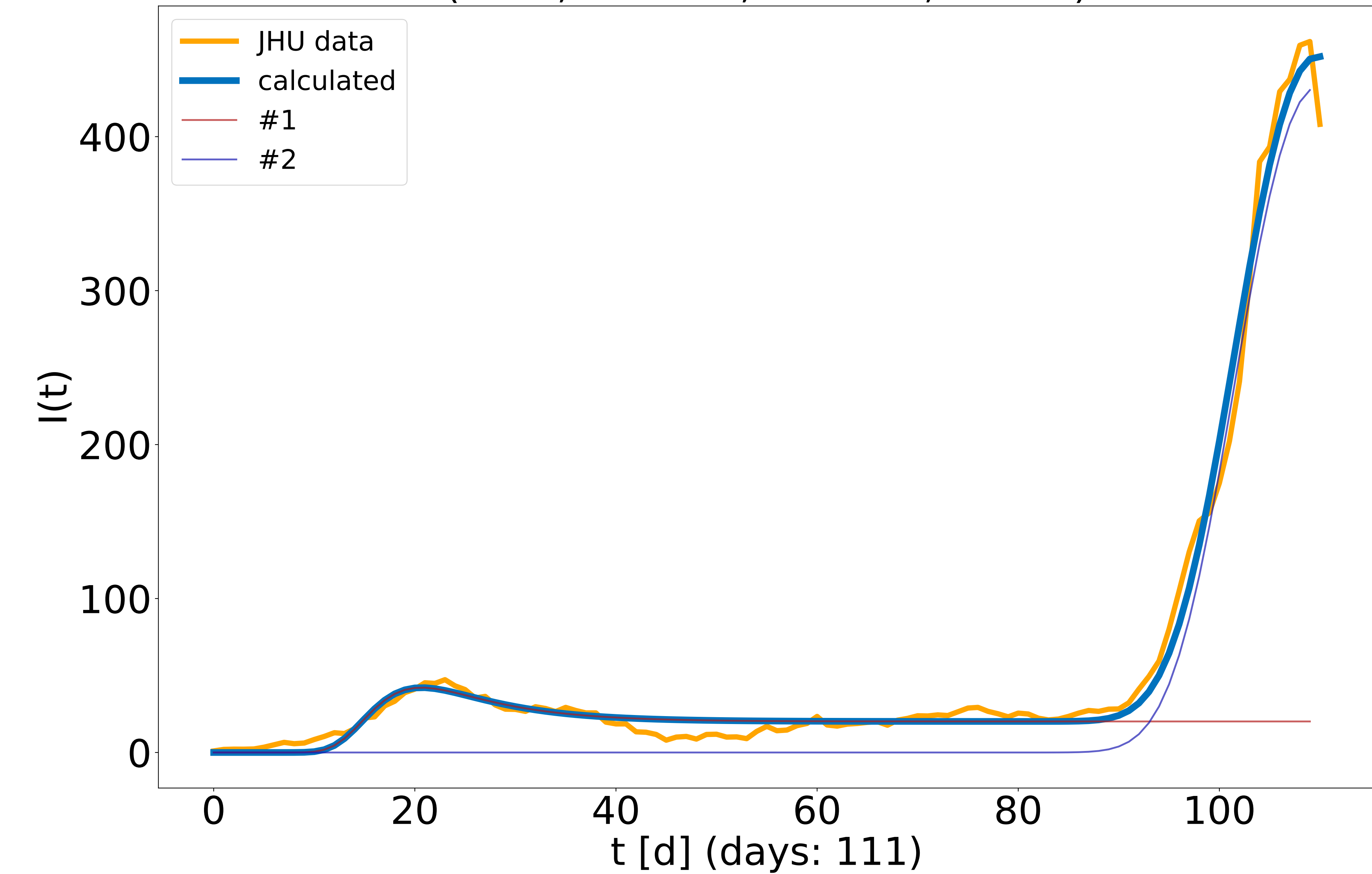
Collier, Florida, US, Collier ($R^2 = 0.975$)
(i: 0.1, a: 0.628, b: 0.045, t: 1.3)
(i: 208.6, a: 0.013, b: 0.01, t: 140.0)



Duval, Florida, US, Duval ($R^2 = 0.838$)
(i: 34.5, a: 0.119, b: 0.279, t: 17.1)
(i: 37.3, a: 2.0, b: 0.271, t: 102.3)



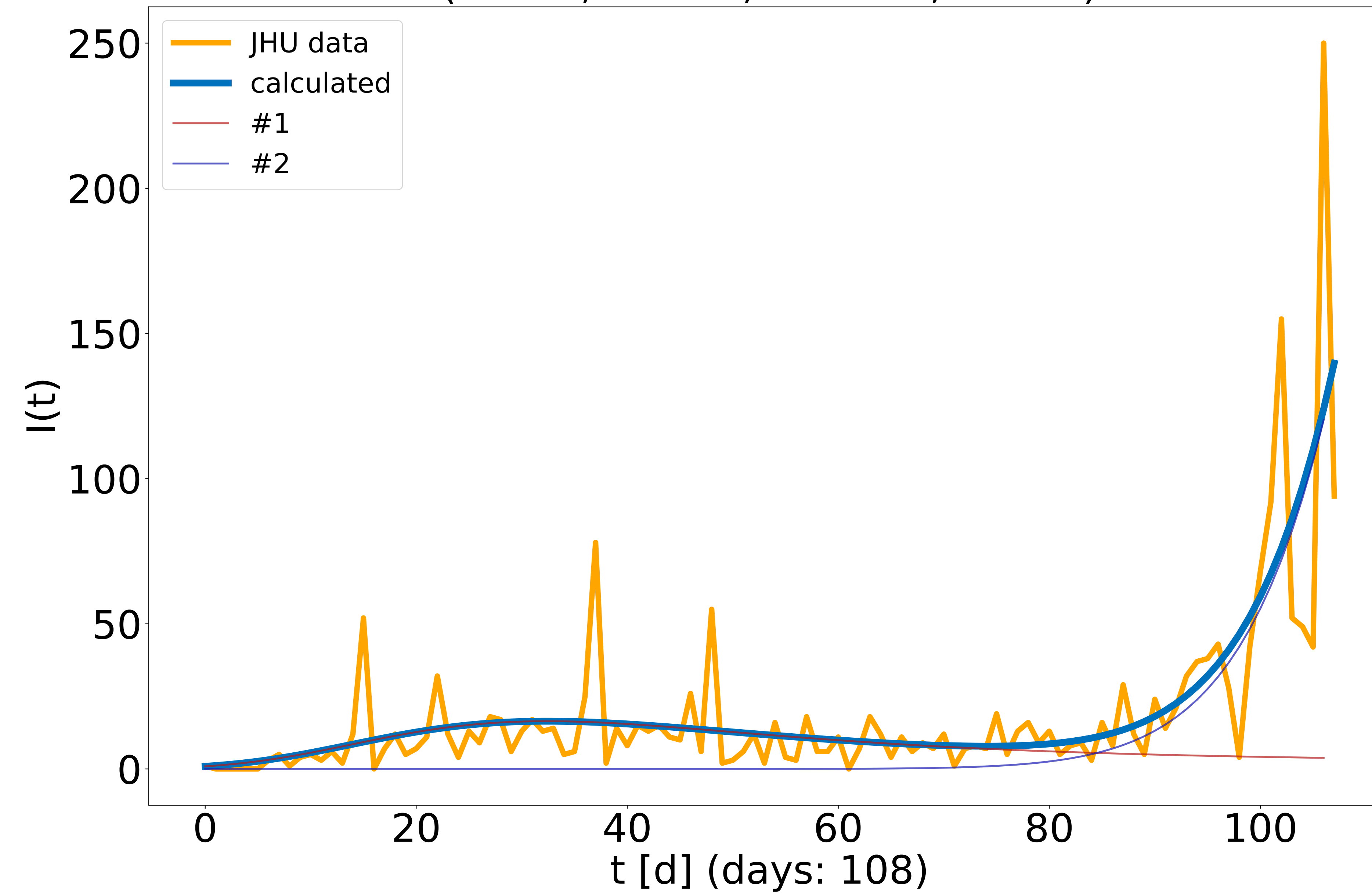
Duval, Florida, US, Duval ($R^2 = 0.99$)
(i: 20.2, a: 0.339, b: 0.169, t: 14.8)
(i: 0.1, a: 0.927, b: 0.041, t: 85.2)



Escambia, Florida, US, Escambia ($R^2 = 0.576$)

(i: 2.2, a: 0.191, b: 0.035, t: 4.1)

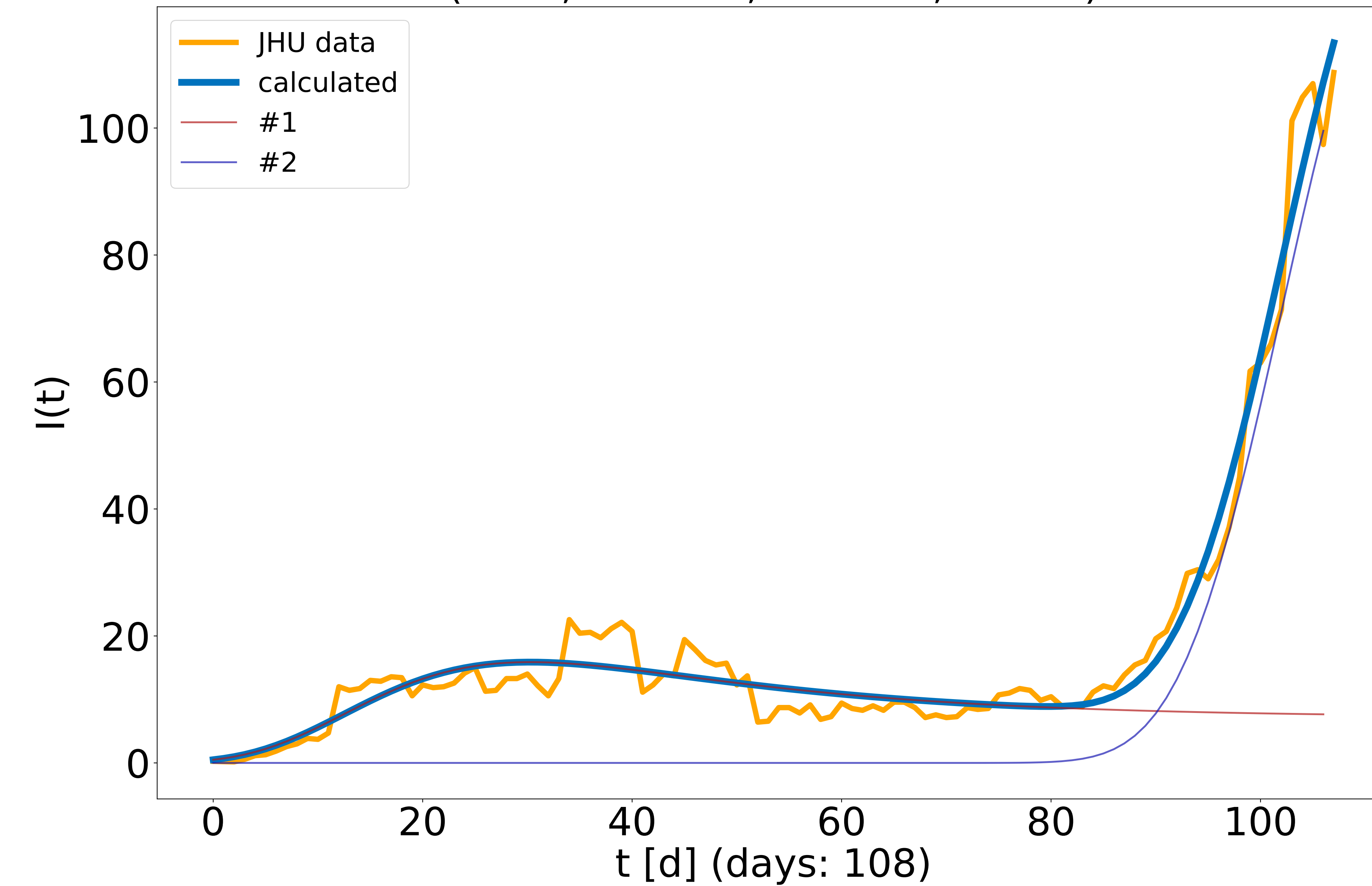
(i: 36.7, a: 0.14, b: 0.006, t: 97.0)



Escambia, Florida, US, Escambia ($R^2 = 0.971$)

(i: 7.2, a: 0.118, b: 0.054, t: 11.9)

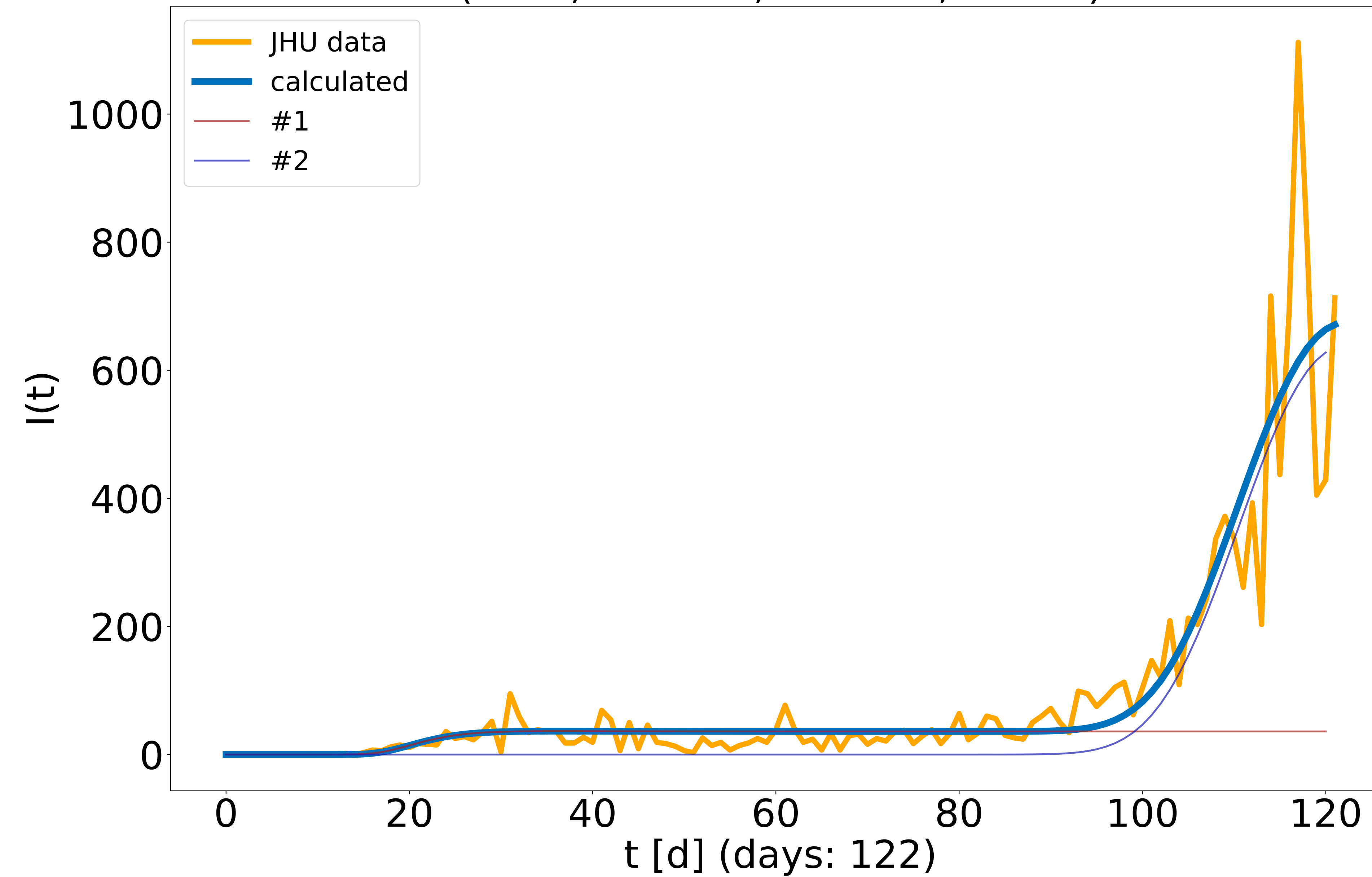
(i: 0.1, a: 0.543, b: 0.028, t: 79.1)



Hillsborough, Florida, US, Hillsborough ($R^2 = 0.84$)

(i: 36.0, a: 0.007, b: 0.213, t: 31.5)

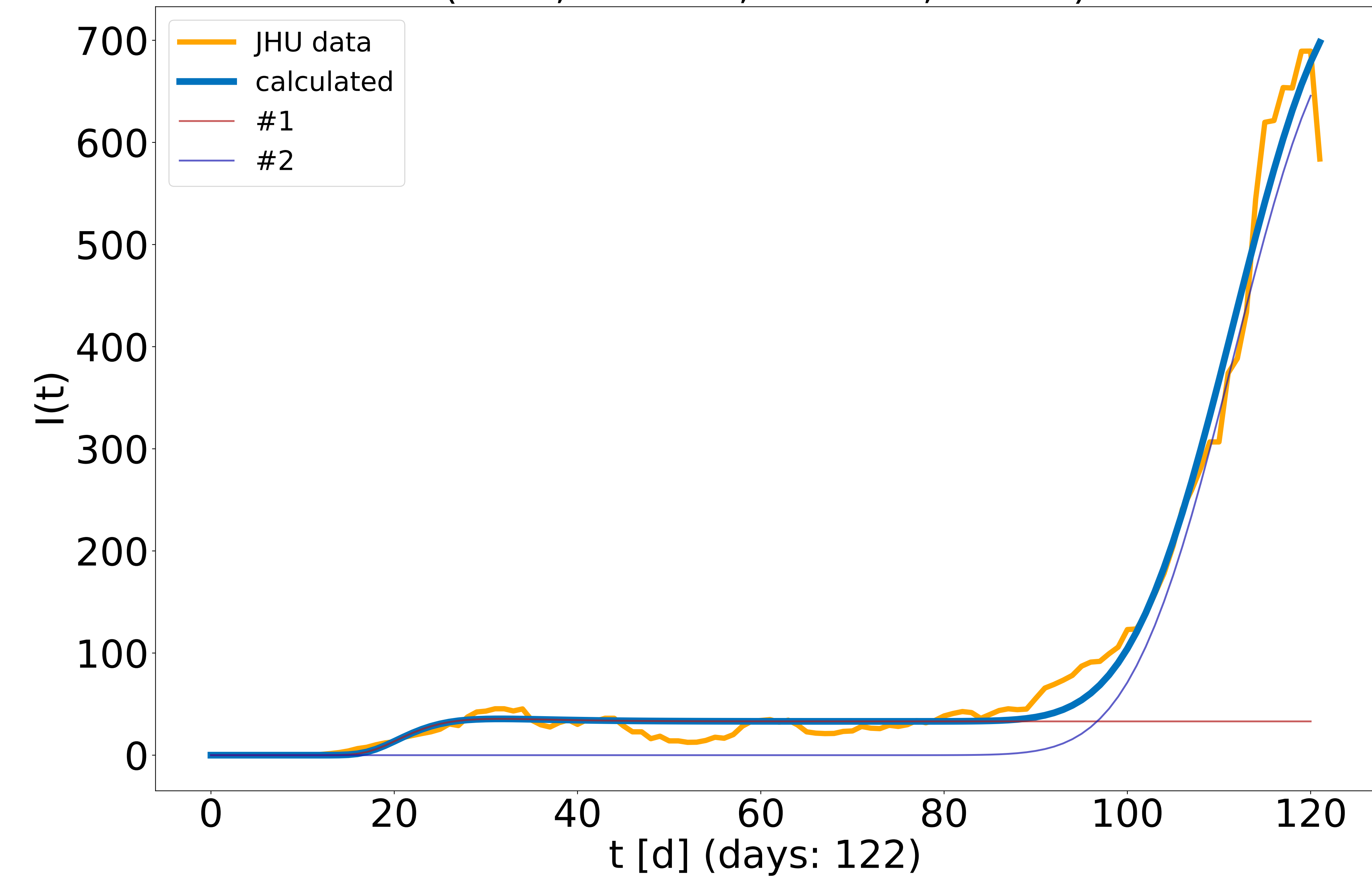
(i: 0.1, a: 0.674, b: 0.028, t: 86.7)



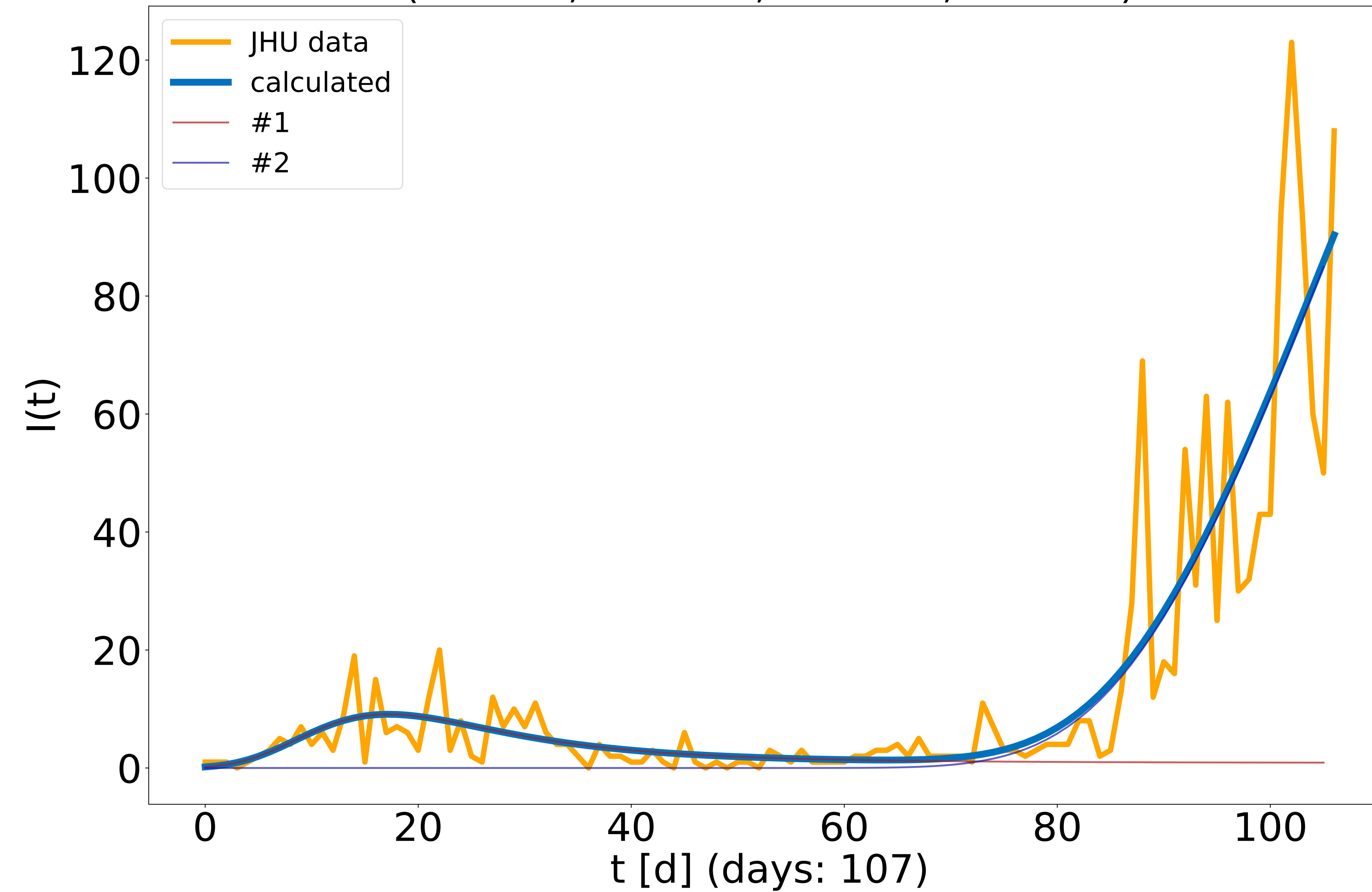
Hillsborough, Florida, US, Hillsborough ($R^2 = 0.985$)

(i: 33.1, a: 0.038, b: 0.197, t: 26.5)

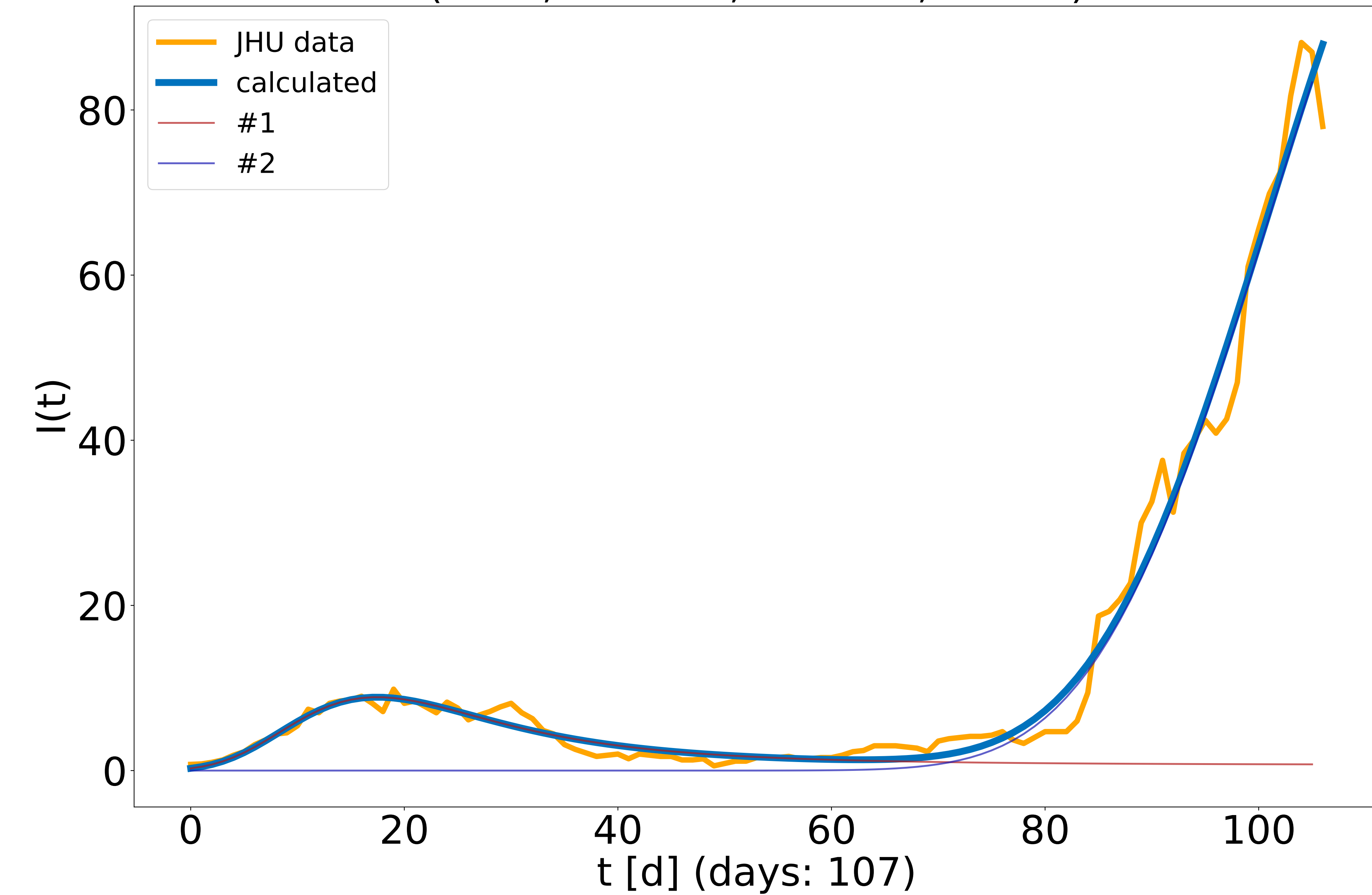
(i: 0.1, a: 0.541, b: 0.022, t: 81.7)



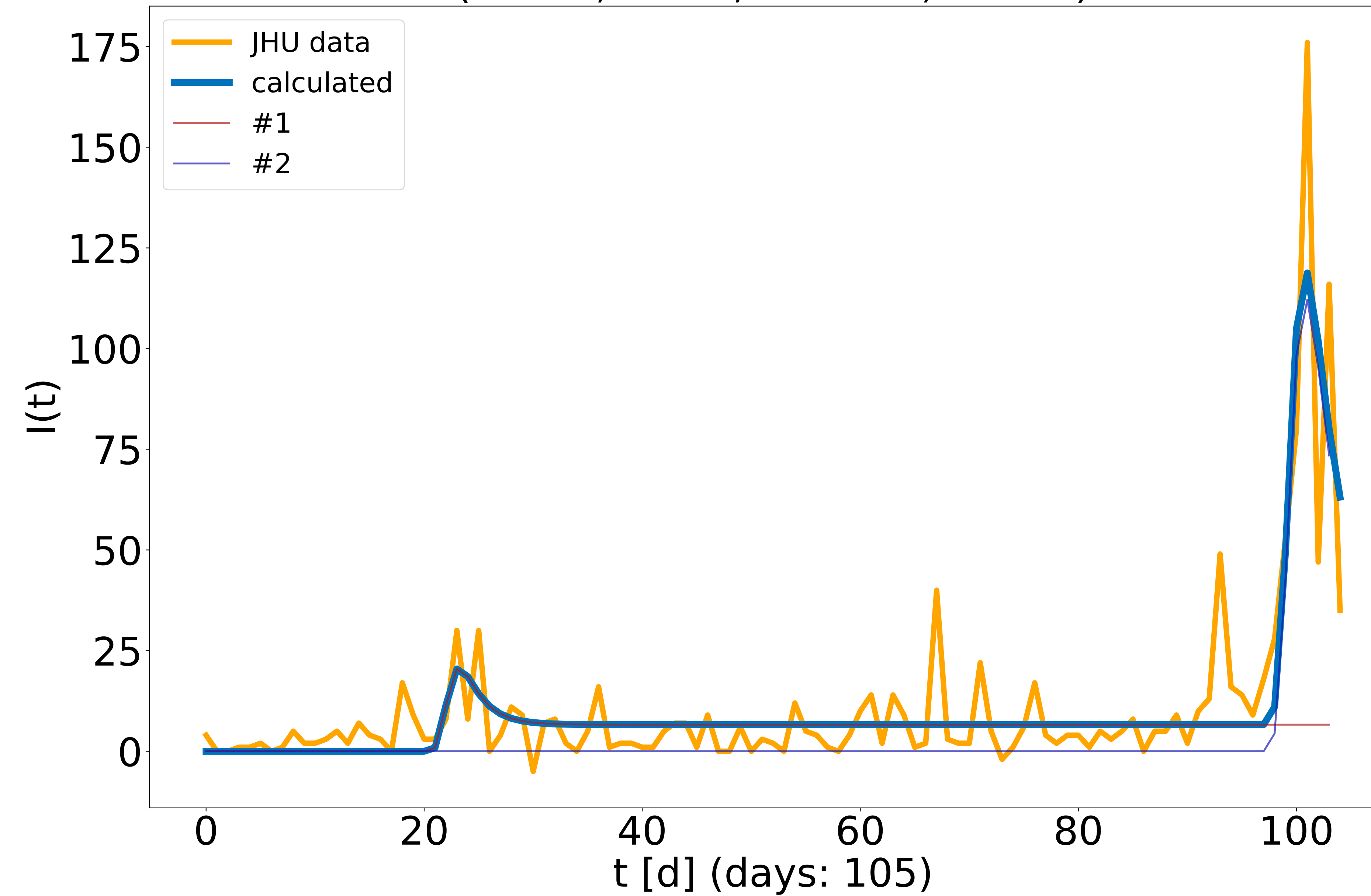
Lake, Florida, US, Lake ($R^2 = 0.784$)
(i: 0.9, a: 0.444, b: 0.07, t: 2.9)
(i: 189.9, a: 0.006, b: 0.037, t: 140.0)



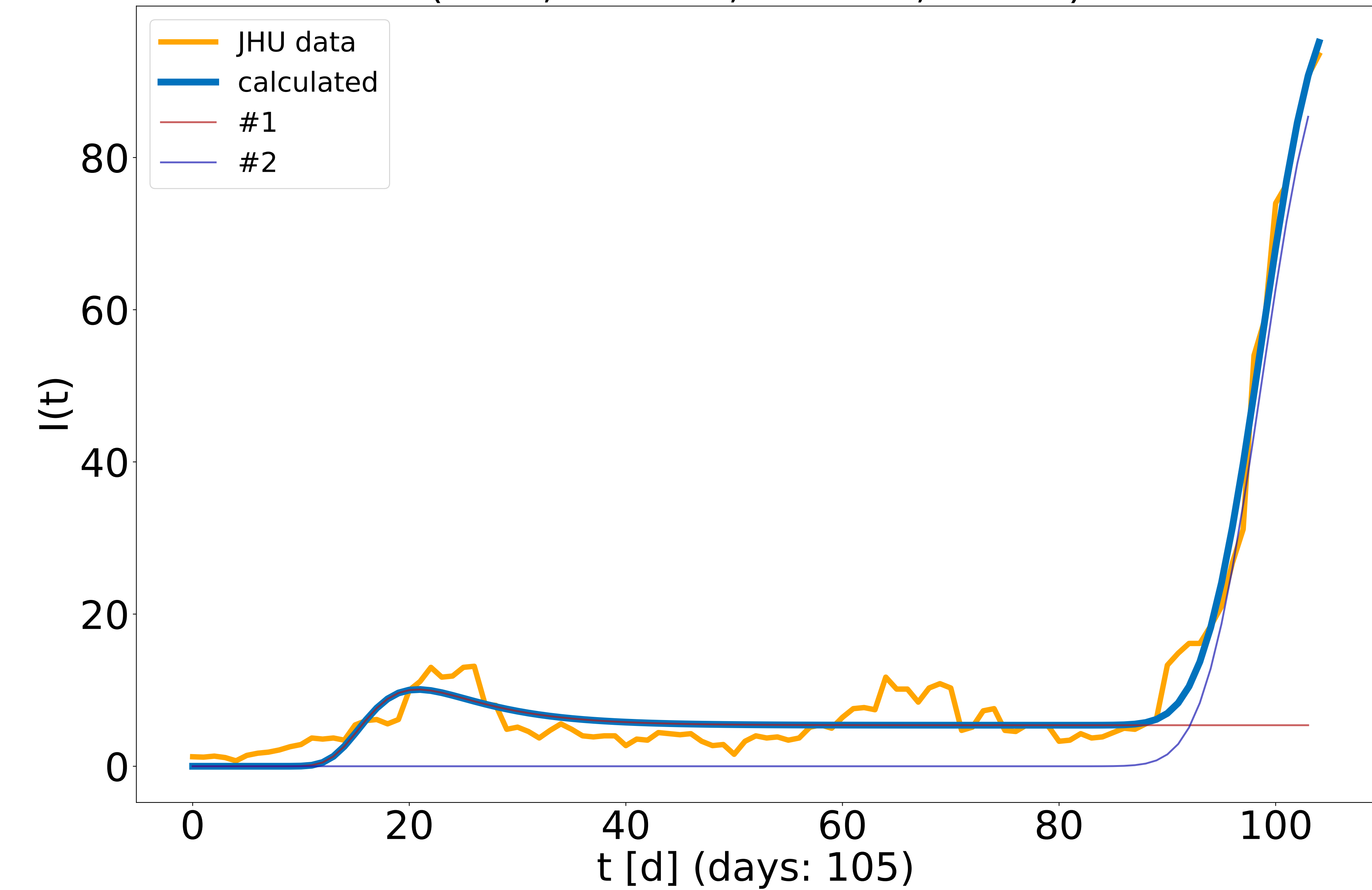
Lake, Florida, US, Lake ($R^2 = 0.984$)
(i: 0.7, a: 0.442, b: 0.064, t: 1.9)
(i: 0.1, a: 0.323, b: 0.017, t: 62.9)



Leon, Florida, US, Leon ($R^2 = 0.724$)
(i: 6.6, a: 2.0, b: 0.646, t: 21.7)
(i: 22.7, a: 2.0, b: 0.458, t: 98.6)



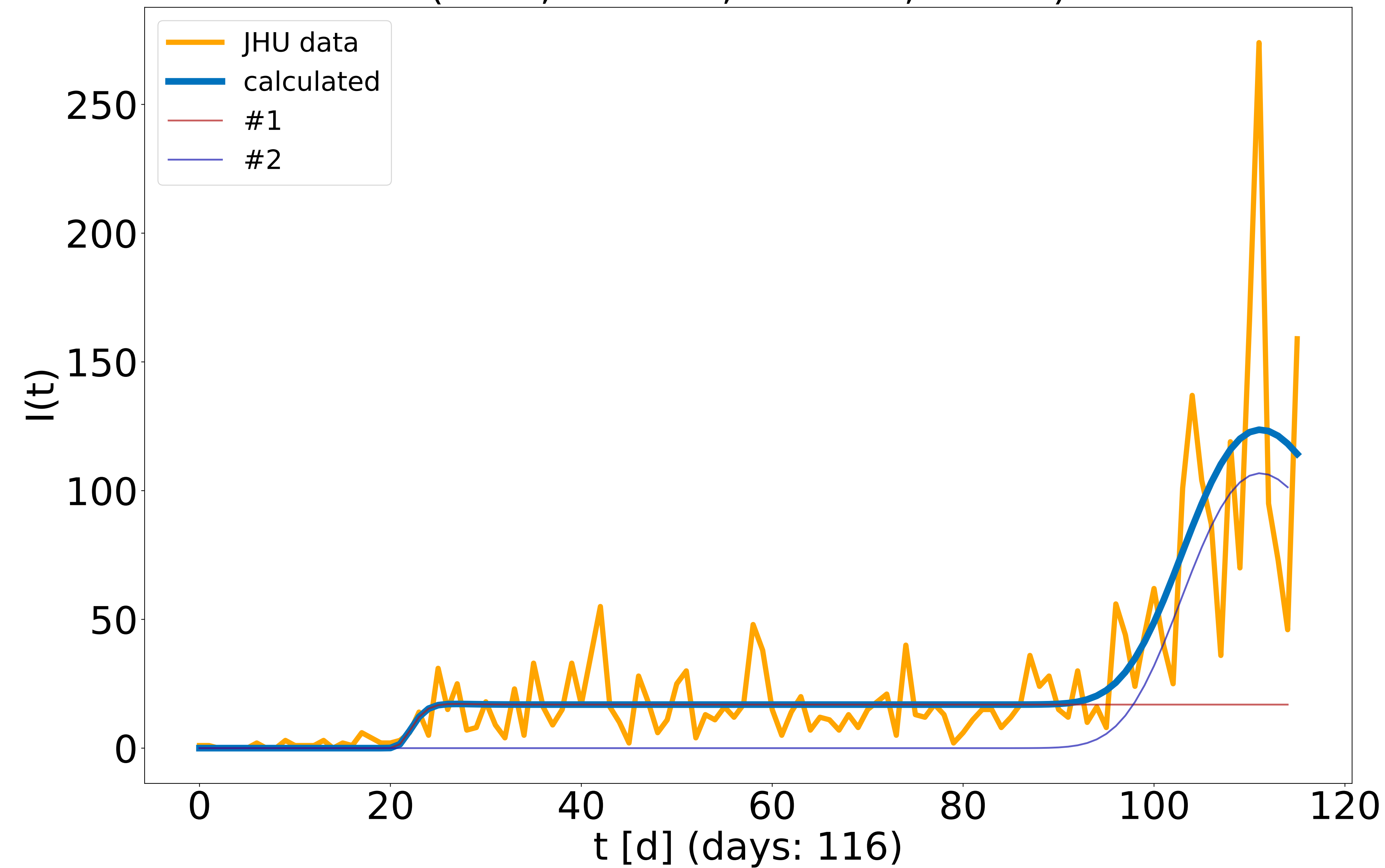
Leon, Florida, US, Leon ($R^2 = 0.978$)
(i: 5.4, a: 0.329, b: 0.193, t: 15.6)
(i: 0.1, a: 0.962, b: 0.052, t: 86.6)



Manatee, Florida, US, Manatee ($R^2 = 0.667$)

(i: 16.9, a: 0.028, b: 0.681, t: 25.4)

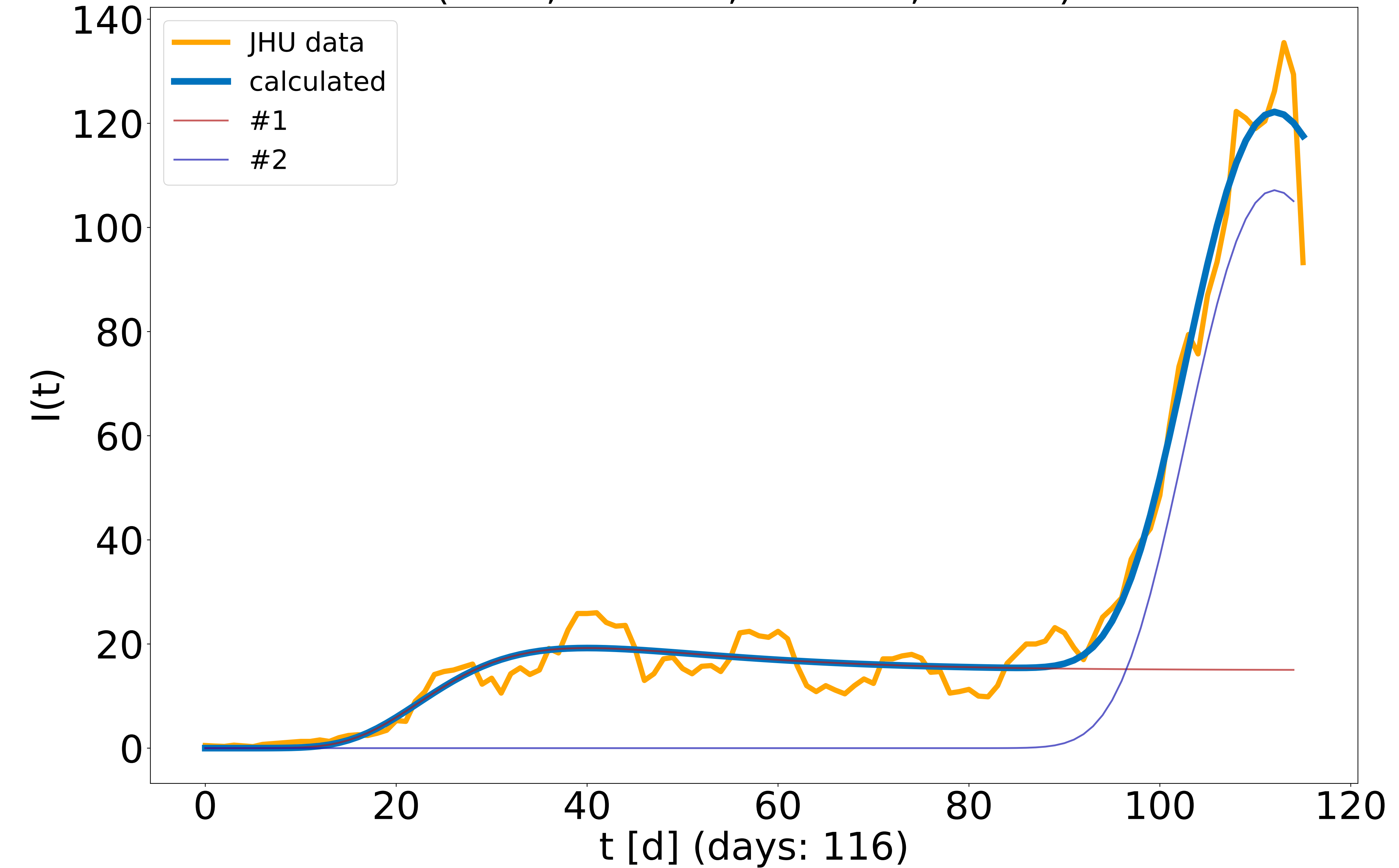
(i: 0.1, a: 0.846, b: 0.045, t: 88.7)



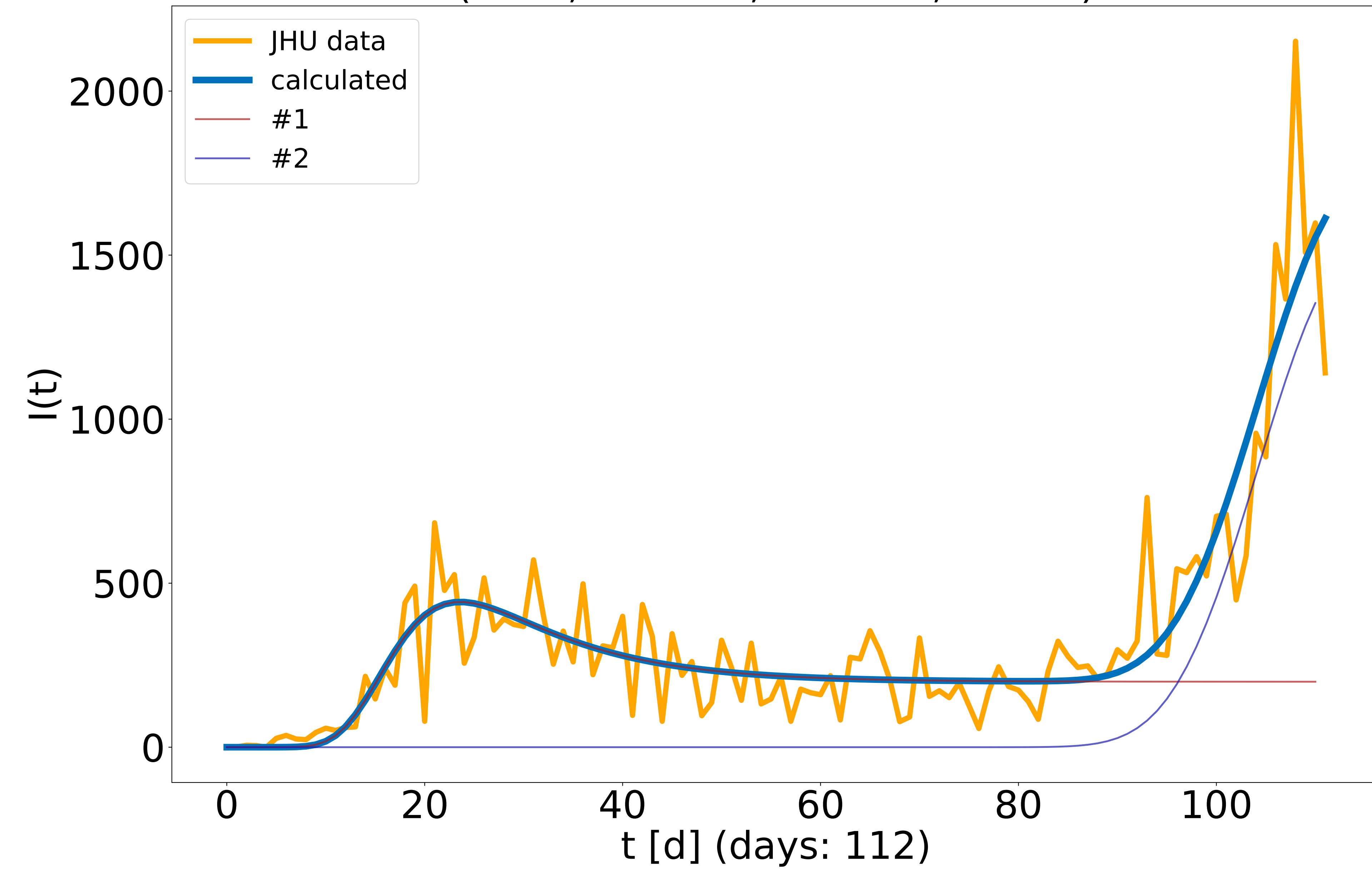
Manatee, Florida, US, Manatee ($R^2 = 0.98$)

(i: 15.0, a: 0.057, b: 0.084, t: 28.2)

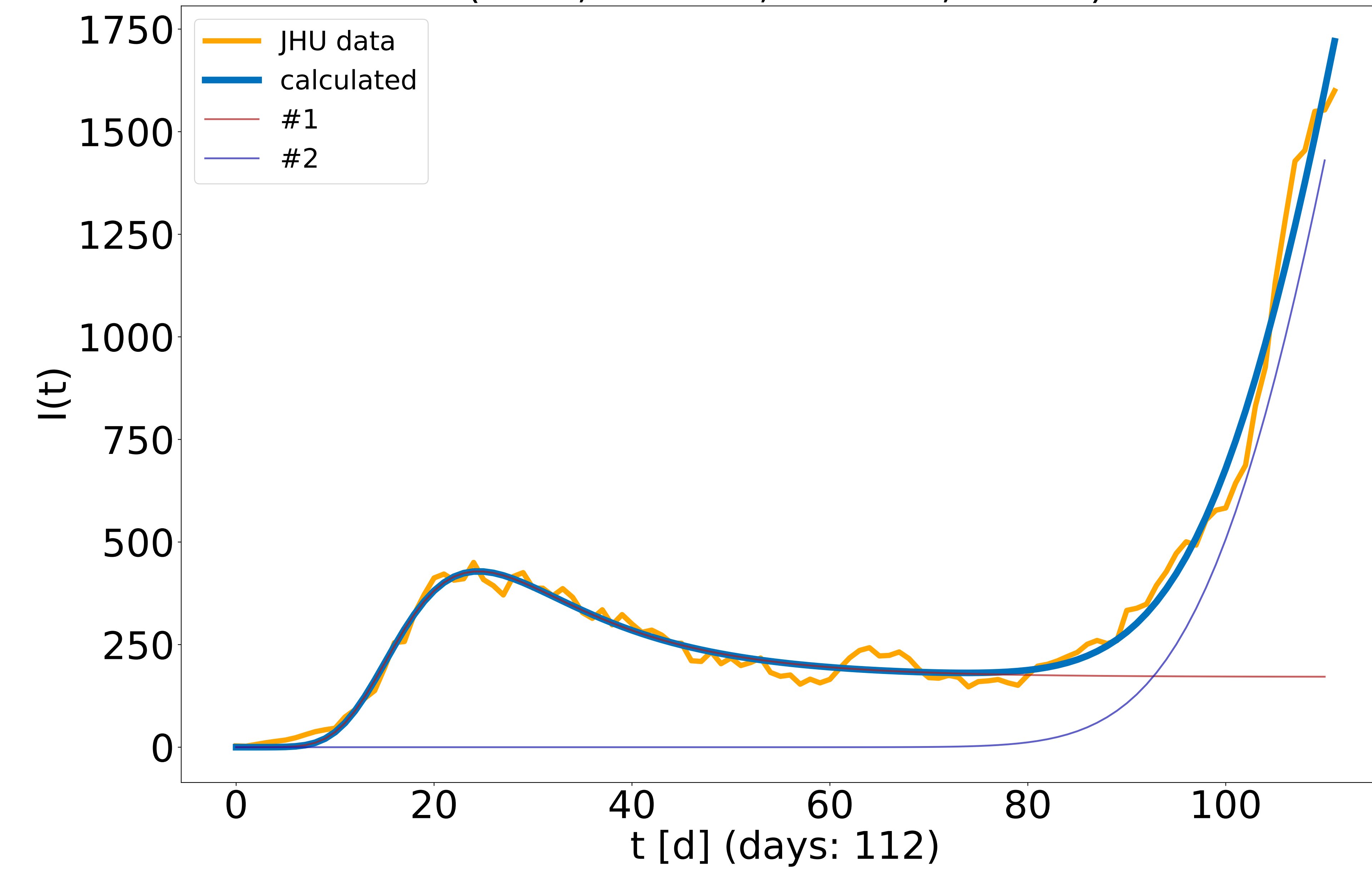
(i: 0.1, a: 0.744, b: 0.039, t: 86.5)



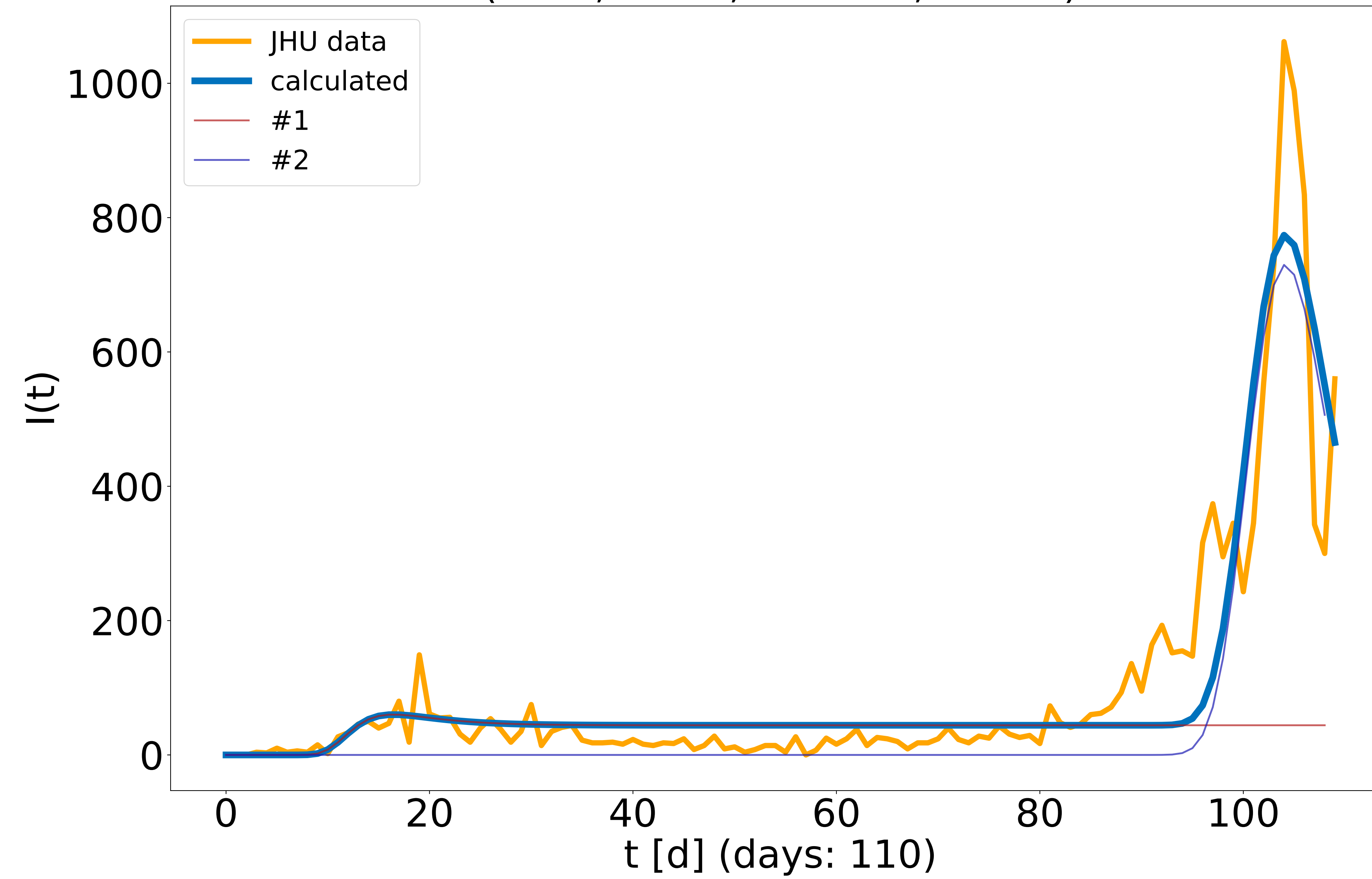
Miami-Dade, Florida, US, Miami-Dade ($R^2 = 0.836$)
(i: 199.5, a: 0.256, b: 0.118, t: 15.1)
(i: 0.1, a: 0.738, b: 0.028, t: 79.8)



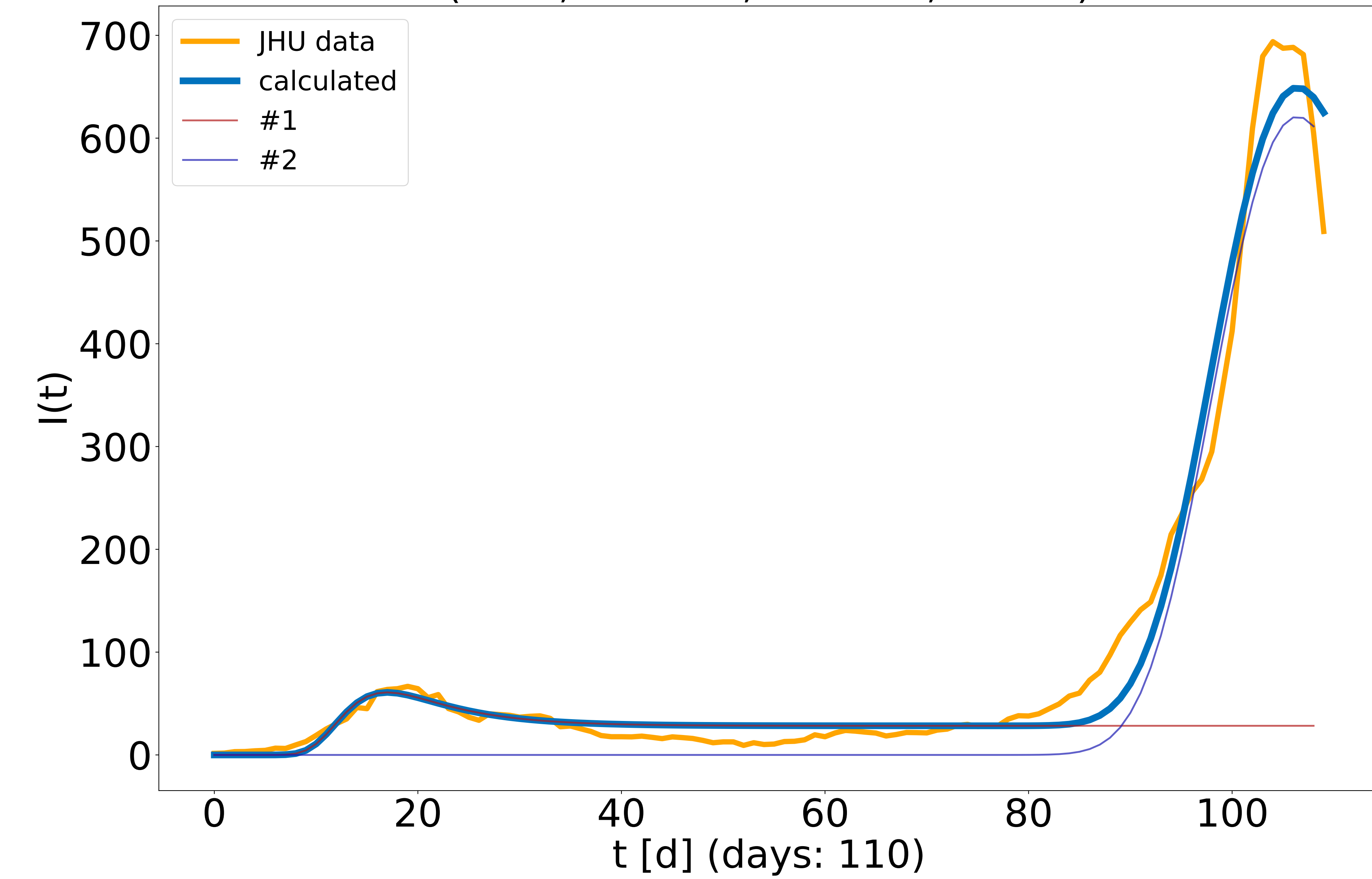
Miami-Dade, Florida, US, Miami-Dade ($R^2 = 0.985$)
(i: 171.4, a: 0.243, b: 0.097, t: 14.2)
(i: 0.1, a: 0.397, b: 0.014, t: 65.2)



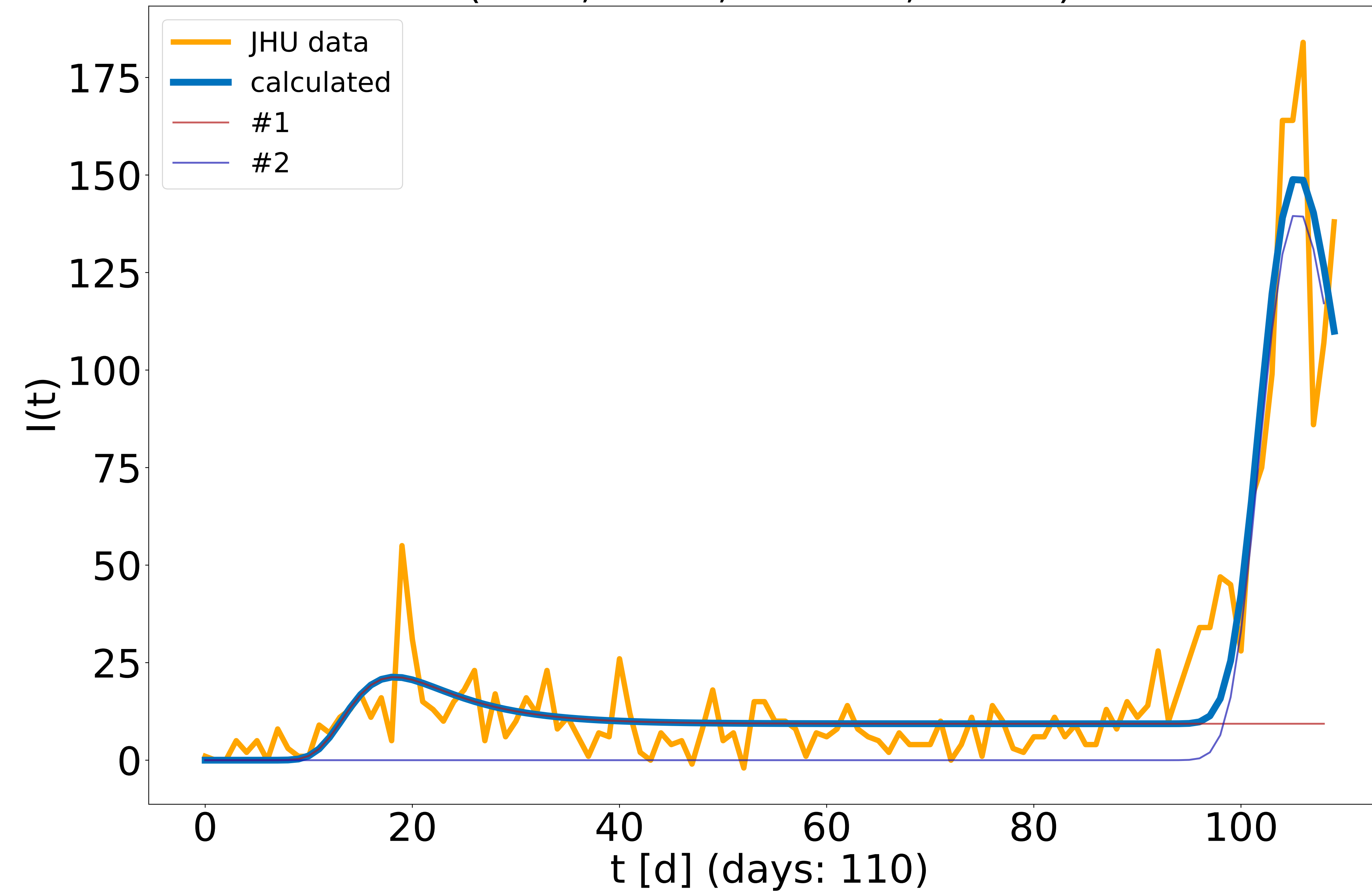
Orange, Florida, US, Orange ($R^2 = 0.833$)
(i: 44.2, a: 0.242, b: 0.289, t: 13.0)
(i: 0.1, a: 2.0, b: 0.083, t: 92.1)



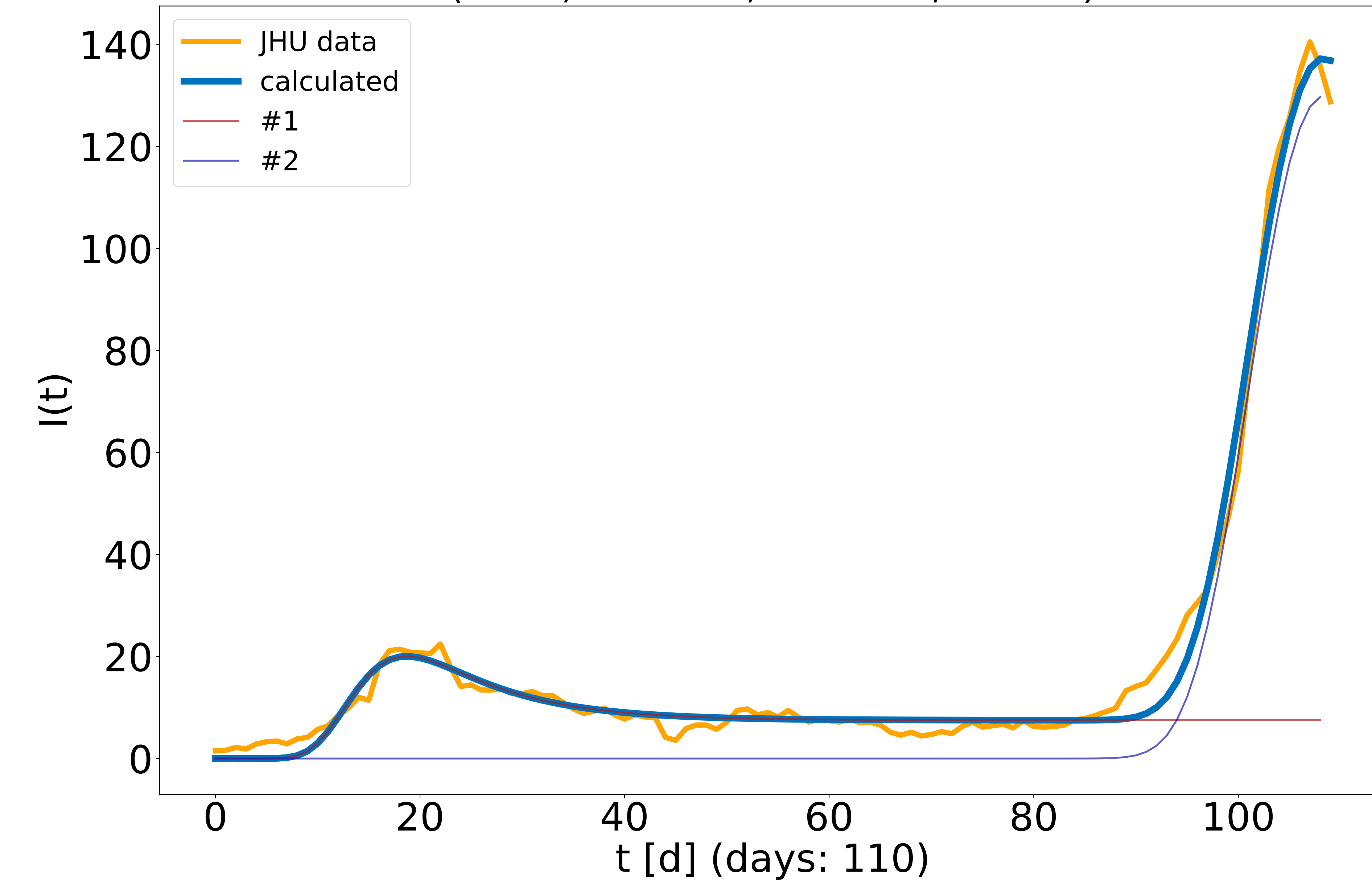
Orange, Florida, US, Orange ($R^2 = 0.976$)
(i: 28.3, a: 0.398, b: 0.192, t: 11.8)
(i: 0.1, a: 0.918, b: 0.039, t: 80.6)



Osceola, Florida, US, Osceola ($R^2 = 0.885$)
(i: 9.3, a: 0.419, b: 0.187, t: 12.9)
(i: 0.1, a: 1.9, b: 0.096, t: 95.1)



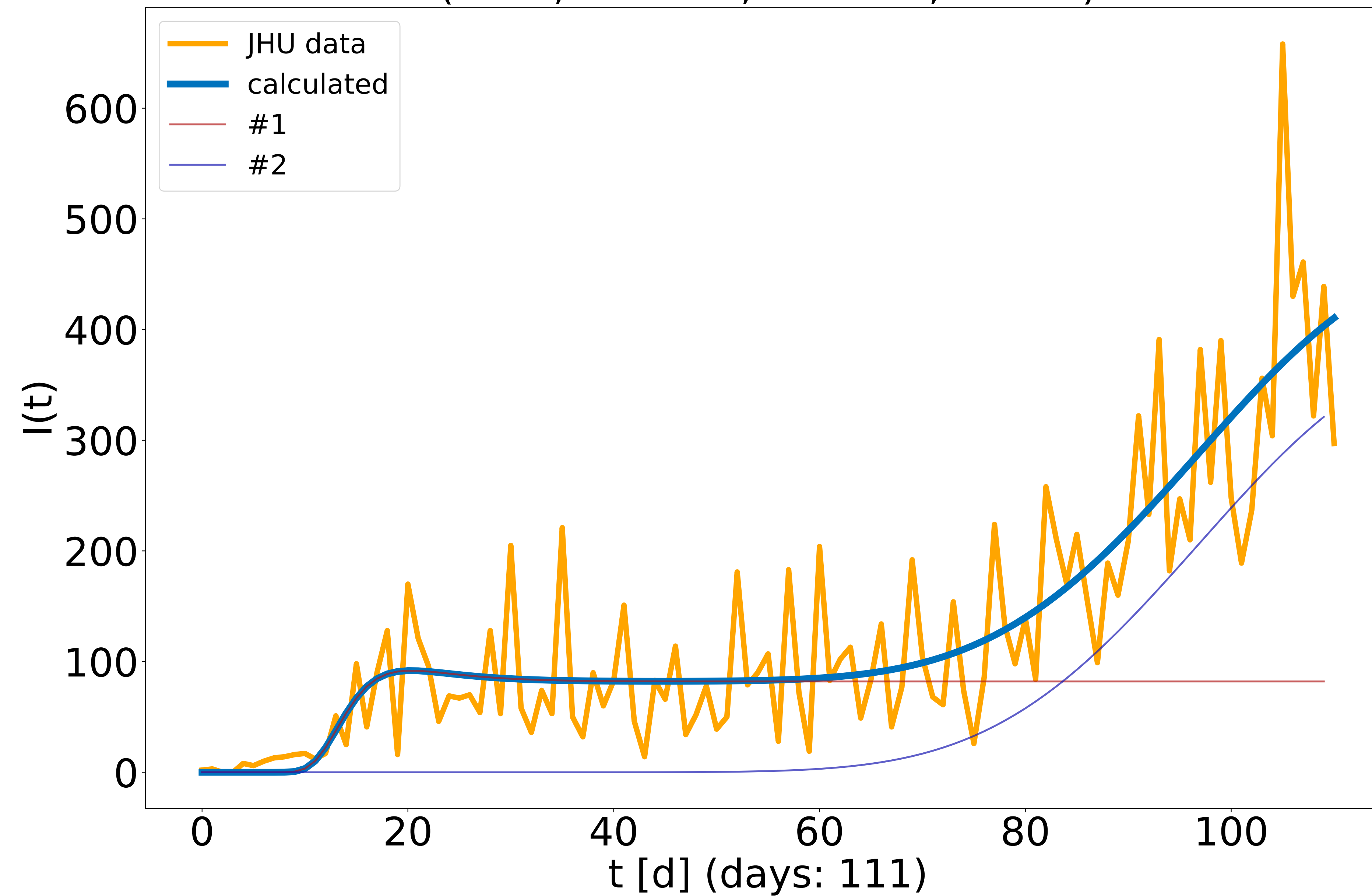
Osceola, Florida, US, Osceola ($R^2 = 0.99$)
(i: 7.5, a: 0.388, b: 0.145, t: 11.8)
(i: 0.1, a: 0.952, b: 0.049, t: 87.9)



Palm Beach, Florida, US, Palm Beach ($R^2 = 0.74$)

(i: 82.0, a: 0.083, b: 0.27, t: 16.6)

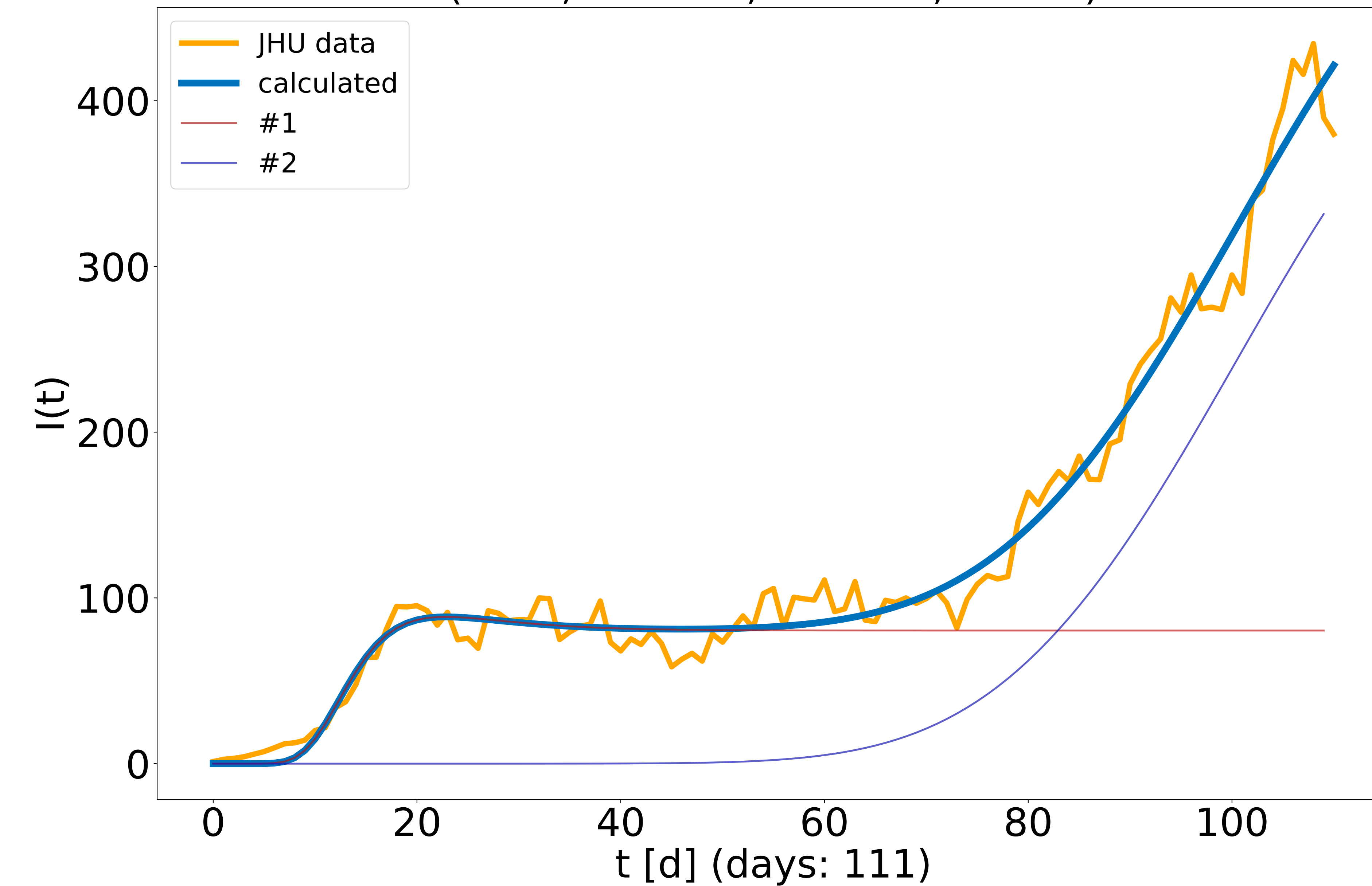
(i: 0.1, a: 0.289, b: 0.013, t: 45.7)



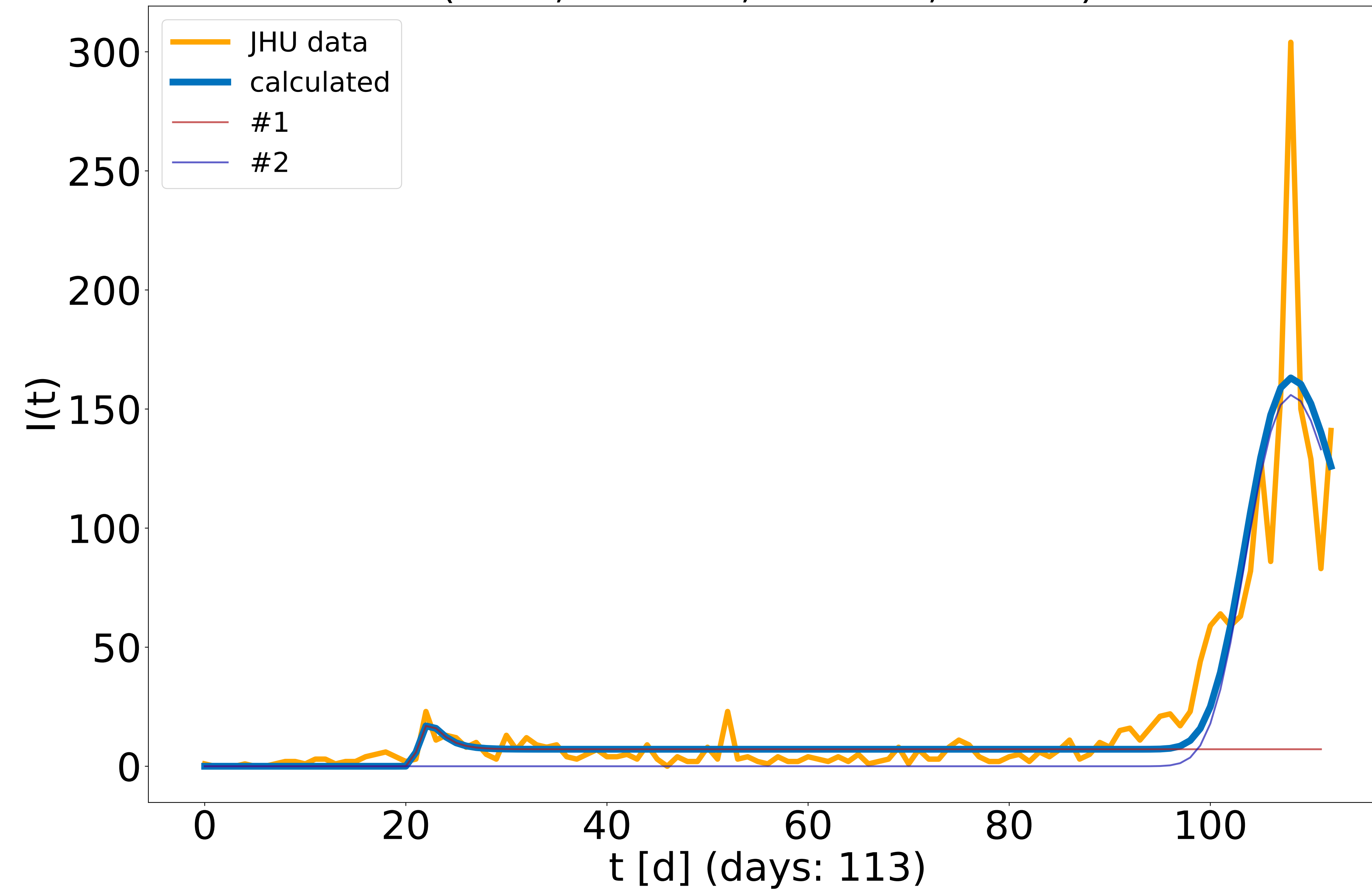
Palm Beach, Florida, US, Palm Beach ($R^2 = 0.98$)

(i: 80.3, a: 0.051, b: 0.192, t: 17.6)

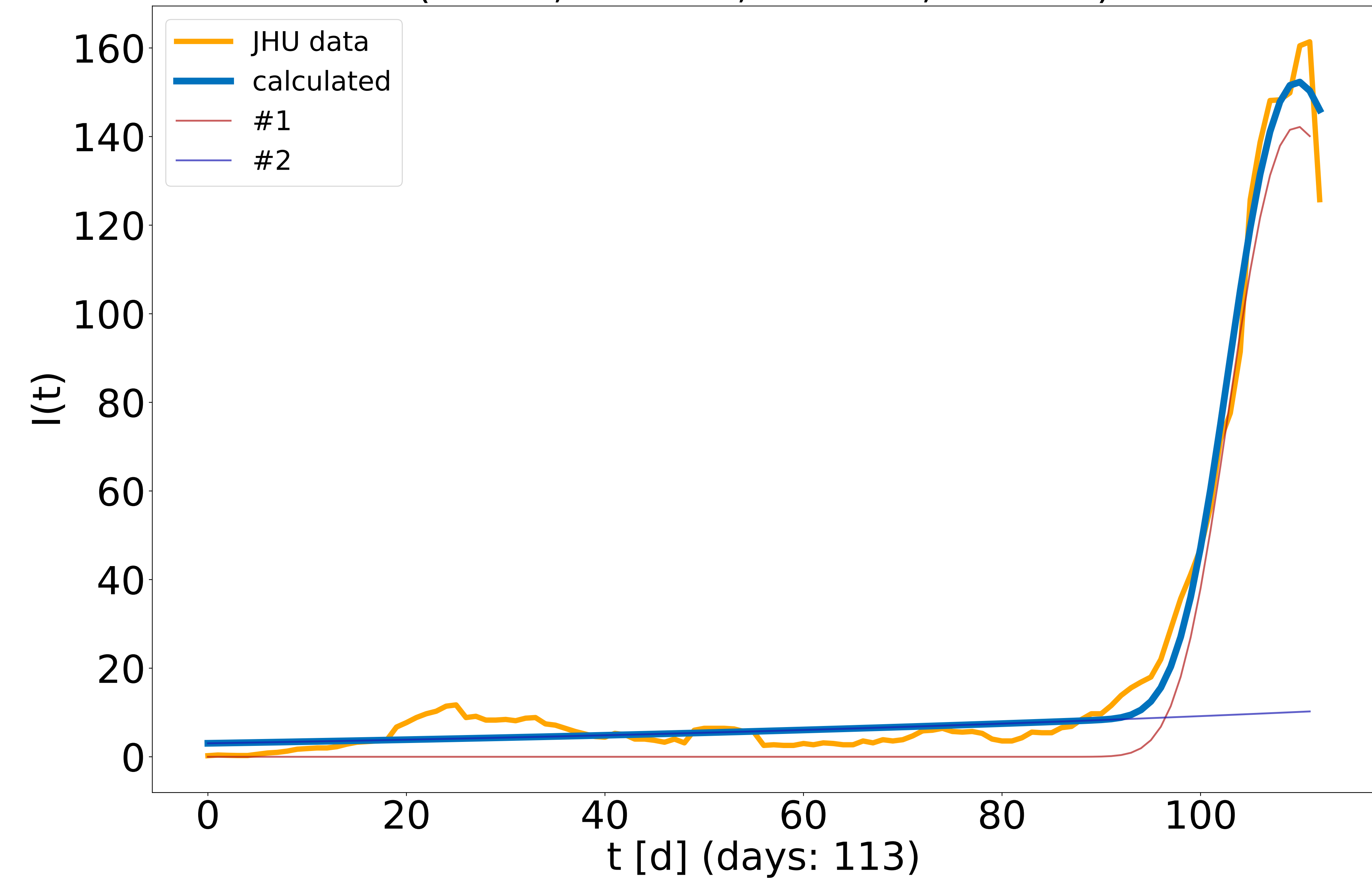
(i: 0.1, a: 0.253, b: 0.011, t: 40.7)



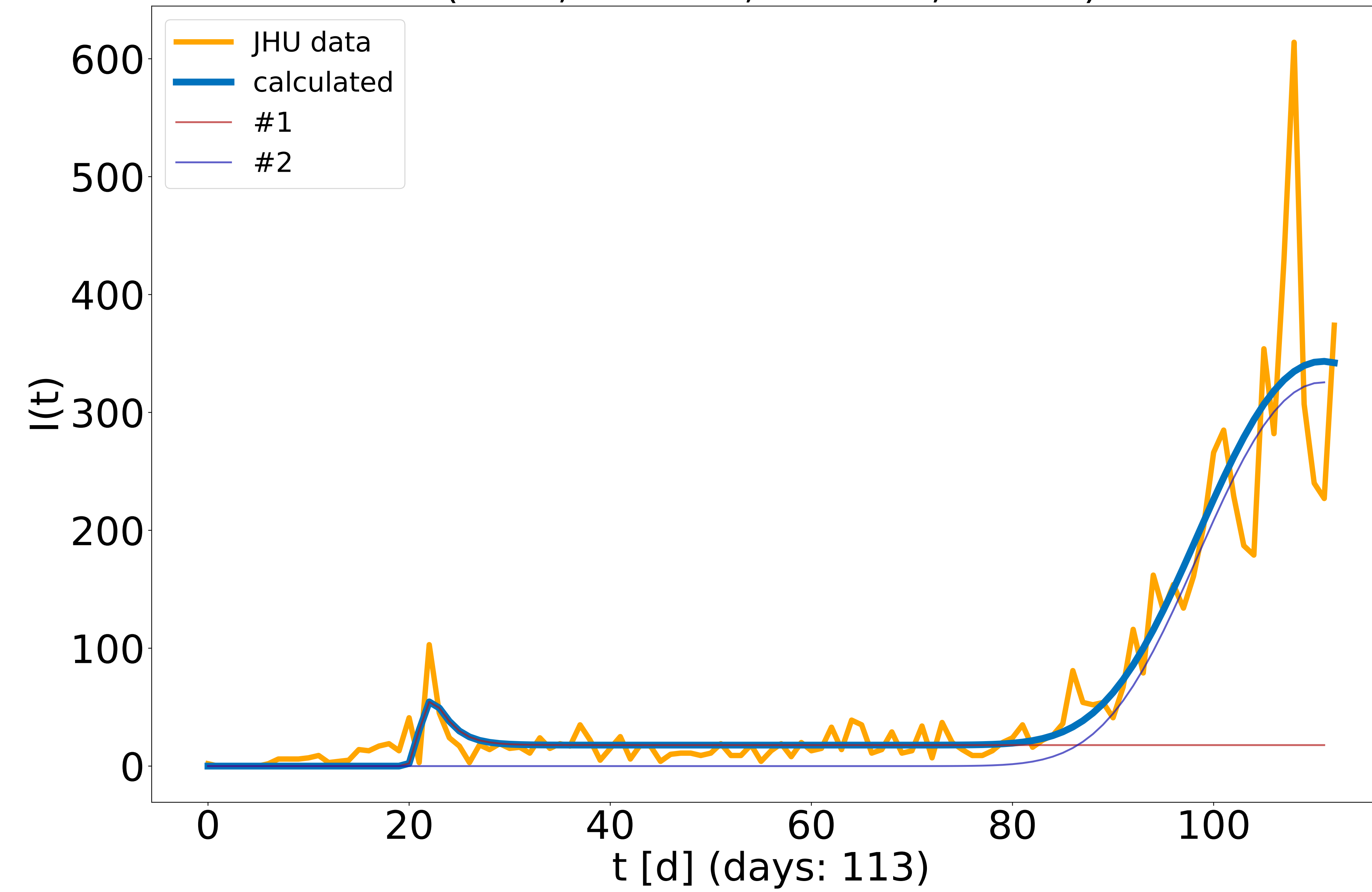
Pasco, Florida, US, Pasco ($R^2 = 0.829$)
(i: 7.1, a: 2.0, b: 0.818, t: 21.1)
(i: 0.1, a: 1.534, b: 0.077, t: 95.1)



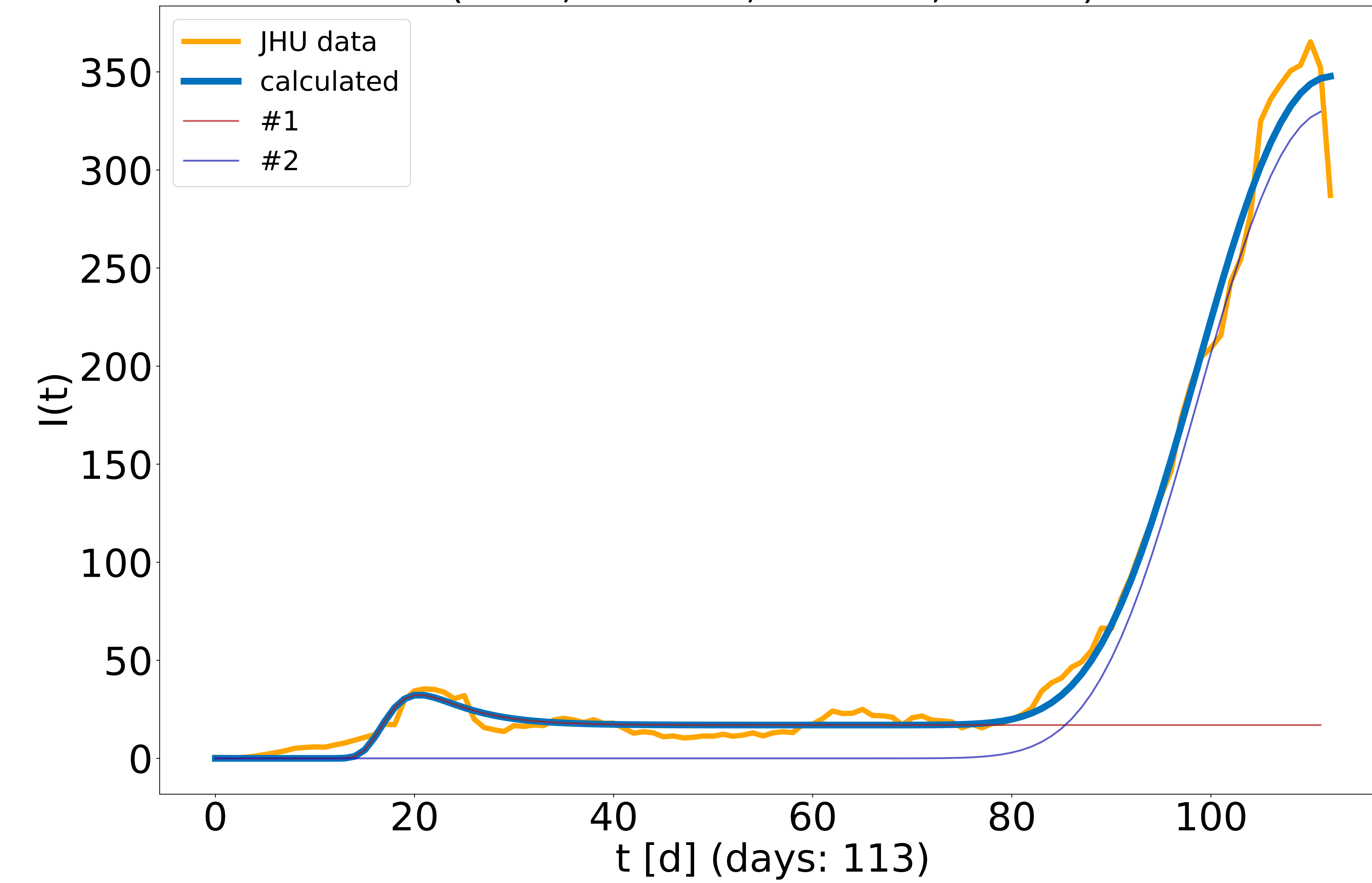
Pasco, Florida, US, Pasco ($R^2 = 0.986$)
(i: 0.1, a: 1.03, b: 0.052, t: 90.6)
(i: 13.5, a: 0.009, b: 0.001, t: 140.0)



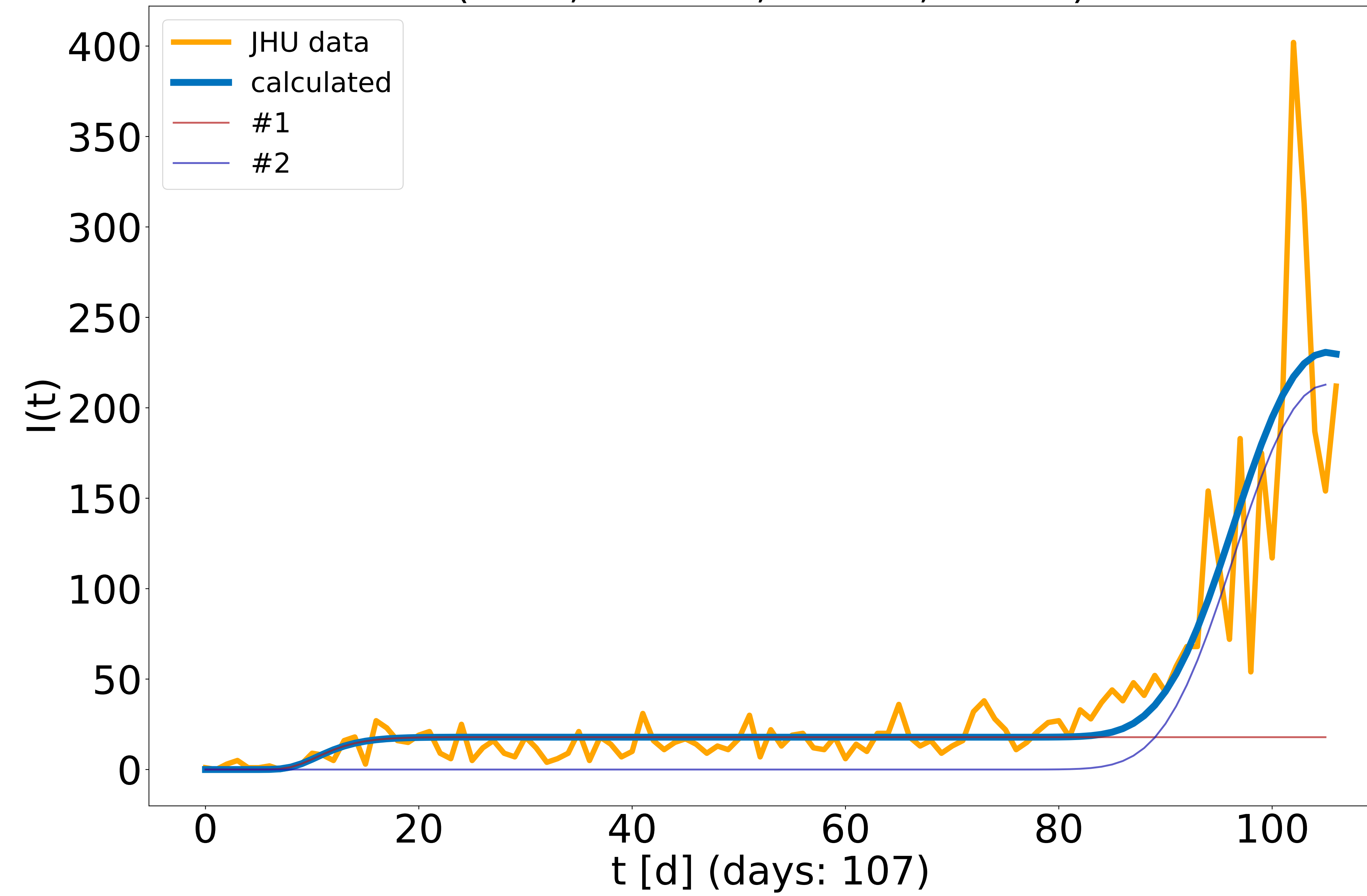
Pinellas, Florida, US, Pinellas ($R^2 = 0.863$)
(i: 17.8, a: 2.0, b: 0.652, t: 20.7)
(i: 0.1, a: 0.607, b: 0.028, t: 74.7)



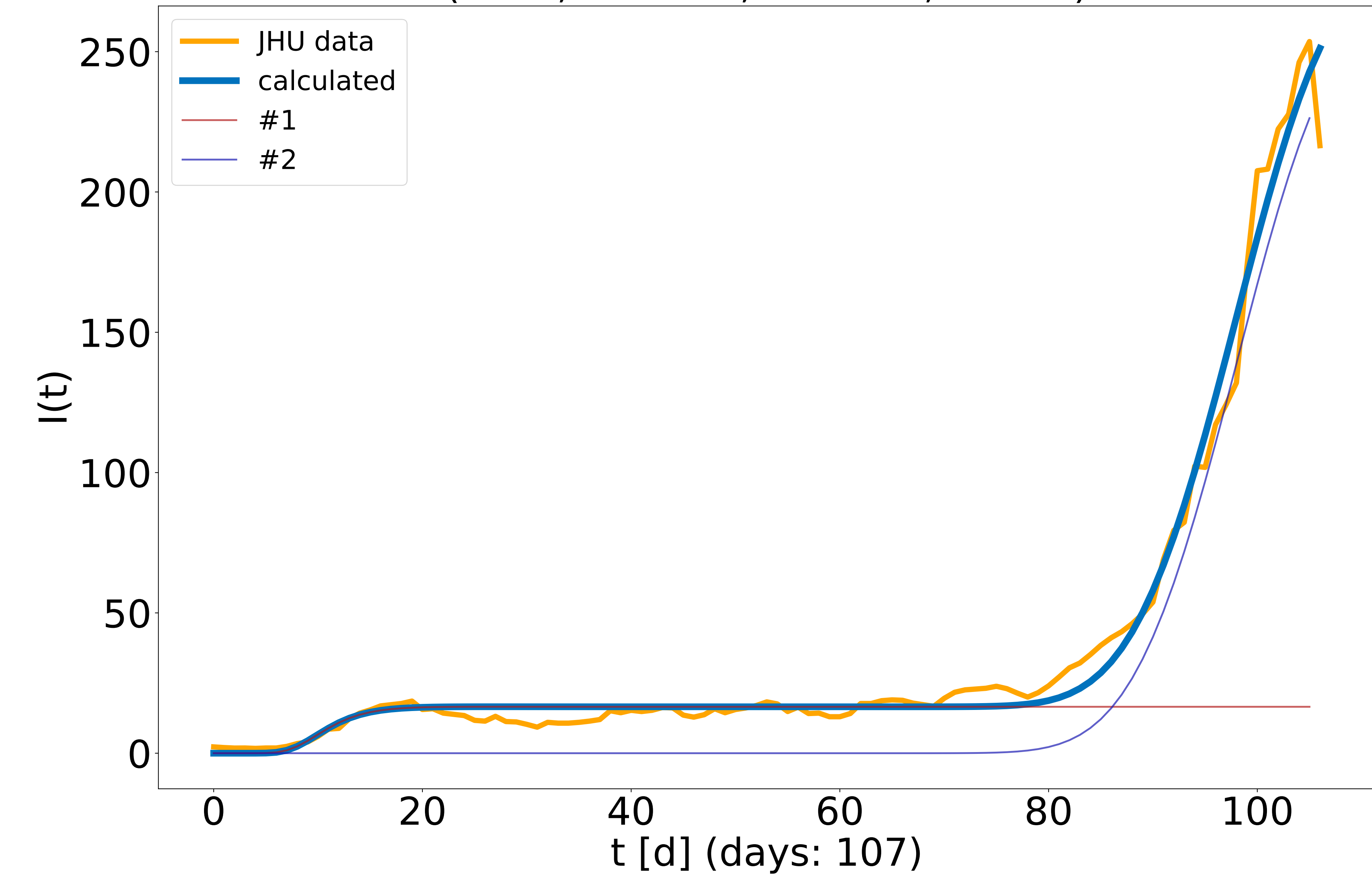
Pinellas, Florida, US, Pinellas ($R^2 = 0.991$)
(i: 17.0, a: 0.478, b: 0.272, t: 16.8)
(i: 0.1, a: 0.559, b: 0.025, t: 72.7)



Polk, Florida, US, Polk ($R^2 = 0.805$)
(i: 17.9, a: 0.001, b: 0.338, t: 23.2)
(i: 0.1, a: 0.834, b: 0.04, t: 80.2)



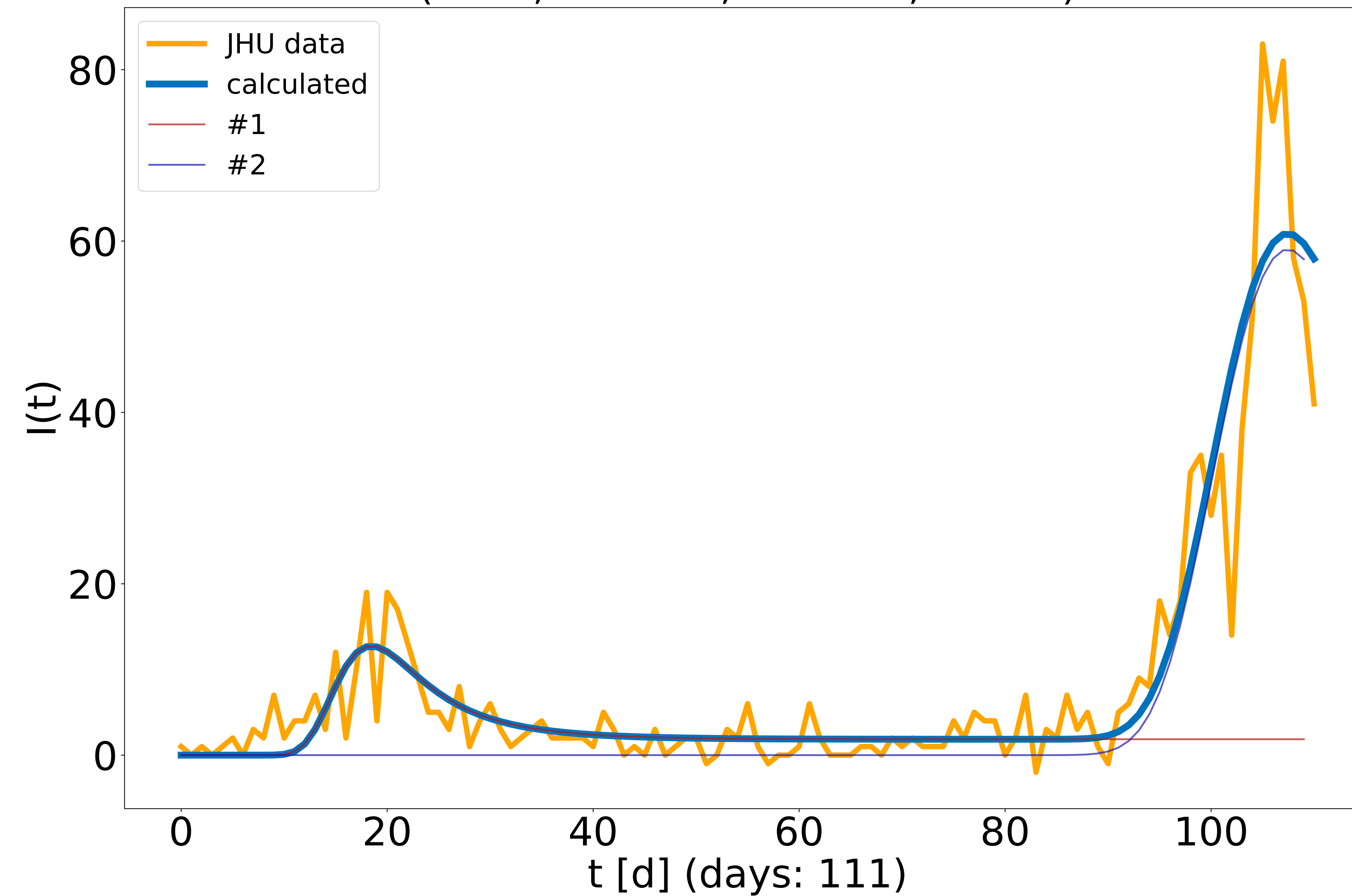
Polk, Florida, US, Polk ($R^2 = 0.986$)
(i: 16.5, a: 0.001, b: 0.307, t: 23.6)
(i: 0.1, a: 0.566, b: 0.027, t: 73.5)



St. Johns, Florida, US, St. Johns ($R^2 = 0.874$)

(i: 1.9, a: 0.862, b: 0.165, t: 12.4)

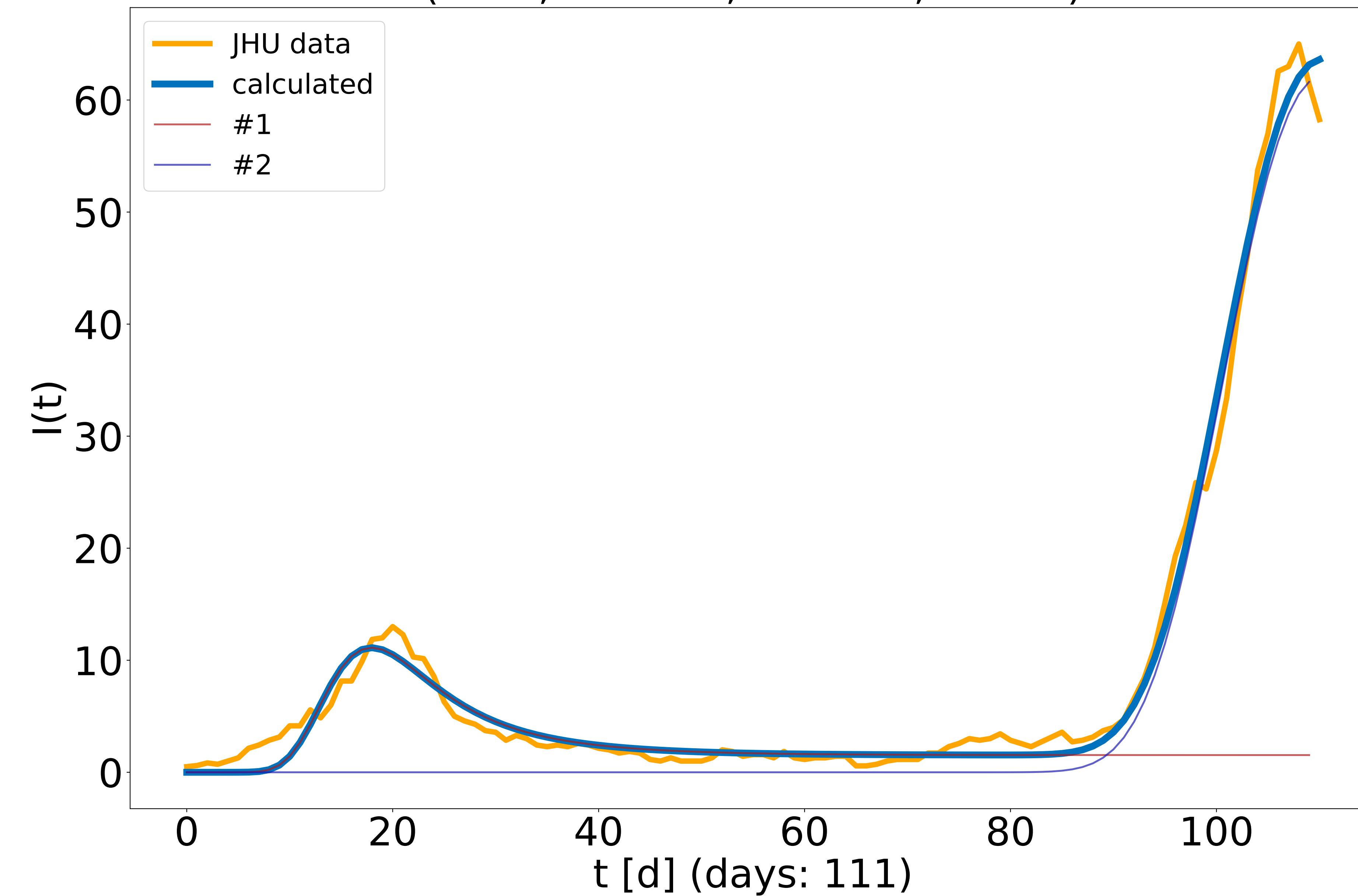
(i: 0.1, a: 0.902, b: 0.052, t: 88.2)



St. Johns, Florida, US, St. Johns ($R^2 = 0.989$)

(i: 1.5, a: 0.688, b: 0.128, t: 10.1)

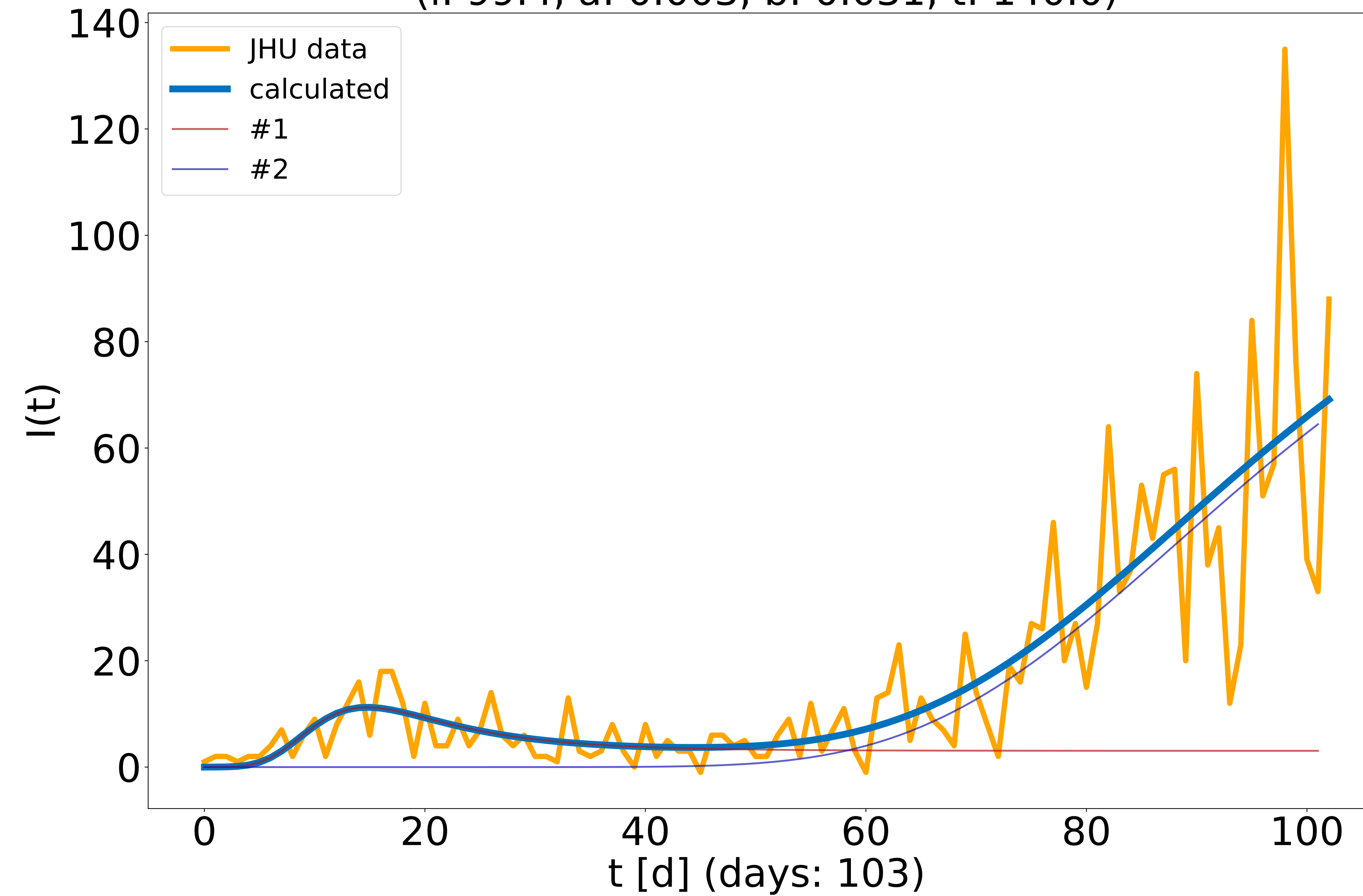
(i: 0.1, a: 0.679, b: 0.039, t: 84.5)



St. Lucie, Florida, US, St. Lucie ($R^2 = 0.692$)

(i: 3.1, a: 0.459, b: 0.13, t: 7.0)

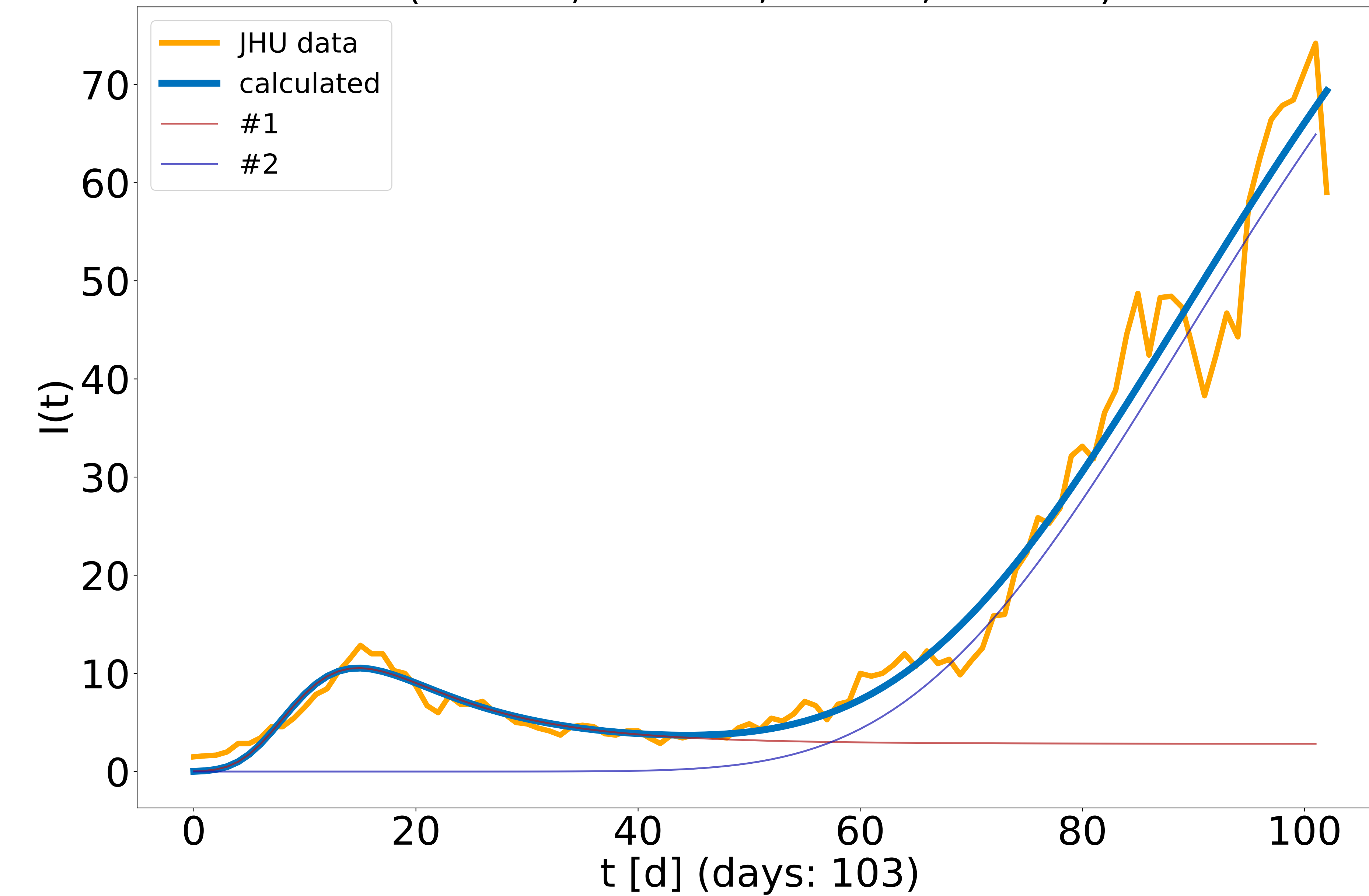
(i: 99.4, a: 0.003, b: 0.031, t: 140.0)



St. Lucie, Florida, US, St. Lucie ($R^2 = 0.971$)

(i: 2.8, a: 0.407, b: 0.114, t: 6.0)

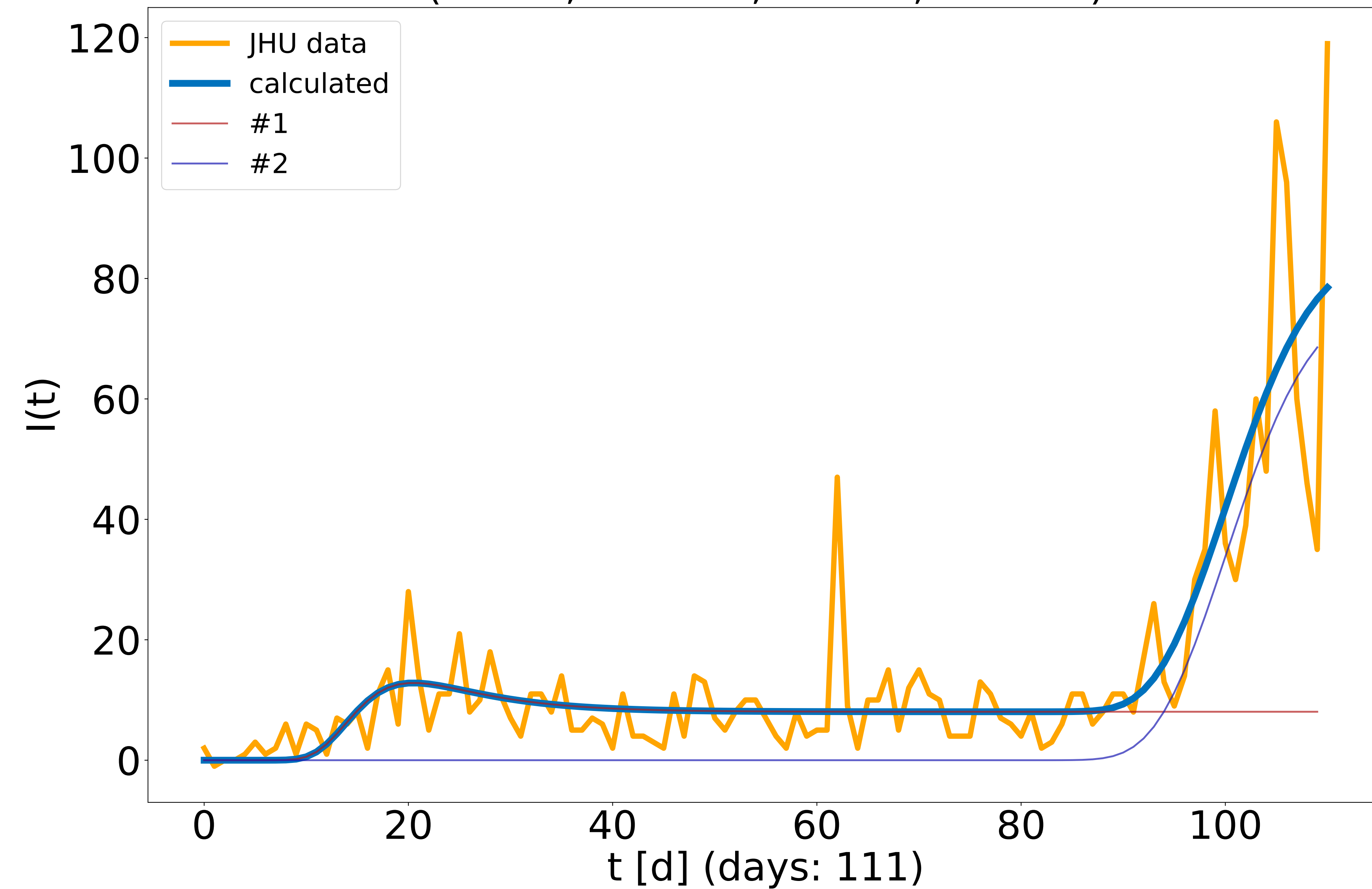
(i: 102.2, a: 0.004, b: 0.03, t: 140.0)



Sarasota, Florida, US, Sarasota ($R^2 = 0.745$)

(i: 8.0, a: 0.226, b: 0.178, t: 14.9)

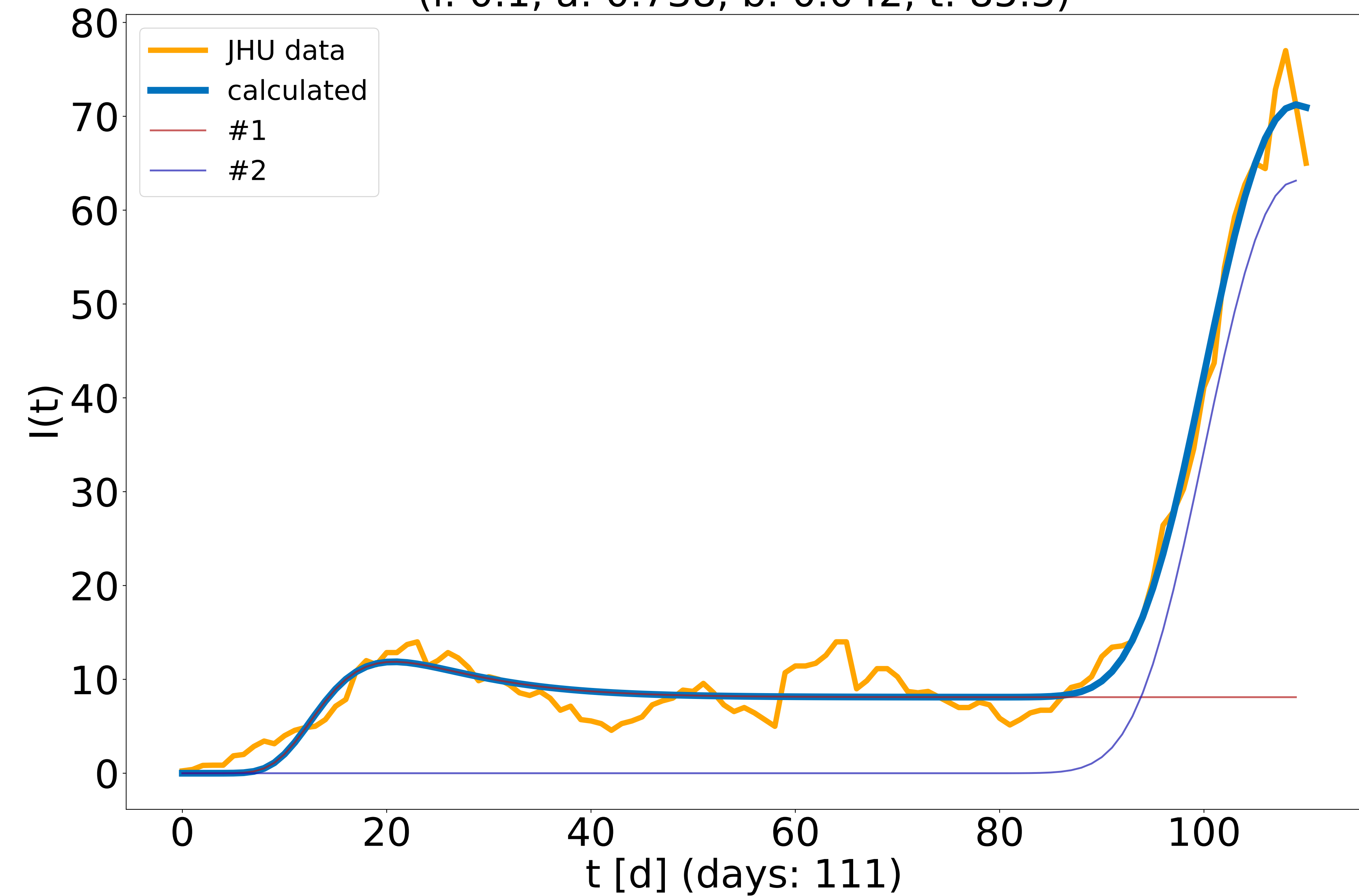
(i: 58.5, a: 0.062, b: 0.09, t: 105.4)



Sarasota, Florida, US, Sarasota ($R^2 = 0.983$)

(i: 8.1, a: 0.163, b: 0.157, t: 14.3)

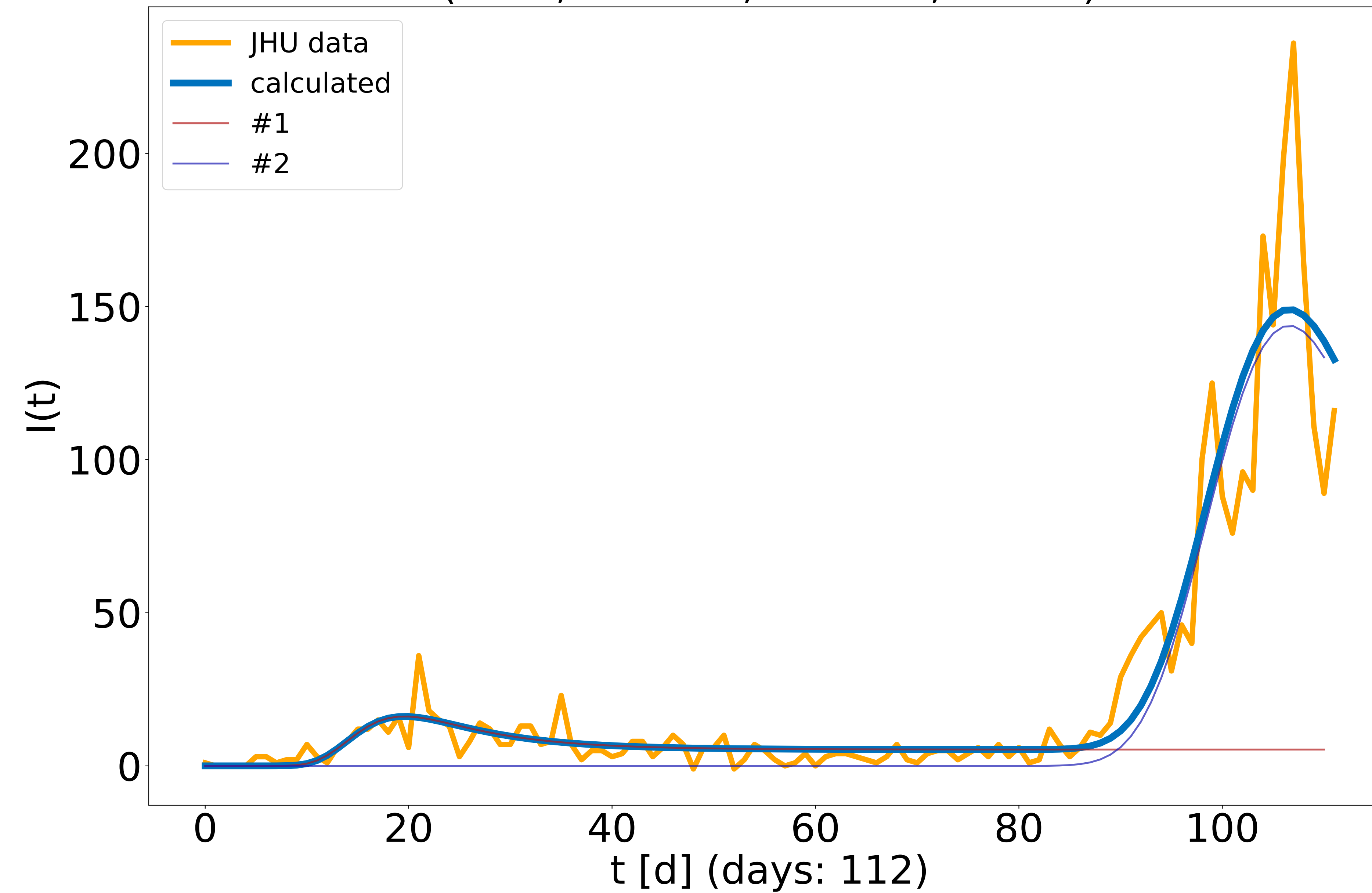
(i: 0.1, a: 0.738, b: 0.042, t: 85.3)



Seminole, Florida, US, Seminole ($R^2 = 0.881$)

(i: 5.3, a: 0.449, b: 0.149, t: 12.9)

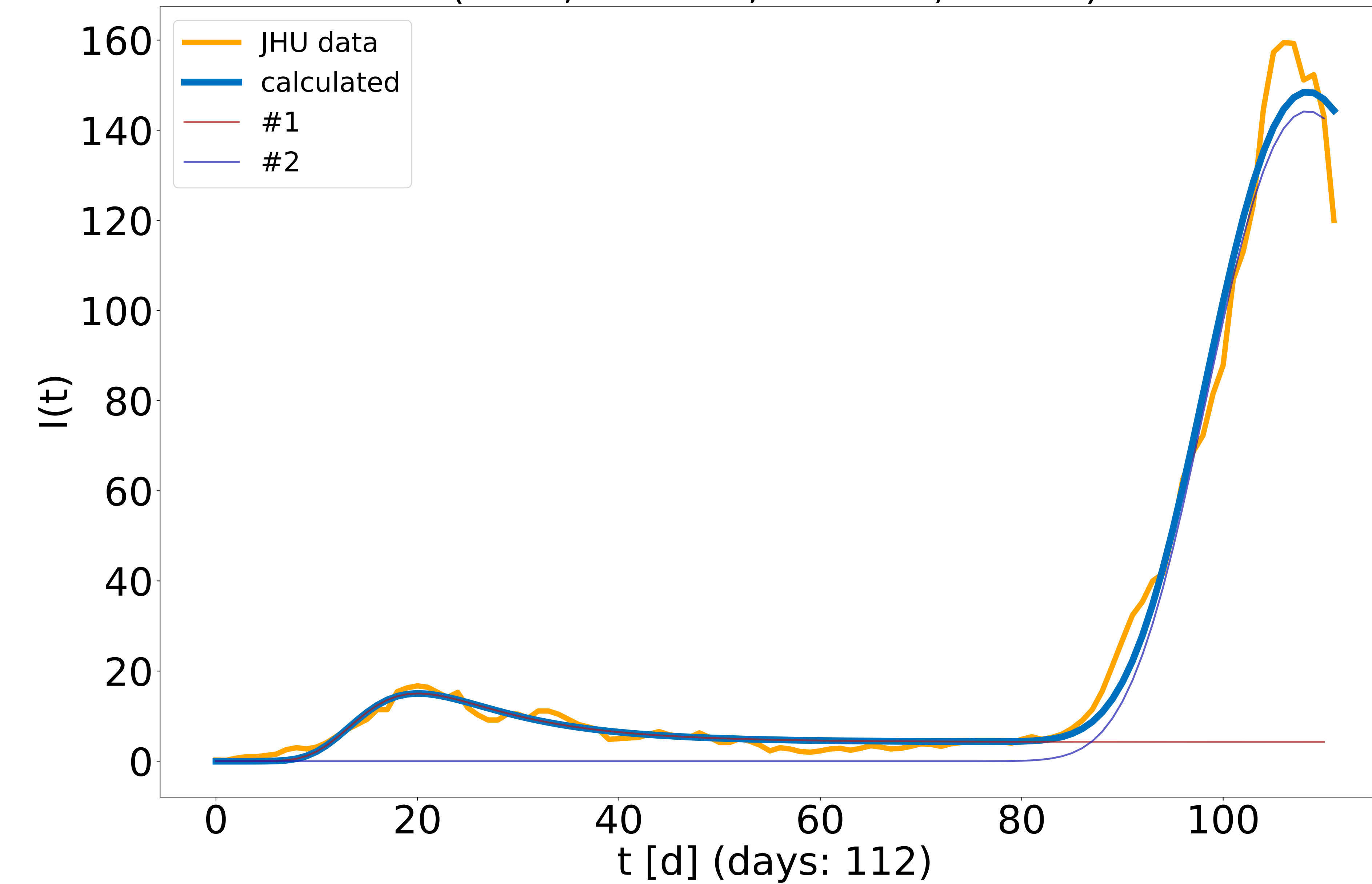
(i: 0.1, a: 0.867, b: 0.044, t: 83.8)



Seminole, Florida, US, Seminole ($R^2 = 0.988$)

(i: 4.3, a: 0.397, b: 0.116, t: 11.5)

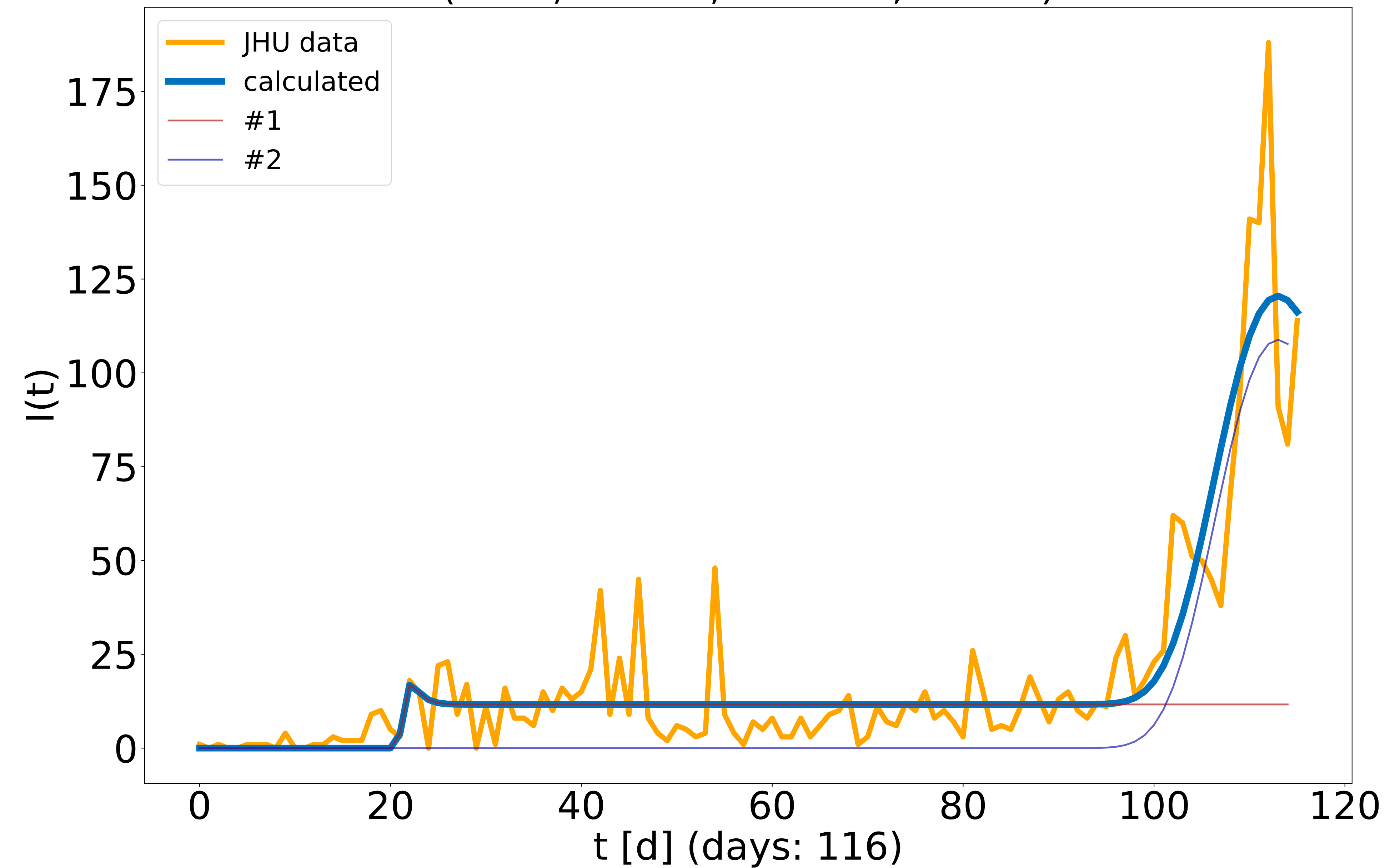
(i: 0.1, a: 0.698, b: 0.035, t: 80.1)



Volusia, Florida, US, Volusia ($R^2 = 0.814$)

(i: 11.6, a: 1.427, b: 1.4, t: 21.4)

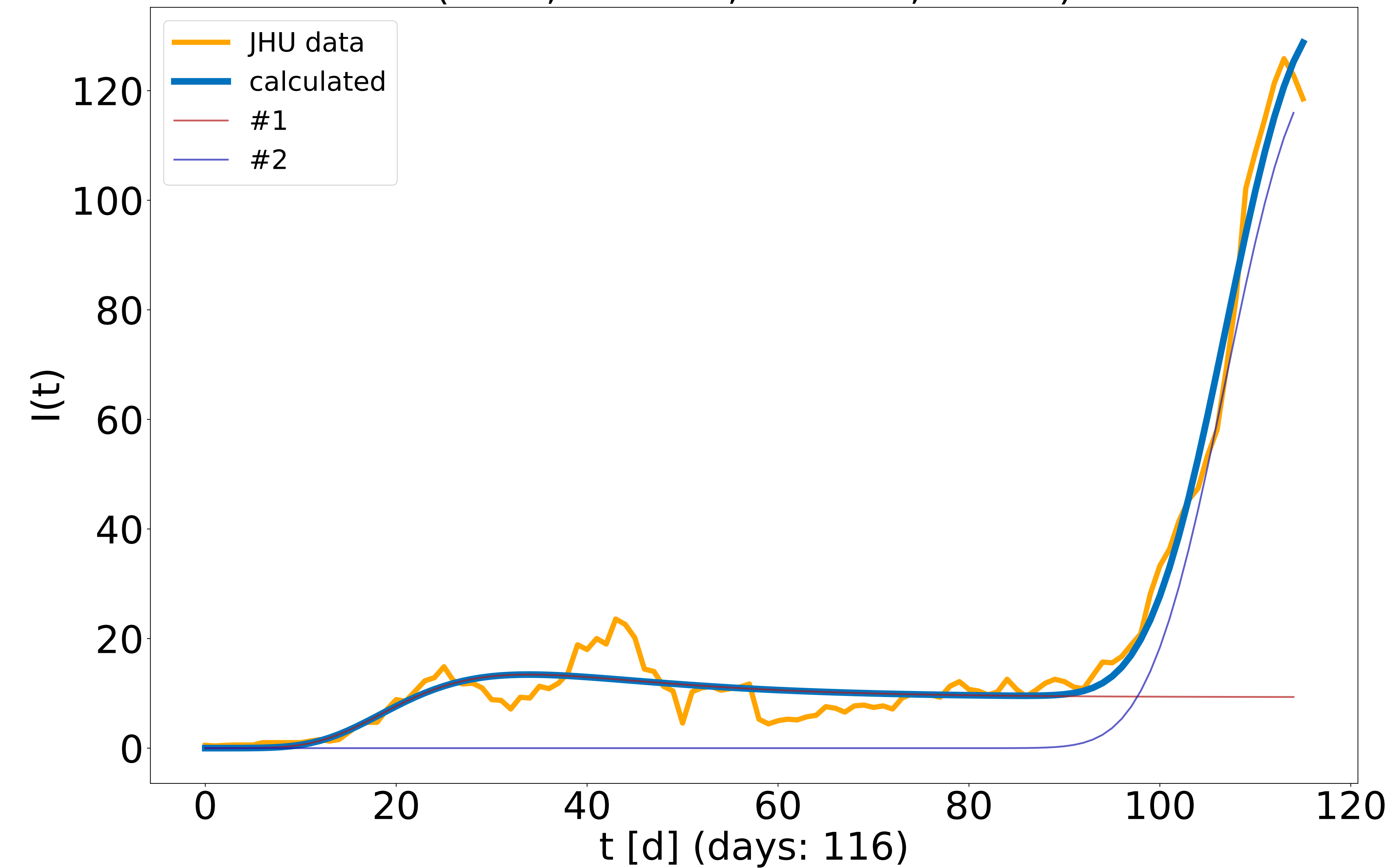
(i: 0.1, a: 1.04, b: 0.055, t: 94.7)



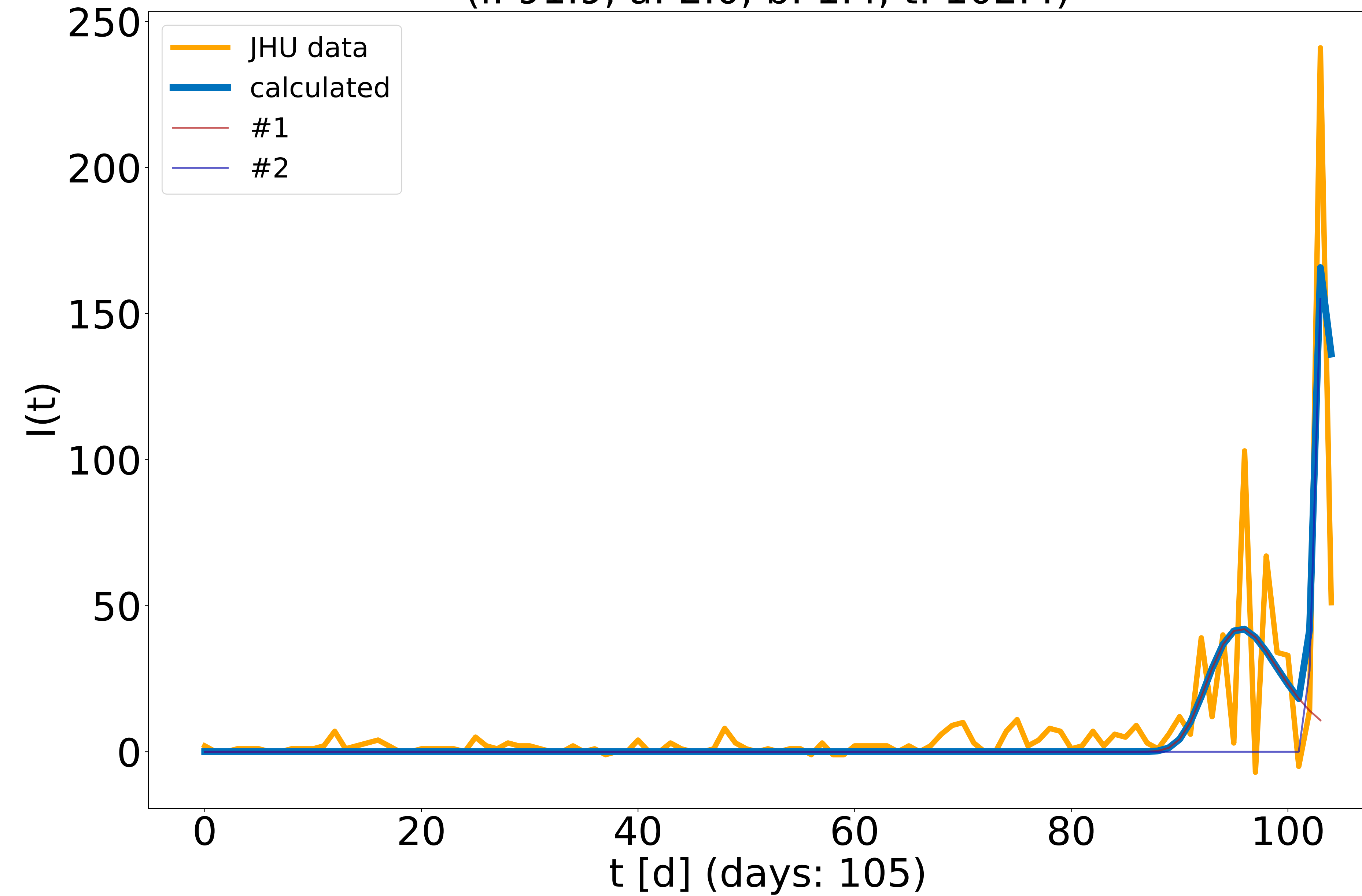
Volusia, Florida, US, Volusia ($R^2 = 0.982$)

(i: 9.3, a: 0.084, b: 0.084, t: 22.0)

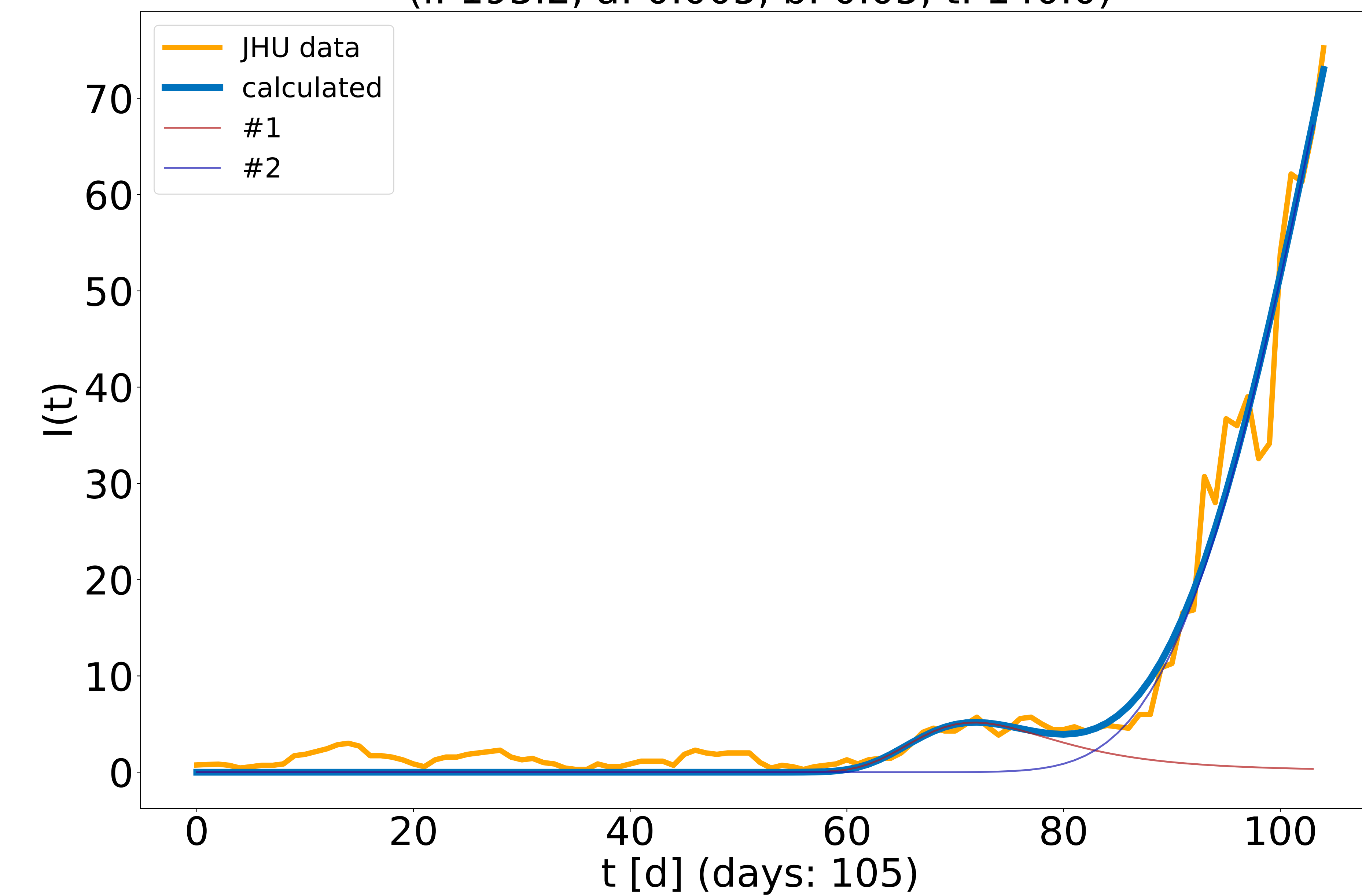
(i: 0.1, a: 0.648, b: 0.034, t: 88.0)



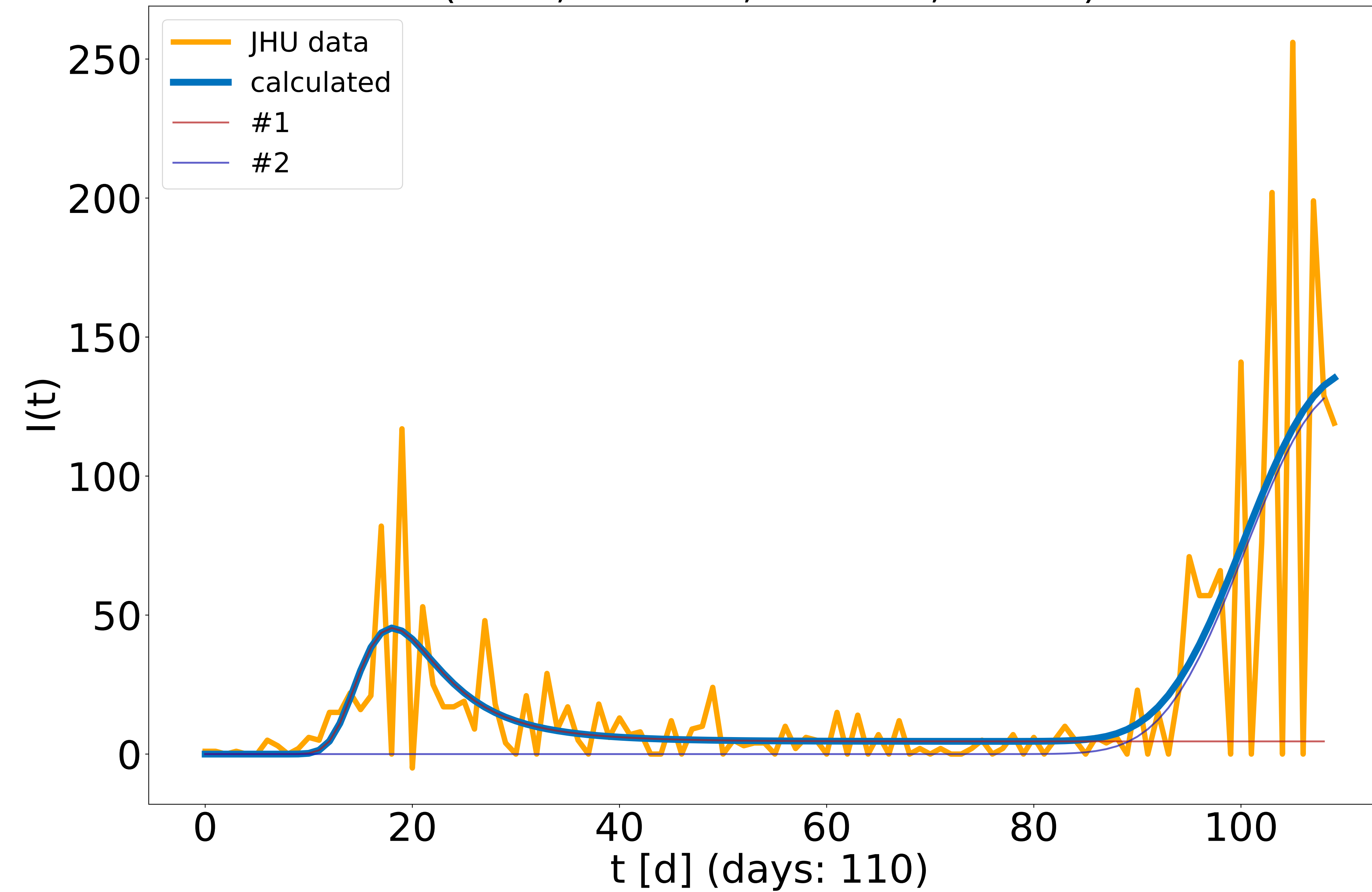
Glynn, Georgia, US, Glynn ($R^2 = 0.677$)
(i: 0.1, a: 2.0, b: 0.122, t: 87.4)
(i: 91.9, a: 2.0, b: 1.4, t: 102.4)



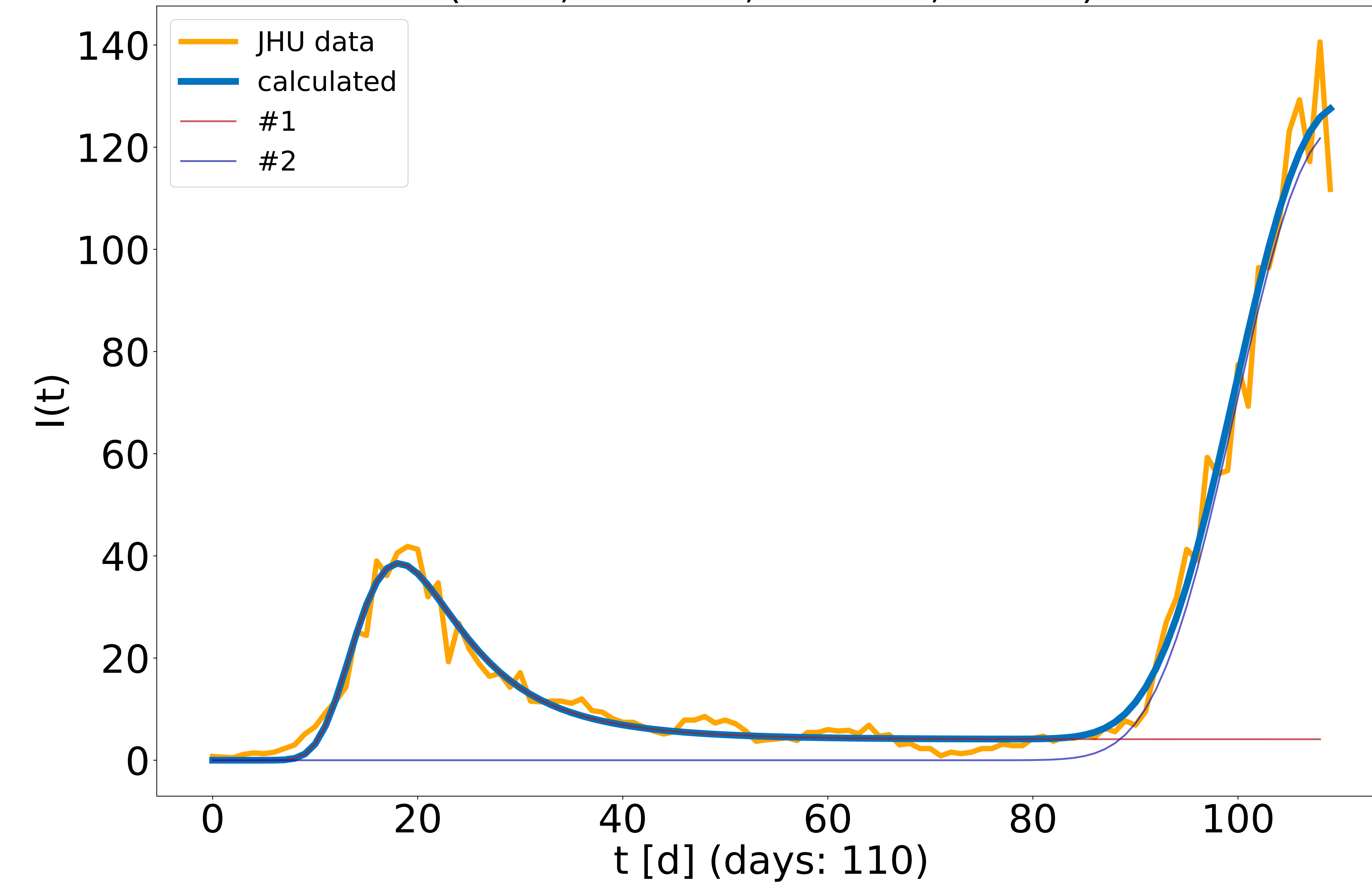
Glynn, Georgia, US, Glynn ($R^2 = 0.975$)
(i: 0.1, a: 0.818, b: 0.076, t: 58.6)
(i: 193.2, a: 0.005, b: 0.05, t: 140.0)



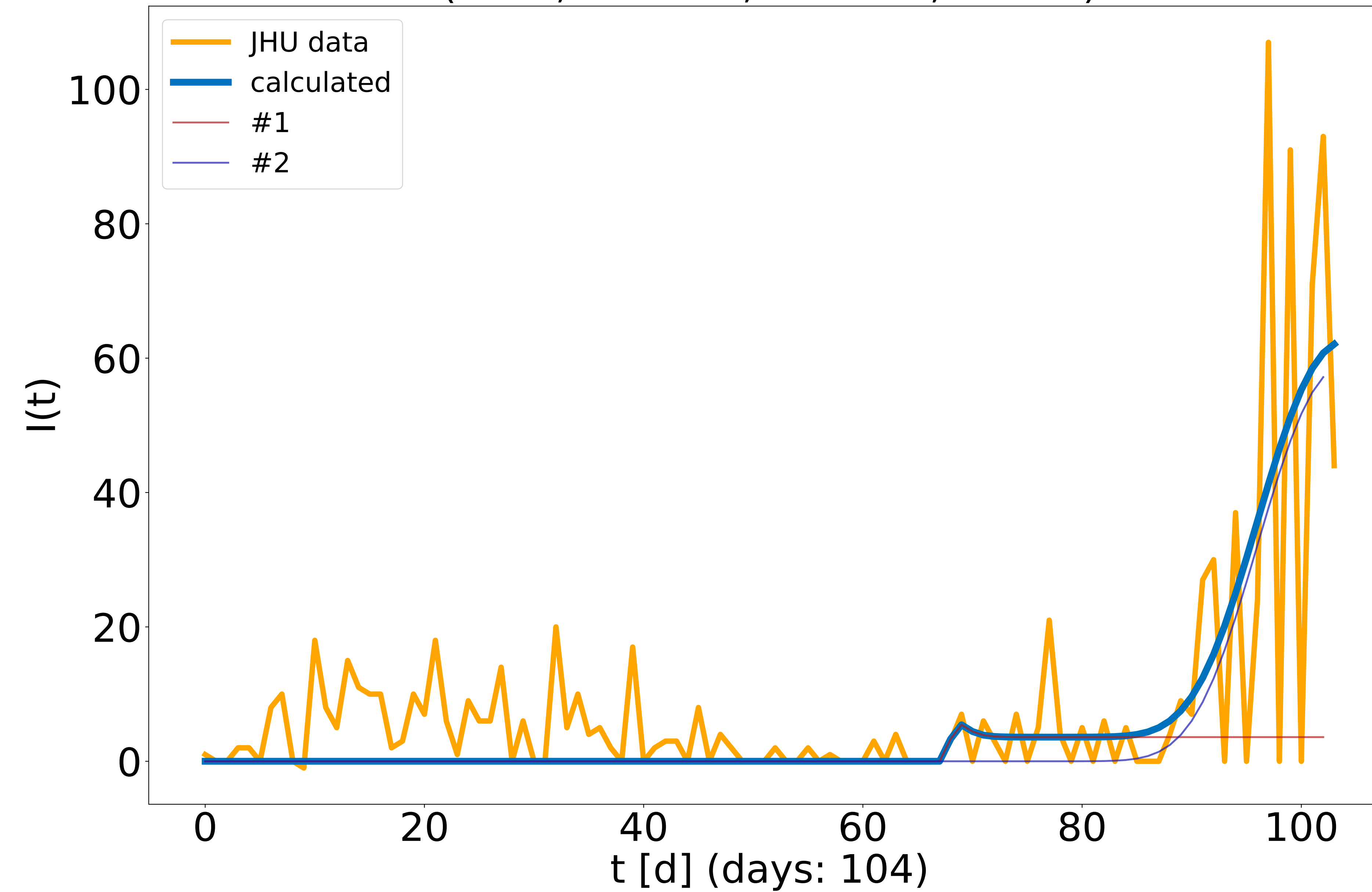
Ada, Idaho, US, Ada ($R^2 = 0.532$)
(i: 4.6, a: 1.025, b: 0.164, t: 12.0)
(i: 0.1, a: 0.678, b: 0.035, t: 81.9)



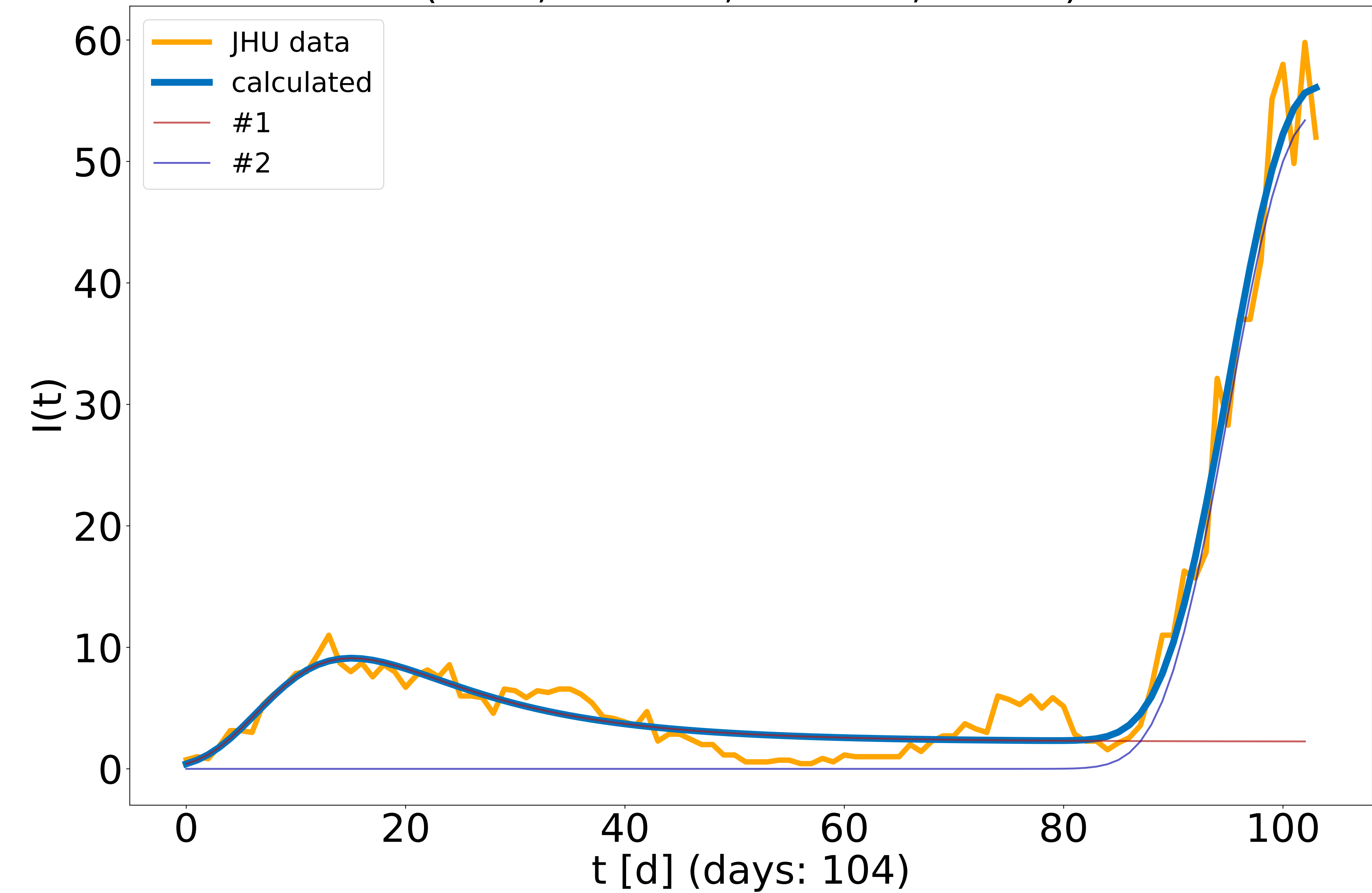
Ada, Idaho, US, Ada ($R^2 = 0.983$)
(i: 4.1, a: 0.778, b: 0.128, t: 10.3)
(i: 0.1, a: 0.681, b: 0.035, t: 81.5)



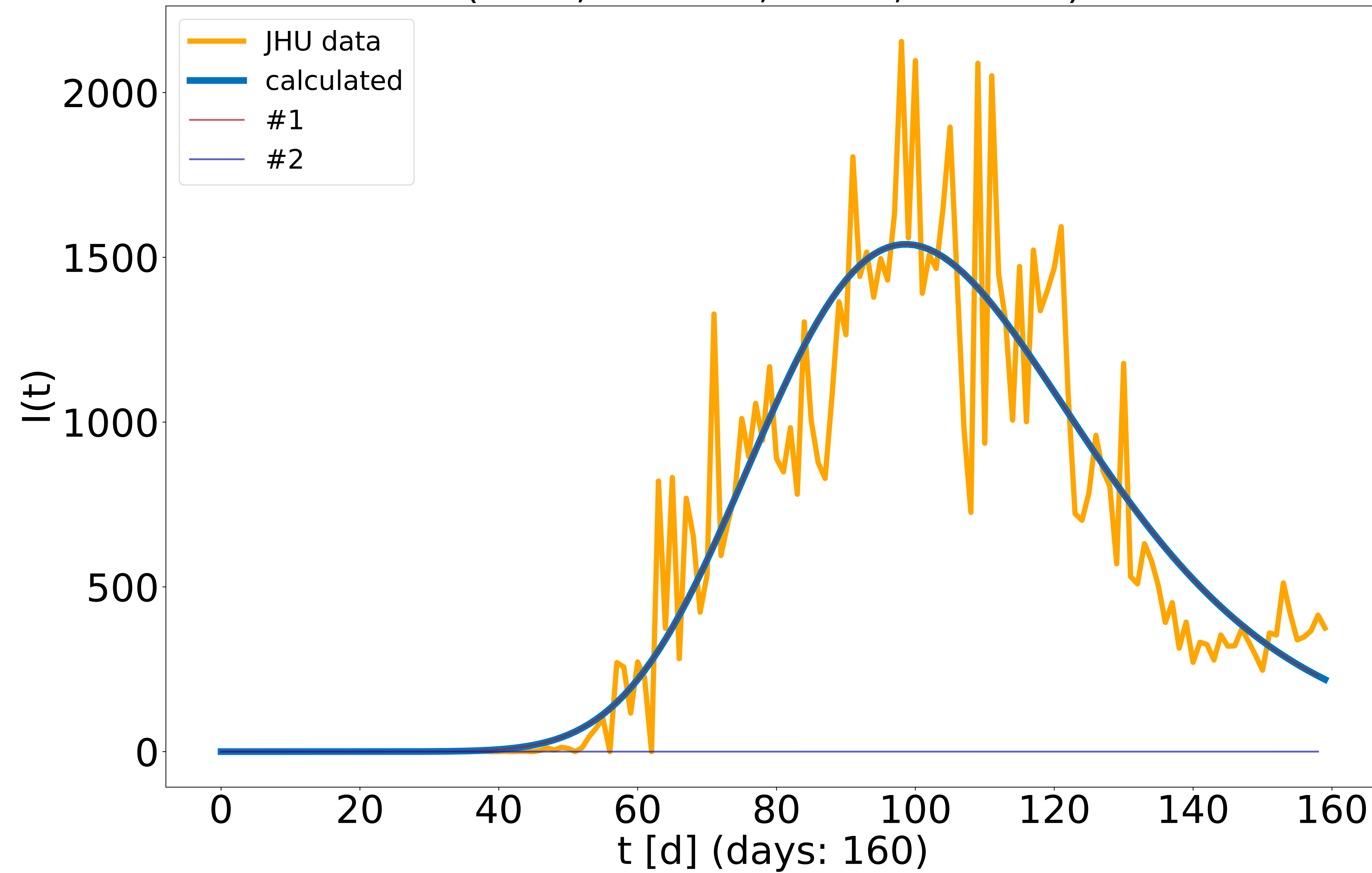
Canyon, Idaho, US, Canyon ($R^2 = 0.481$)
(i: 3.6, a: 1.644, b: 1.4, t: 68.0)
(i: 0.1, a: 0.837, b: 0.048, t: 83.2)



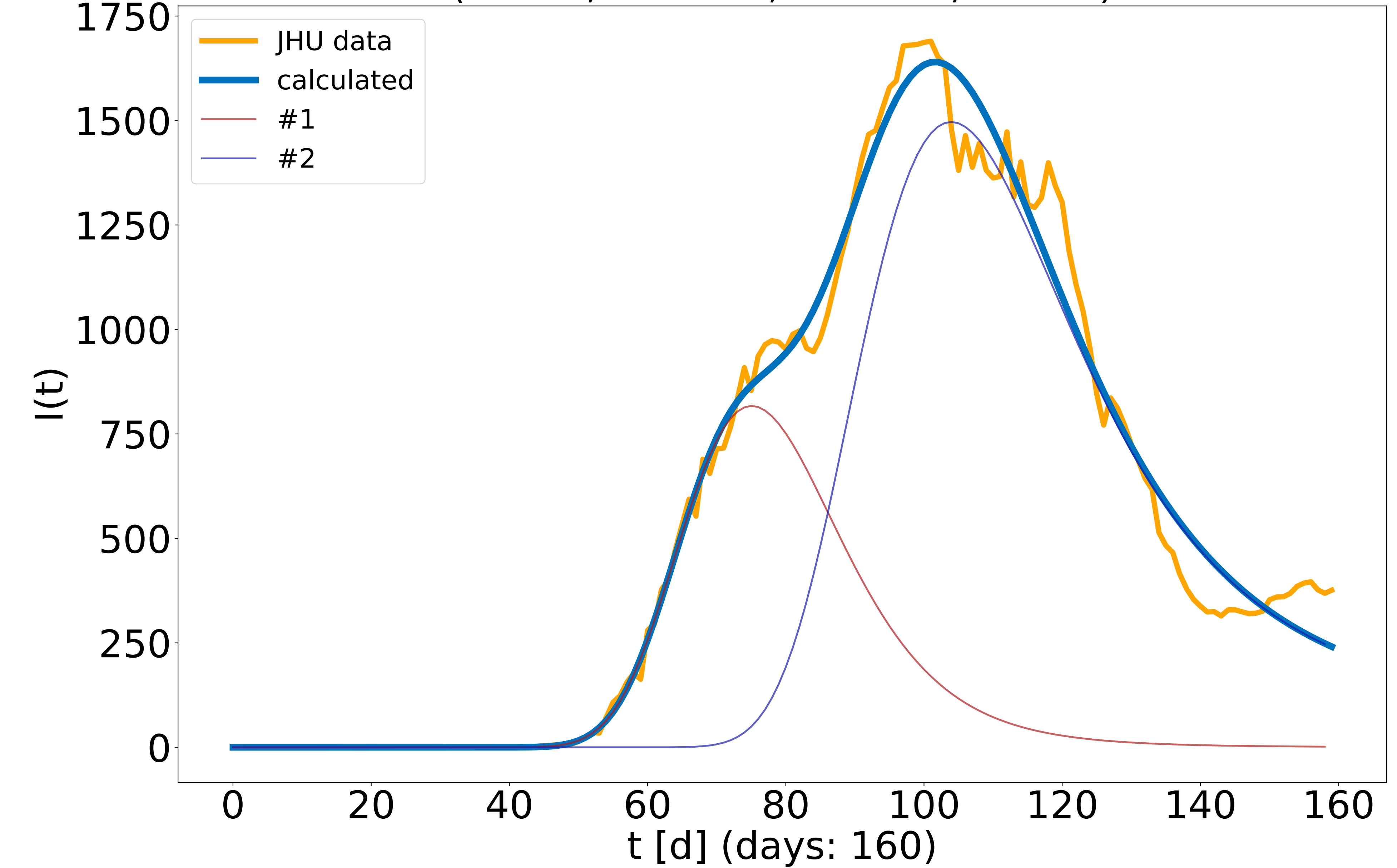
Canyon, Idaho, US, Canyon ($R^2 = 0.975$)
(i: 2.2, a: 0.335, b: 0.088, t: 3.7)
(i: 0.1, a: 0.822, b: 0.048, t: 82.2)



Cook, Illinois, US, Cook ($R^2 = 0.873$)
(i: 0.1, a: 0.36, b: 0.014, t: 25.9)
(i: 0.1, a: 0.529, b: 1.4, t: 140.0)



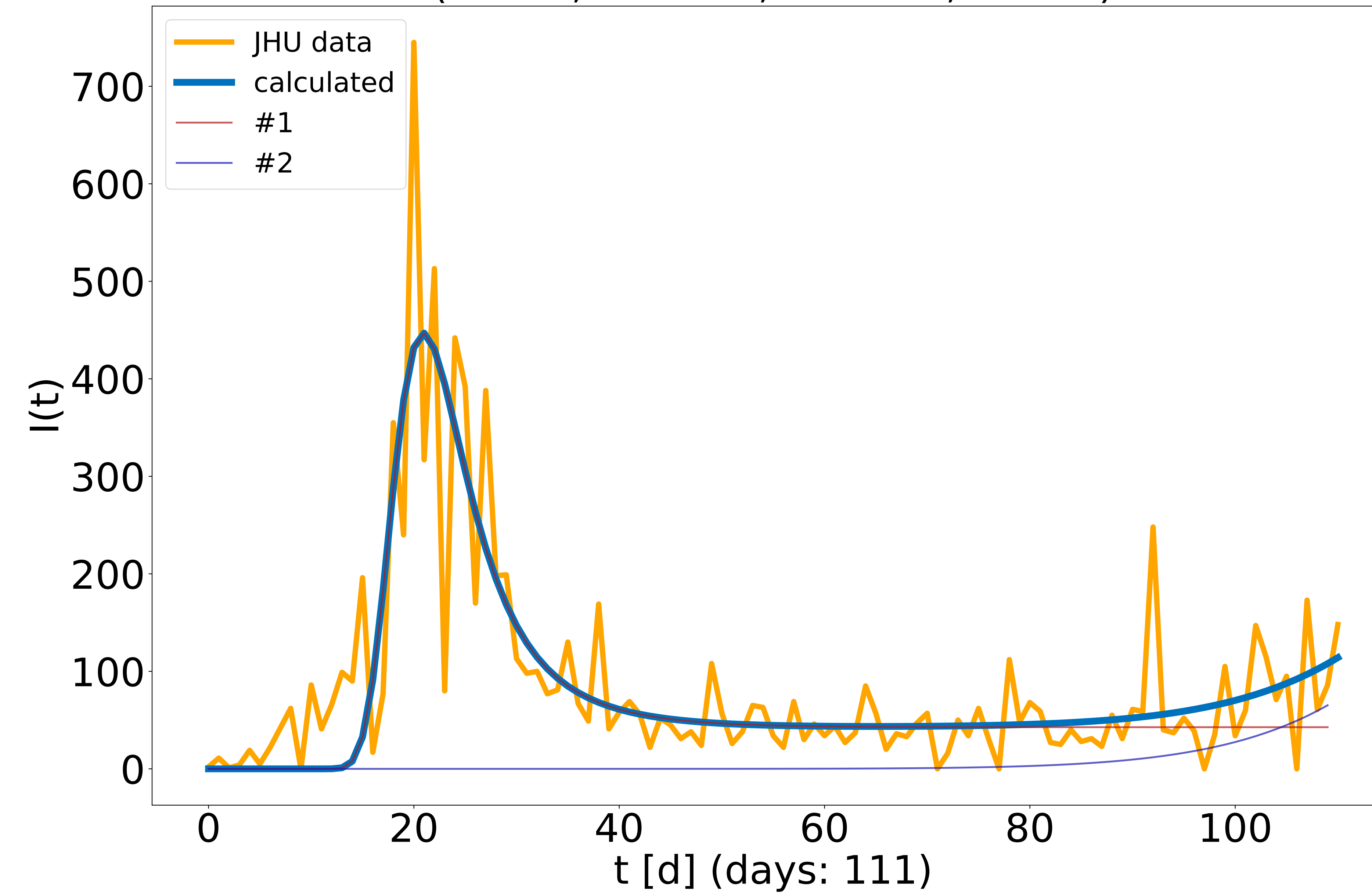
Cook, Illinois, US, Cook ($R^2 = 0.984$)
(i: 0.1, a: 0.71, b: 0.029, t: 40.6)
(i: 64.6, a: 0.304, b: 0.036, t: 75.9)



Jefferson, Louisiana, US, Jefferson ($R^2 = 0.647$)

(i: 42.7, a: 1.122, b: 0.176, t: 15.2)

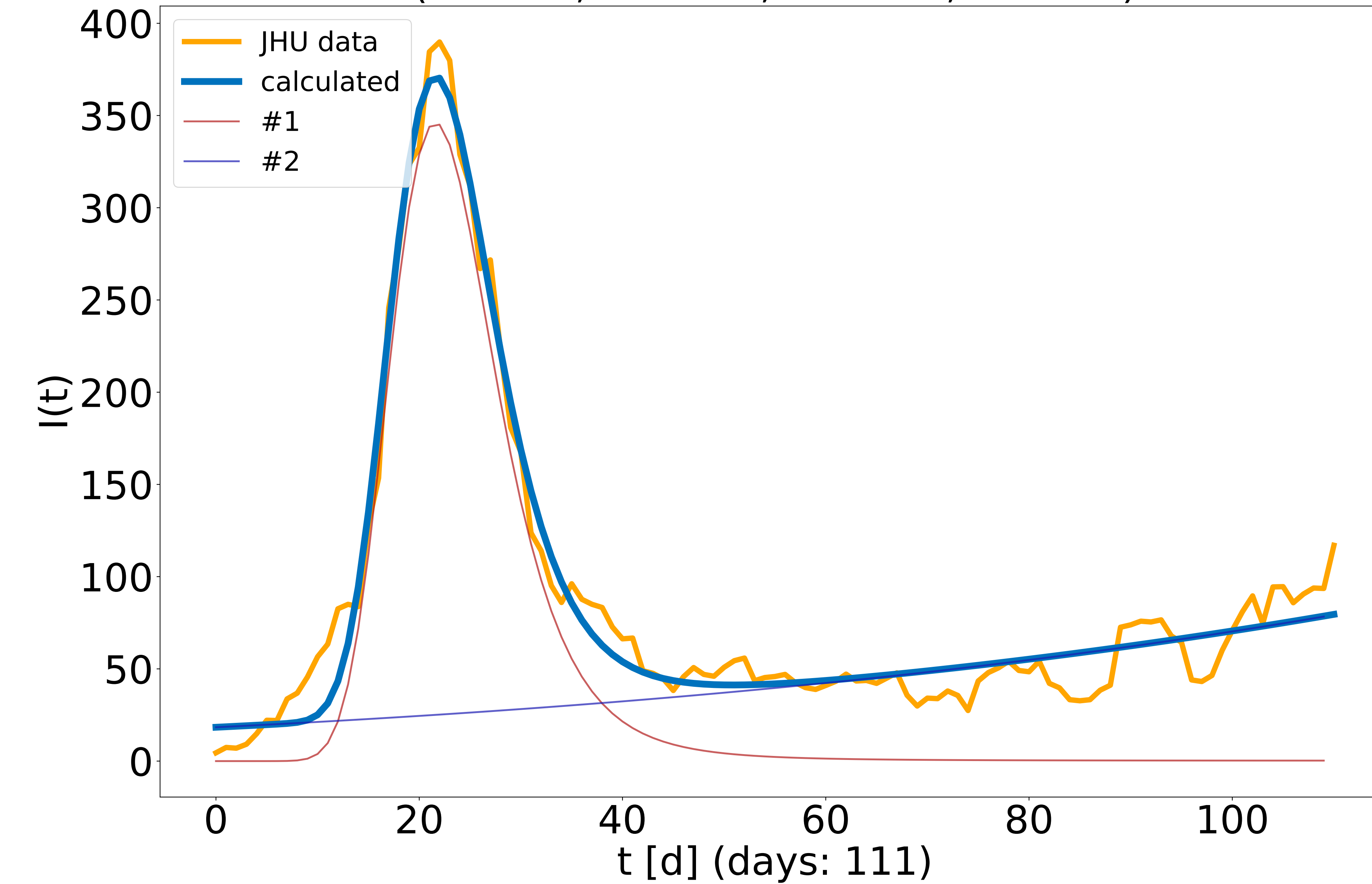
(i: 22.0, a: 0.103, b: 0.005, t: 97.8)



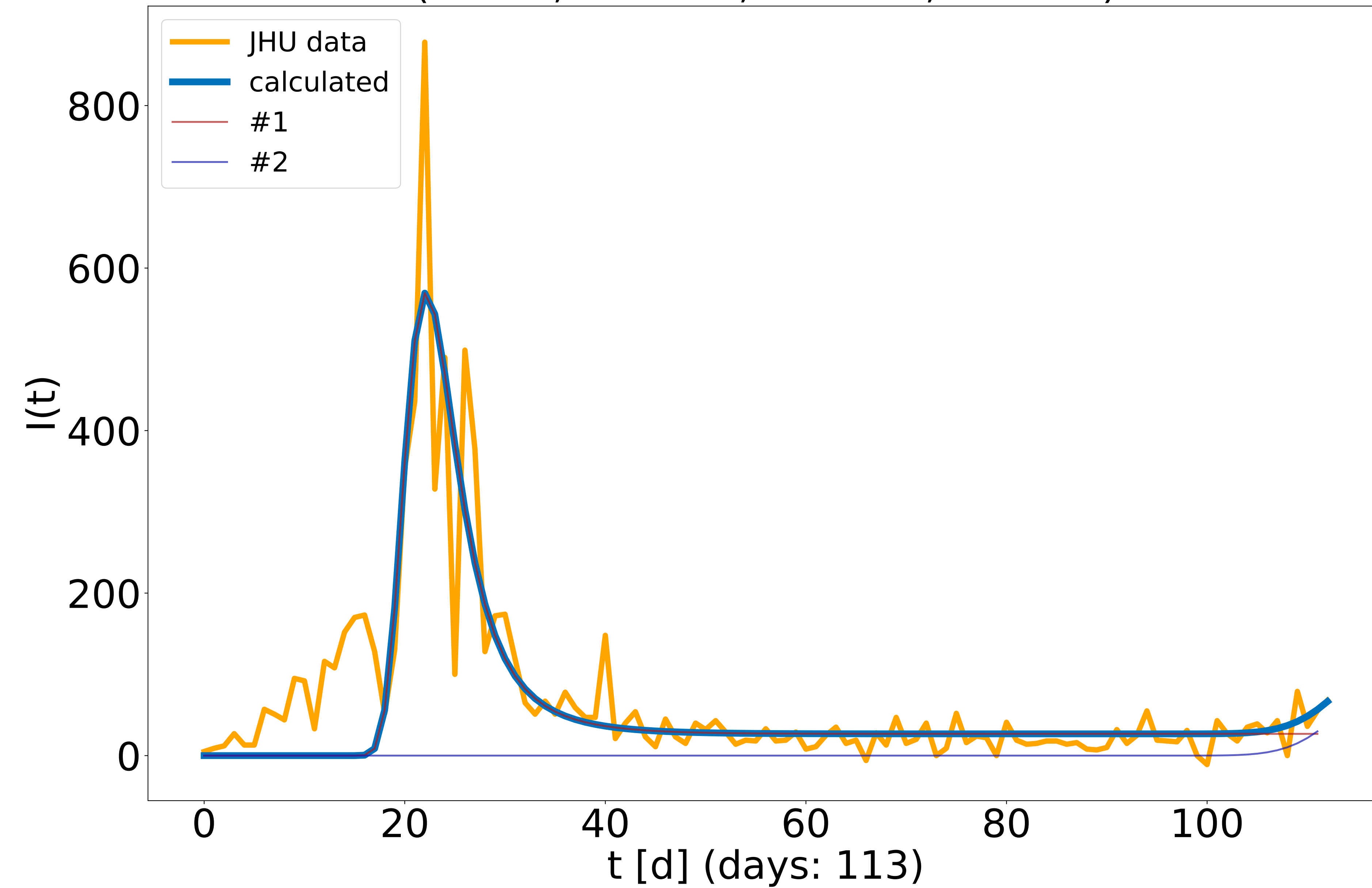
Jefferson, Louisiana, US, Jefferson ($R^2 = 0.971$)

(i: 0.2, a: 1.422, b: 0.072, t: 7.7)

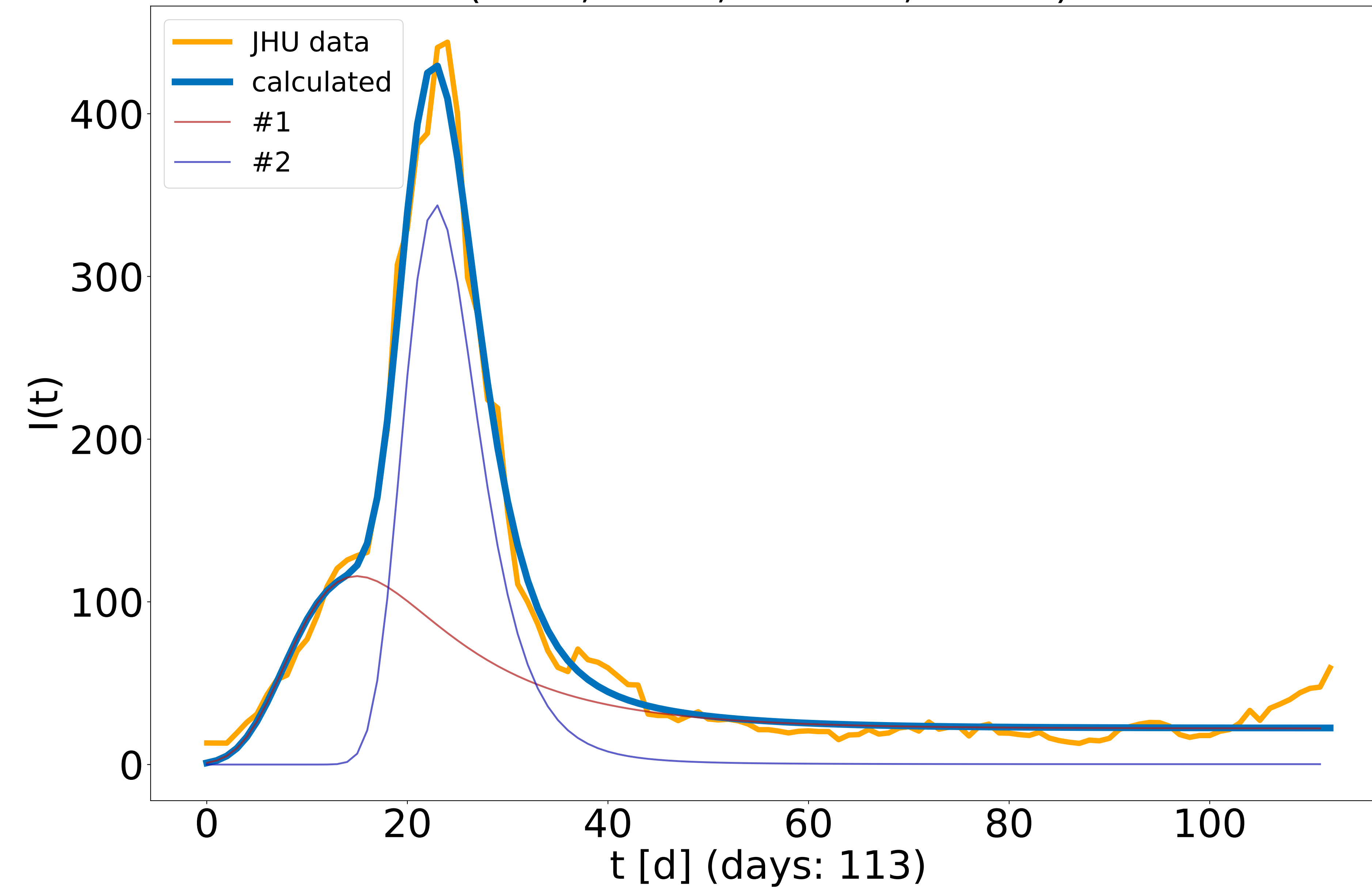
(i: 112.2, a: 0.011, b: 0.001, t: 140.0)



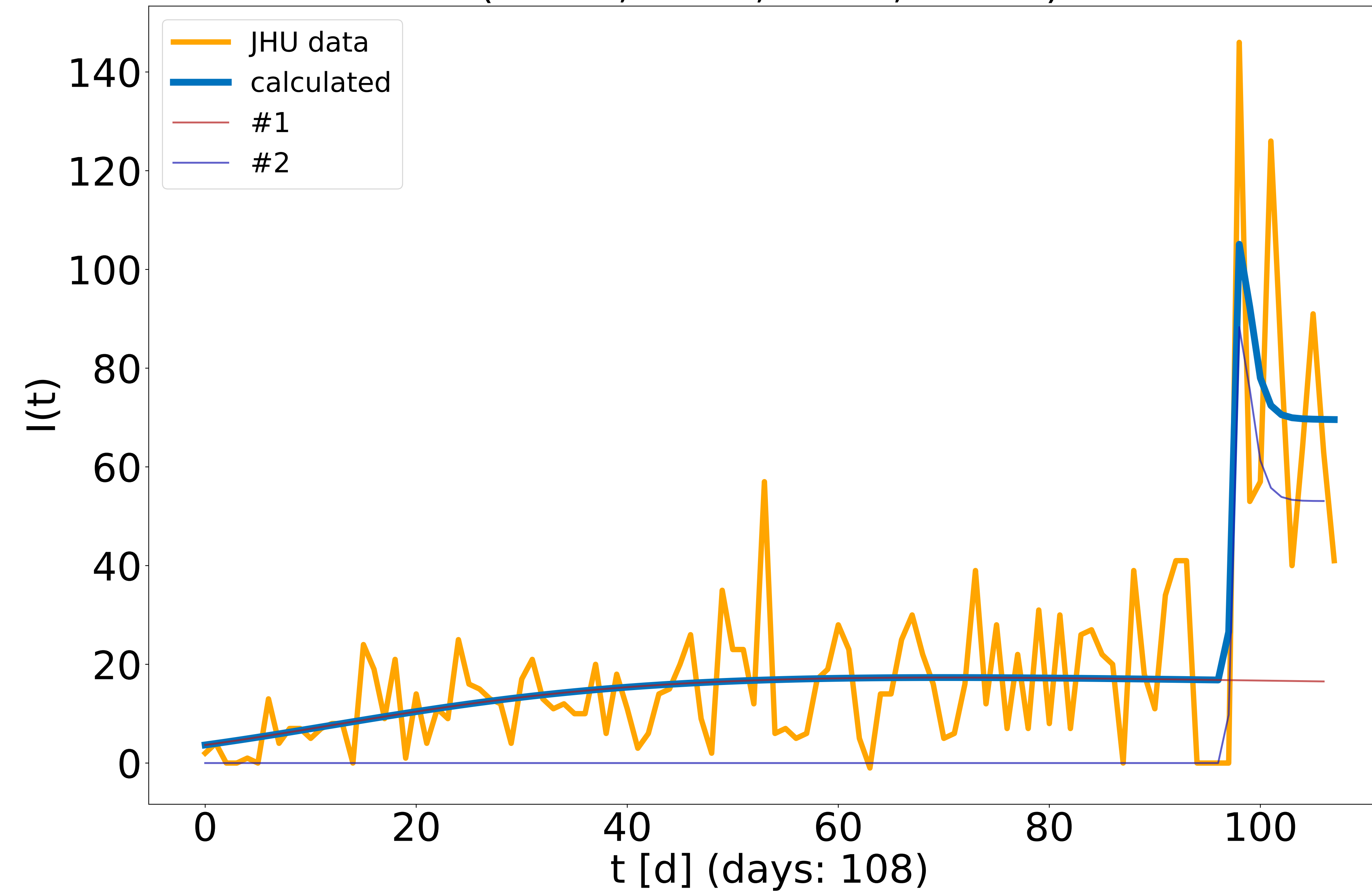
Orleans, Louisiana, US, Orleans ($R^2 = 0.712$)
(i: 26.8, a: 1.813, b: 0.218, t: 17.5)
(i: 29.2, a: 0.305, b: 0.055, t: 110.9)



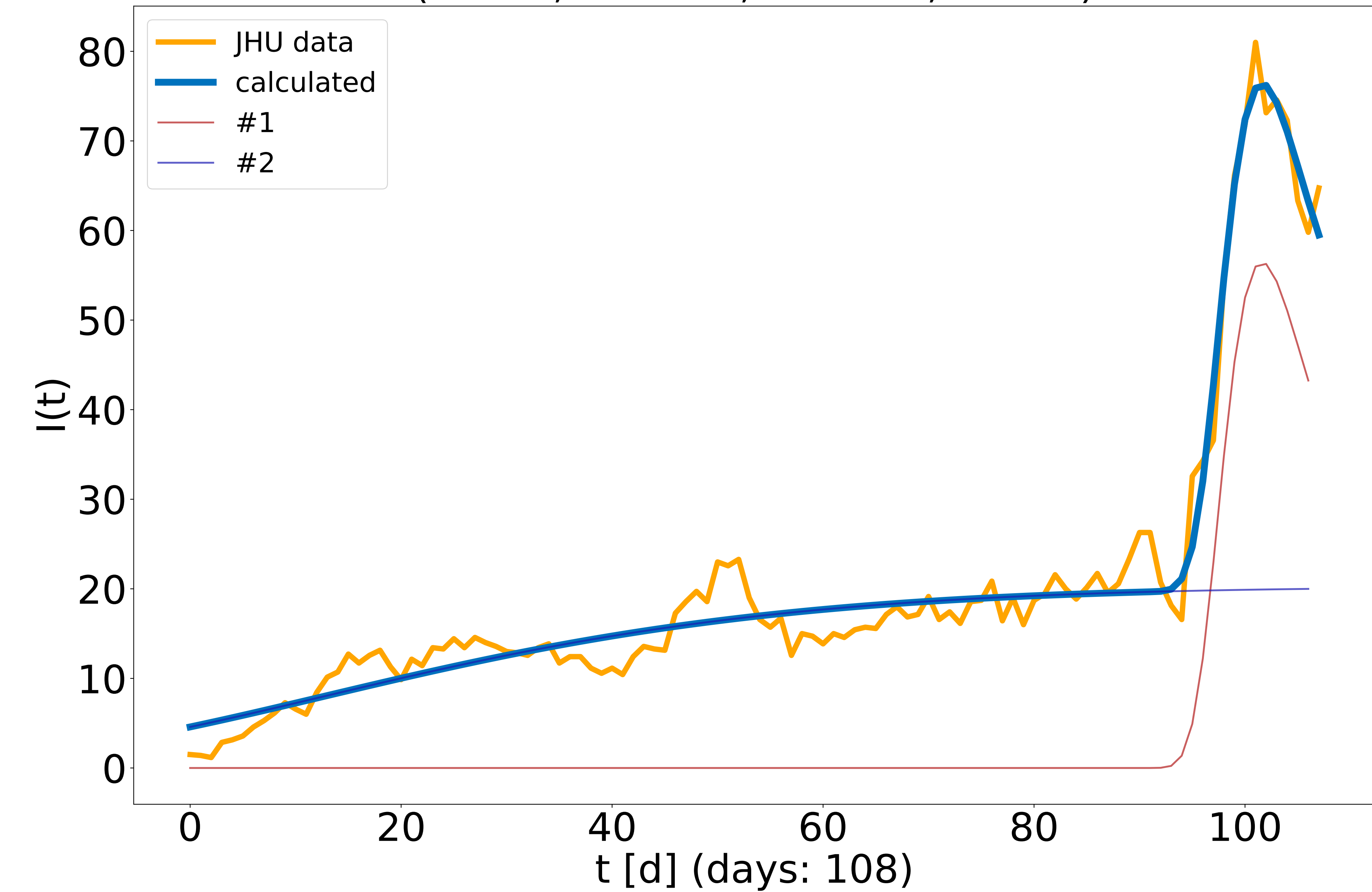
Orleans, Louisiana, US, Orleans ($R^2 = 0.986$)
(i: 22.2, a: 0.433, b: 0.096, t: 4.6)
(i: 0.2, a: 2.0, b: 0.101, t: 12.9)



Hinds, Mississippi, US, Hinds ($R^2 = 0.659$)
(i: 14.7, a: 0.013, b: 0.03, t: 36.4)
(i: 53.1, a: 2.0, b: 1.4, t: 97.5)



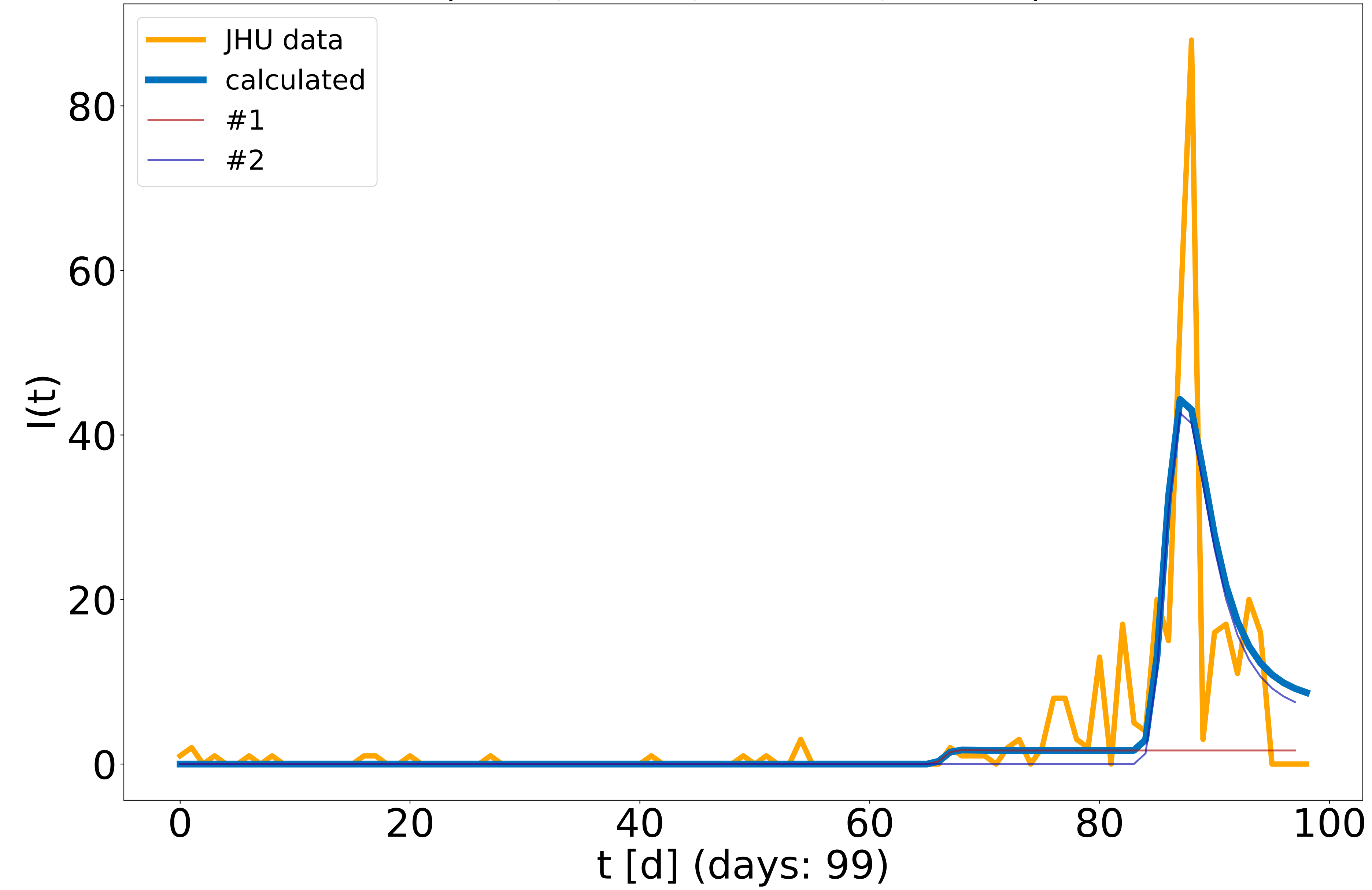
Hinds, Mississippi, US, Hinds ($R^2 = 0.971$)
(i: 15.2, a: 0.674, b: 0.189, t: 96.3)
(i: 19.9, a: 0.001, b: 0.027, t: 99.9)



Newton, Missouri, US, Newton ($R^2 = 0.615$)

(i: 1.7, a: 0.128, b: 1.4, t: 67.5)

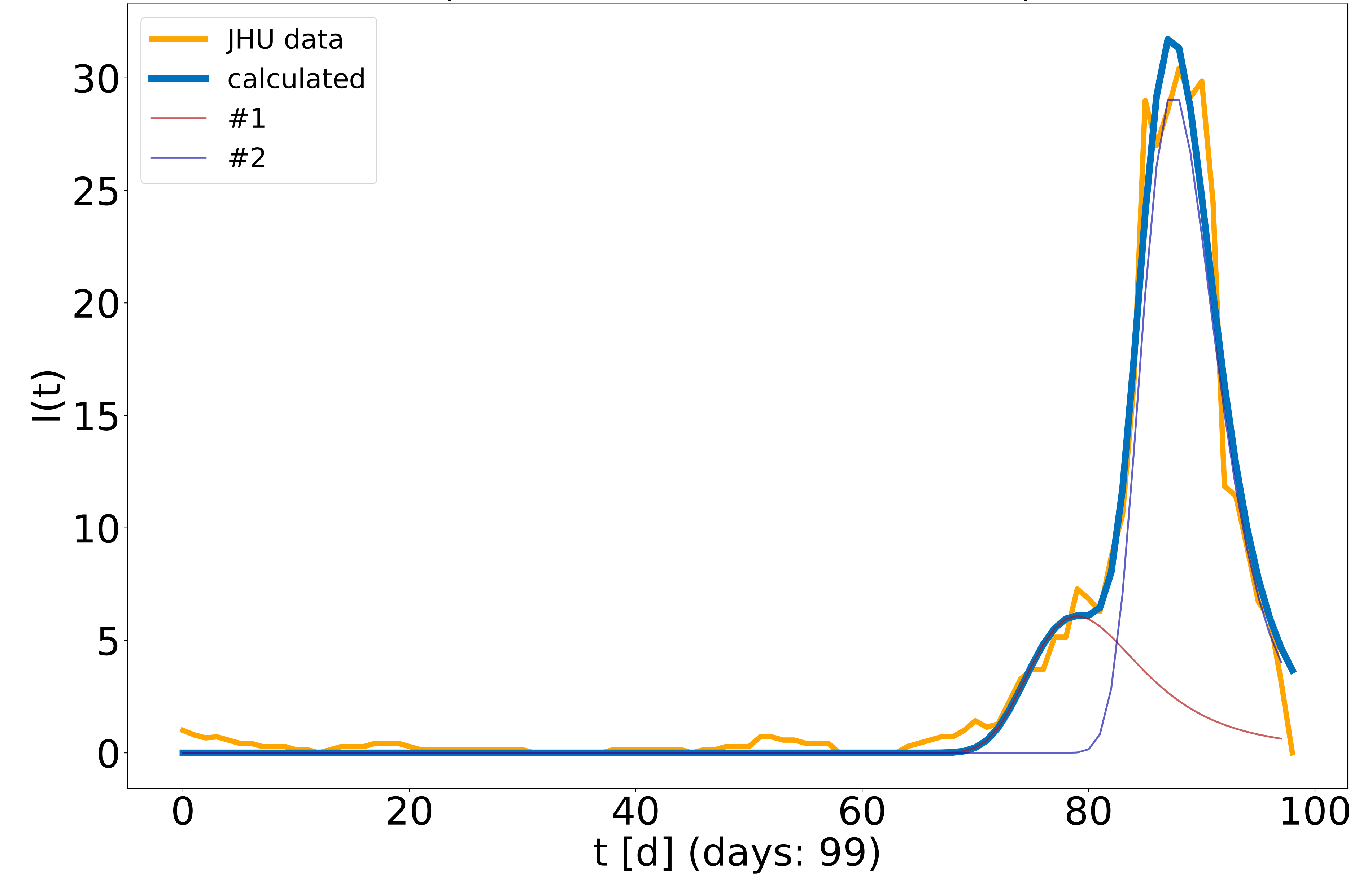
(i: 5.7, a: 2.0, b: 0.363, t: 84.6)



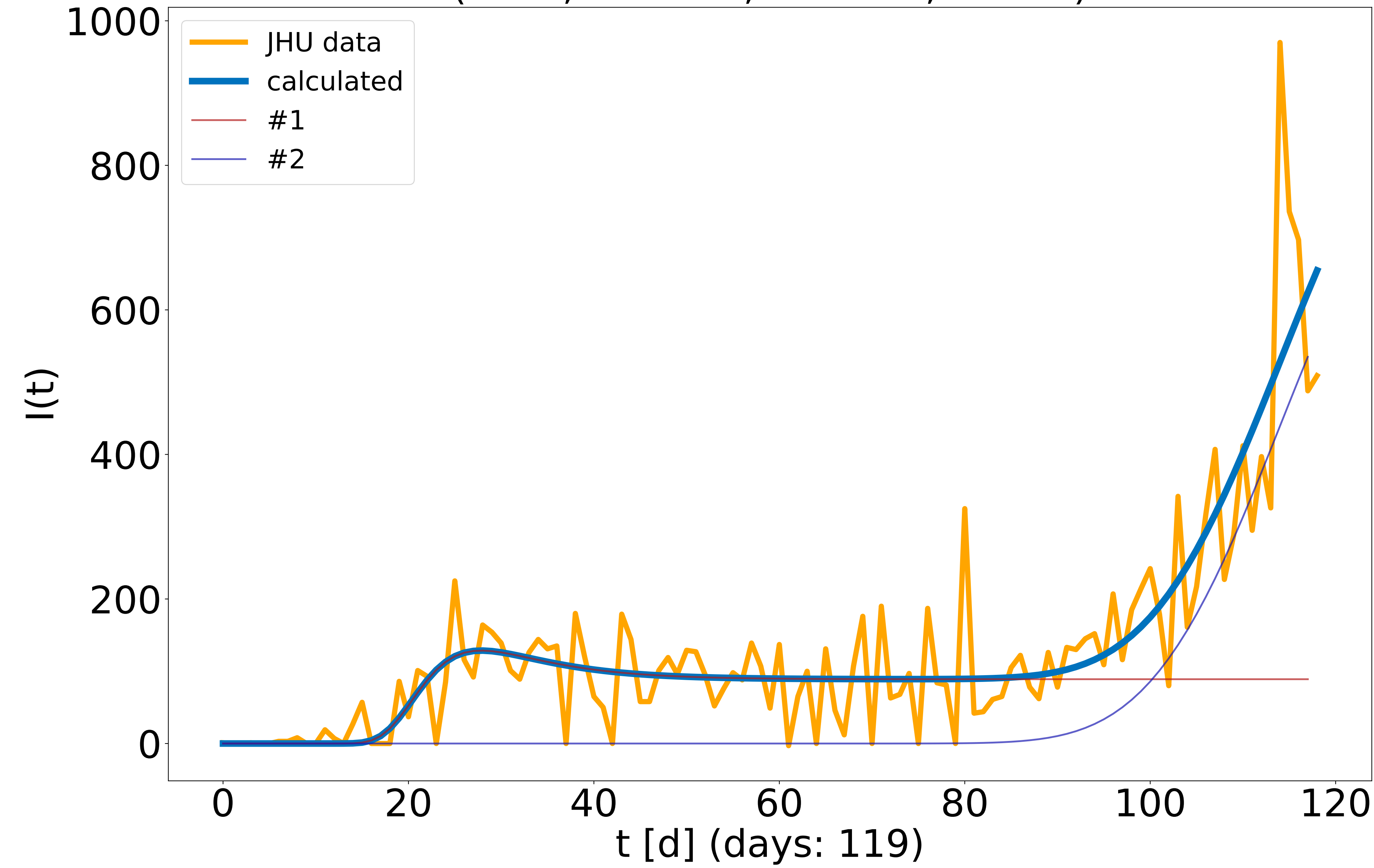
Newton, Missouri, US, Newton ($R^2 = 0.974$)

(i: 0.1, a: 1.143, b: 0.102, t: 69.2)

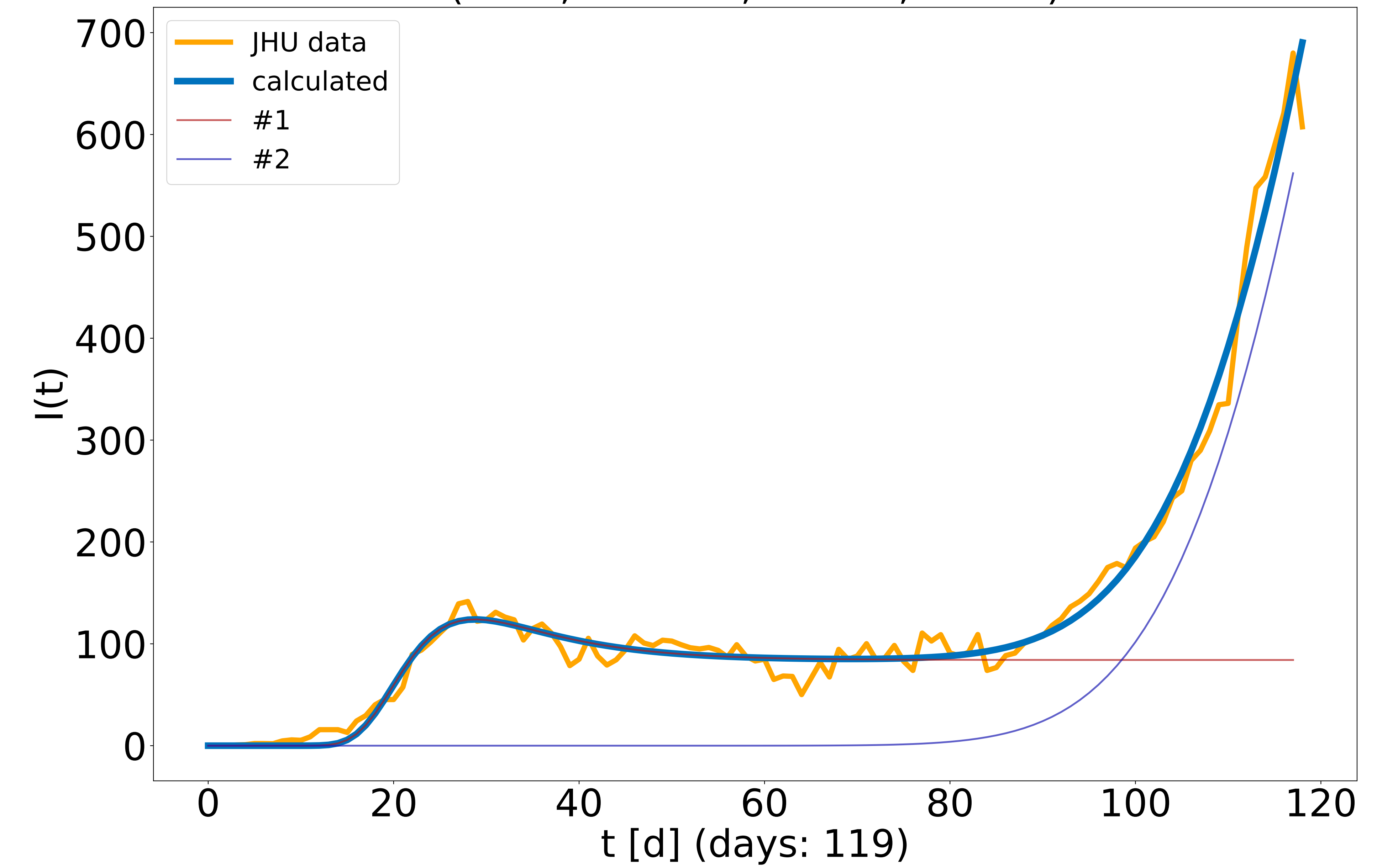
(i: 0.1, a: 2.0, b: 0.129, t: 79.8)



Clark, Nevada, US, Clark ($R^2 = 0.762$)
(i: 89.0, a: 0.174, b: 0.173, t: 22.1)
(i: 0.1, a: 0.438, b: 0.018, t: 76.5)



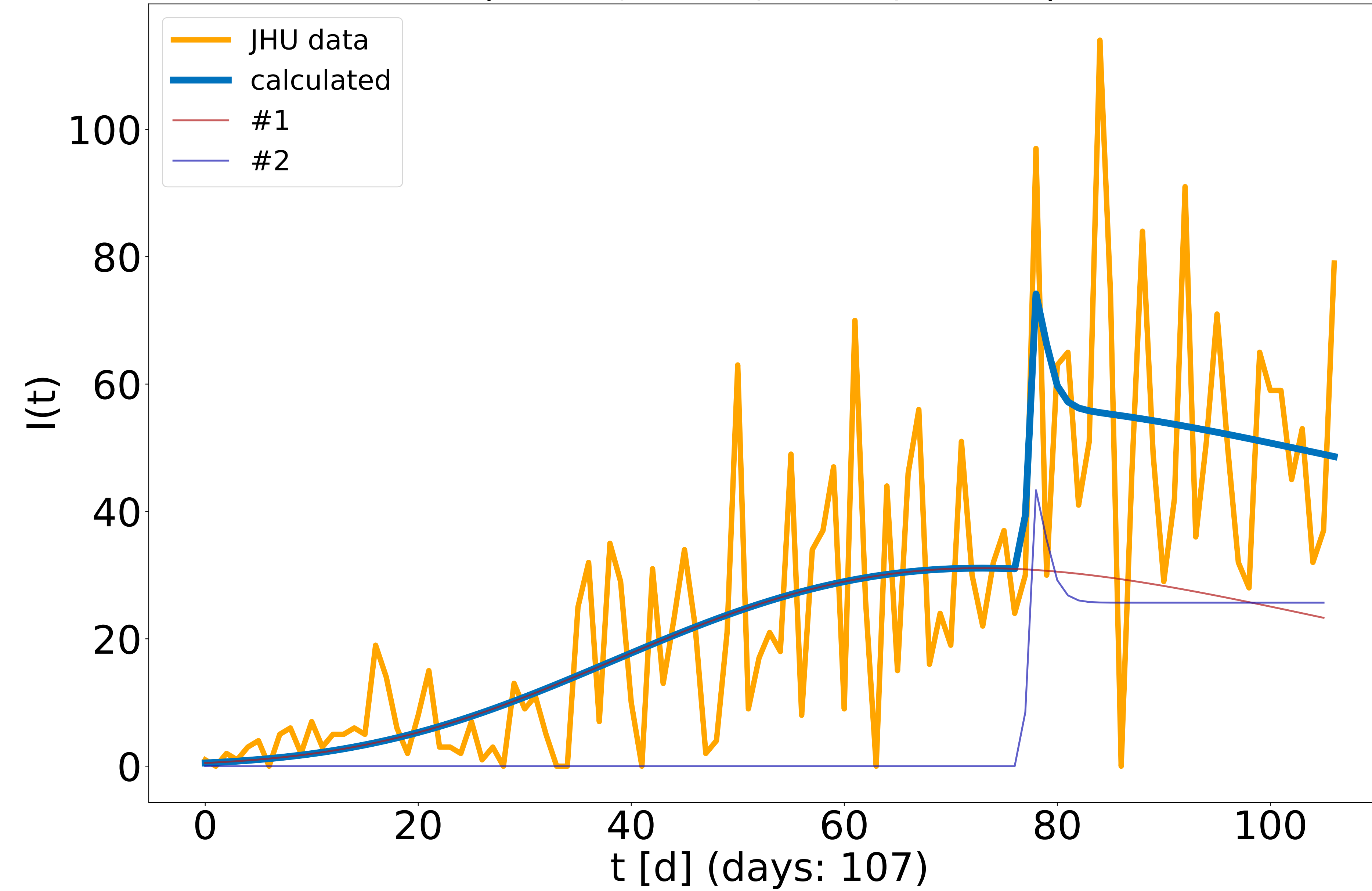
Clark, Nevada, US, Clark ($R^2 = 0.984$)
(i: 84.1, a: 0.151, b: 0.143, t: 21.8)
(i: 0.1, a: 0.284, b: 0.01, t: 65.0)



Guilford, North Carolina, US, Guilford ($R^2 = 0.588$)

(i: 0.8, a: 0.144, b: 0.014, t: 2.8)

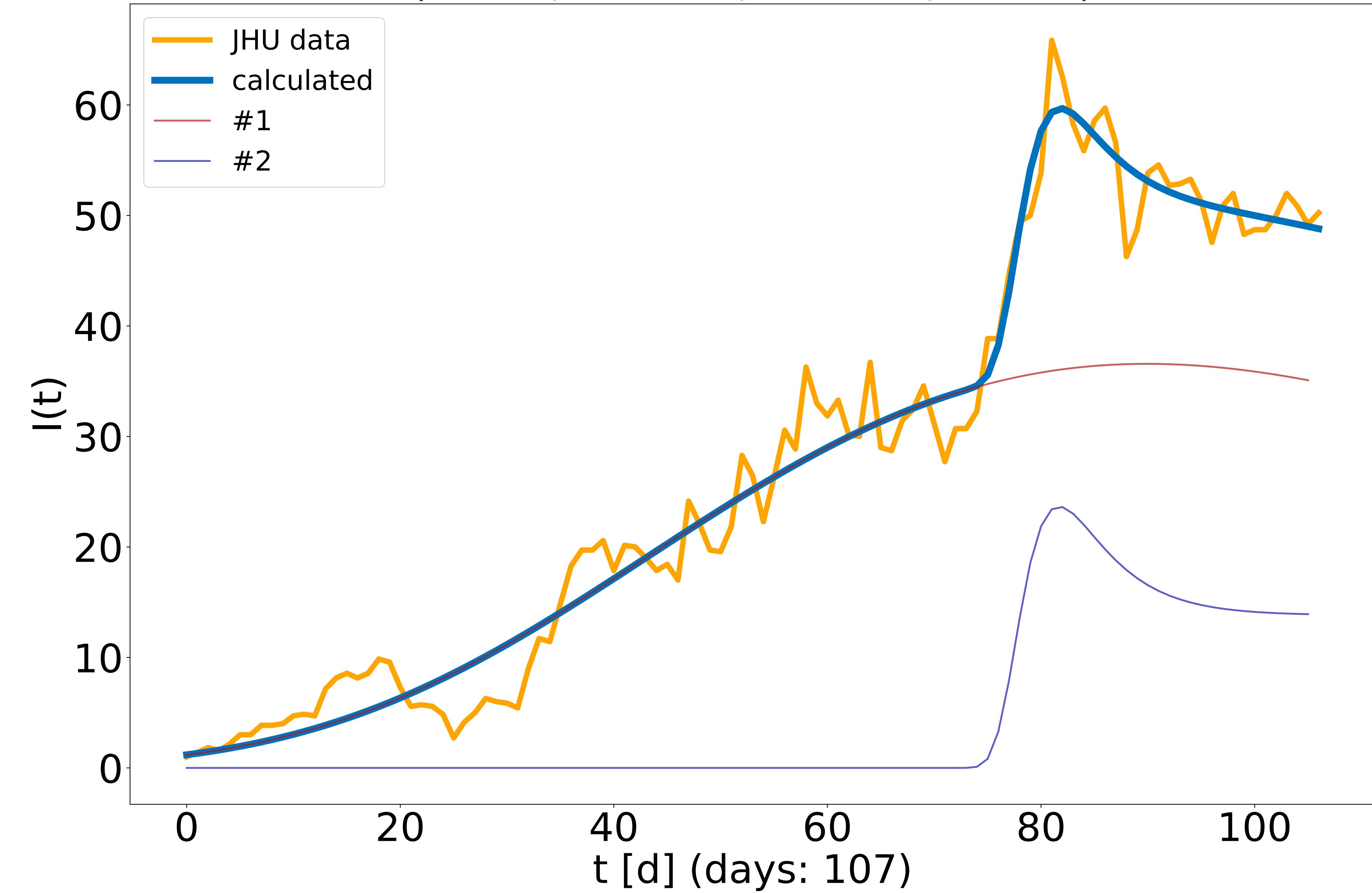
(i: 25.7, a: 2.0, b: 1.4, t: 77.3)



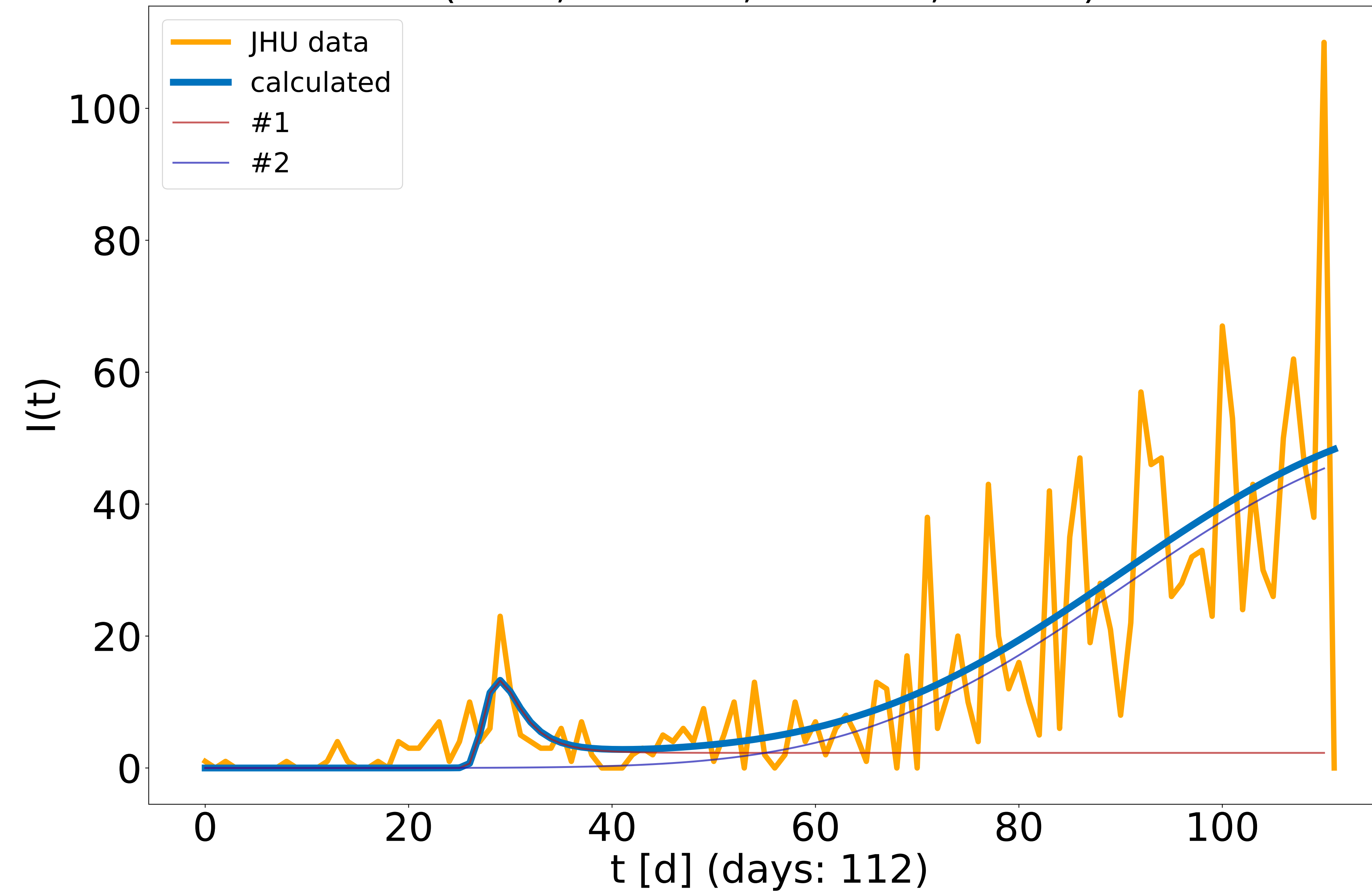
Guilford, North Carolina, US, Guilford ($R^2 = 0.974$)

(i: 1.8, a: 0.095, b: 0.012, t: 4.2)

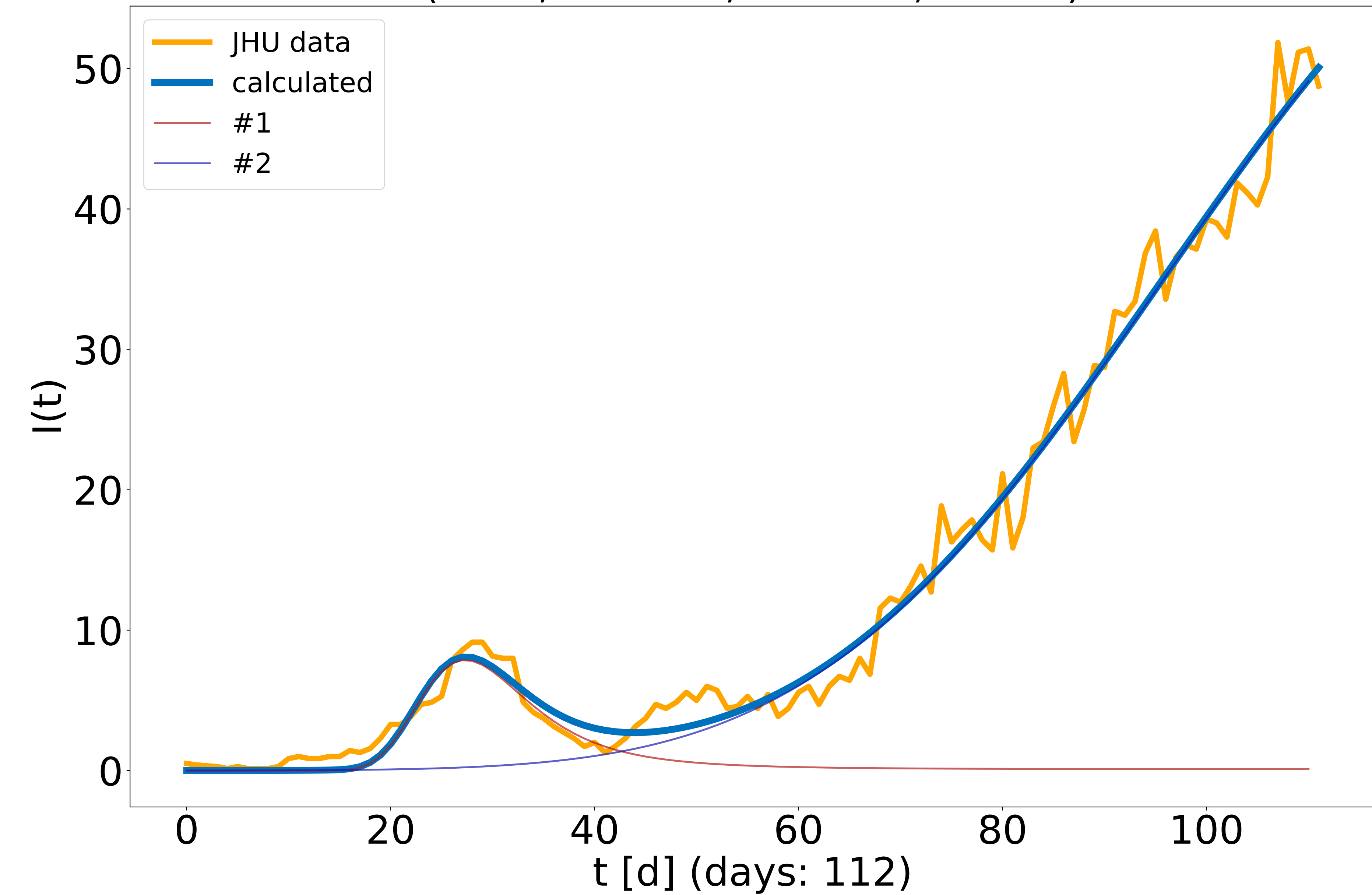
(i: 13.8, a: 0.402, b: 0.275, t: 78.0)



Johnston, North Carolina, US, Johnston ($R^2 = 0.618$)
(i: 2.3, a: 2.0, b: 0.419, t: 26.5)
(i: 0.1, a: 0.182, b: 0.011, t: 33.3)



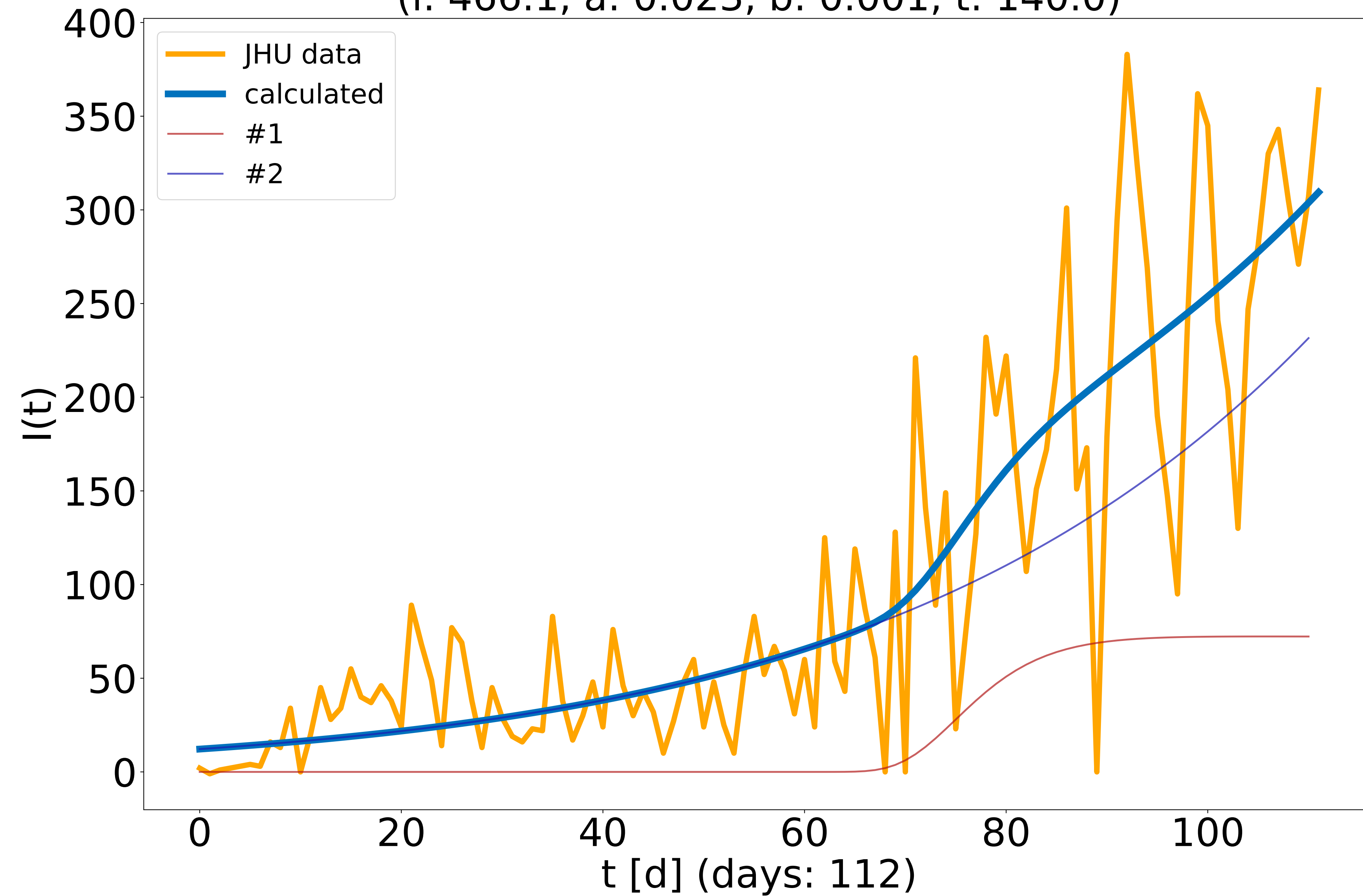
Johnston, North Carolina, US, Johnston ($R^2 = 0.986$)
(i: 0.1, a: 1.068, b: 0.09, t: 16.2)
(i: 0.1, a: 0.145, b: 0.008, t: 21.8)



Mecklenburg, North Carolina, US, Mecklenburg ($R^2 = 0.758$)

(i: 72.1, a: 0.001, b: 0.153, t: 99.0)

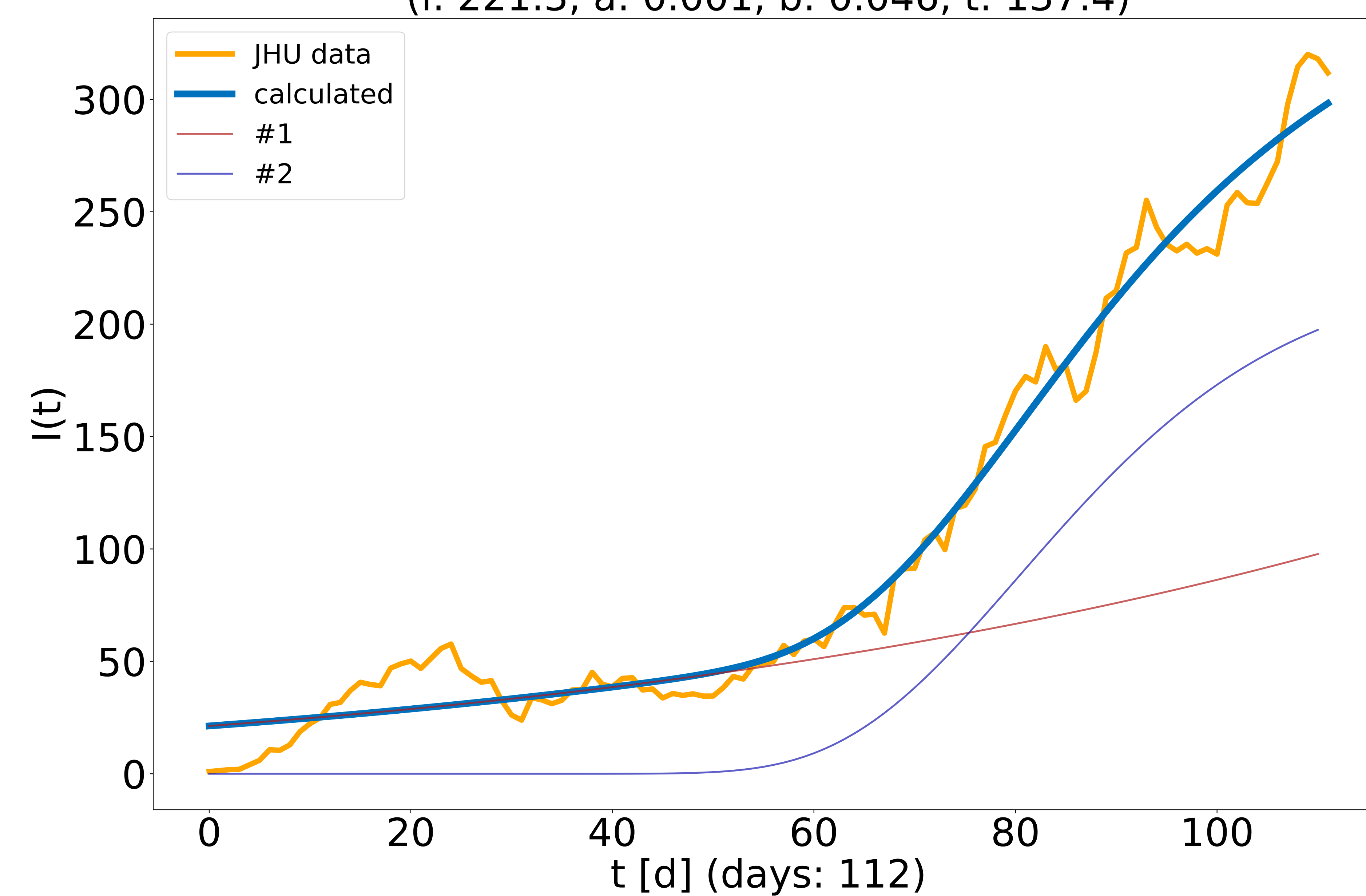
(i: 466.1, a: 0.023, b: 0.001, t: 140.0)



Mecklenburg, North Carolina, US, Mecklenburg ($R^2 = 0.98$)

(i: 26.1, a: 0.015, b: 0.001, t: 13.4)

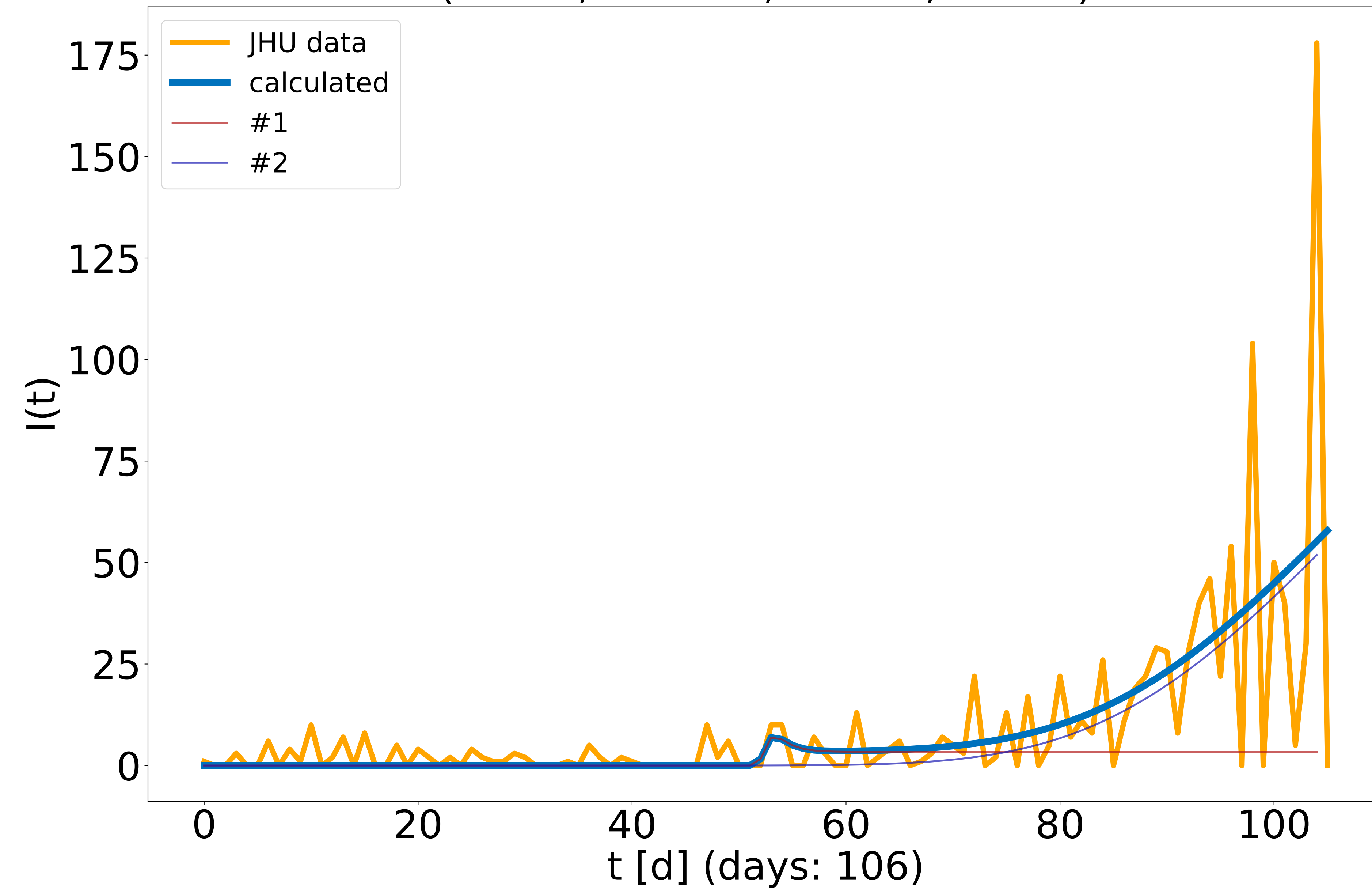
(i: 221.3, a: 0.001, b: 0.046, t: 137.4)



New Hanover, North Carolina, US, New Hanover ($R^2 = 0.391$)

(i: 3.4, a: 2.0, b: 0.971, t: 52.3)

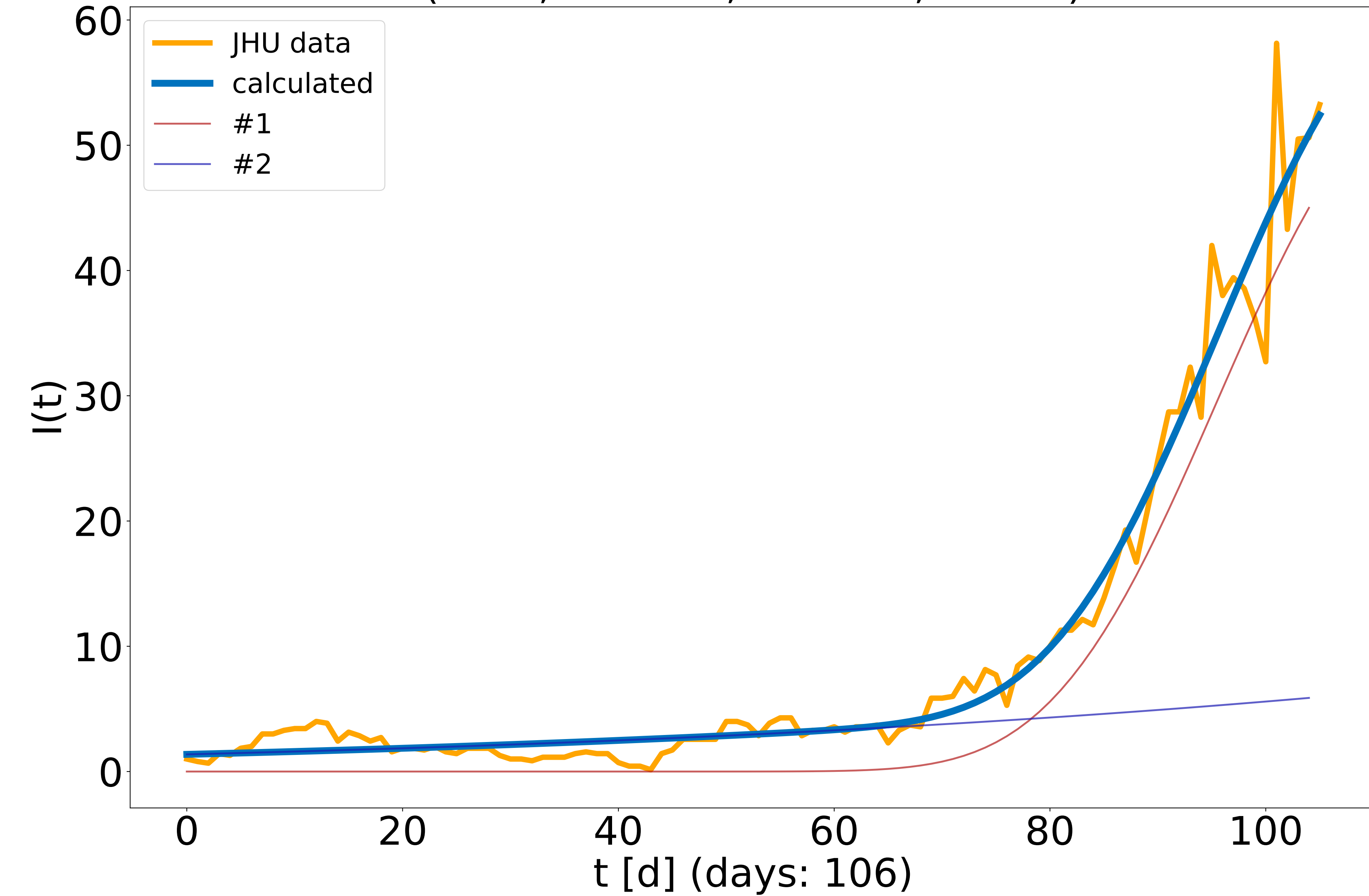
(i: 36.7, a: 0.065, b: 0.02, t: 98.0)



New Hanover, North Carolina, US, New Hanover ($R^2 = 0.971$)

(i: 0.1, a: 0.319, b: 0.019, t: 62.6)

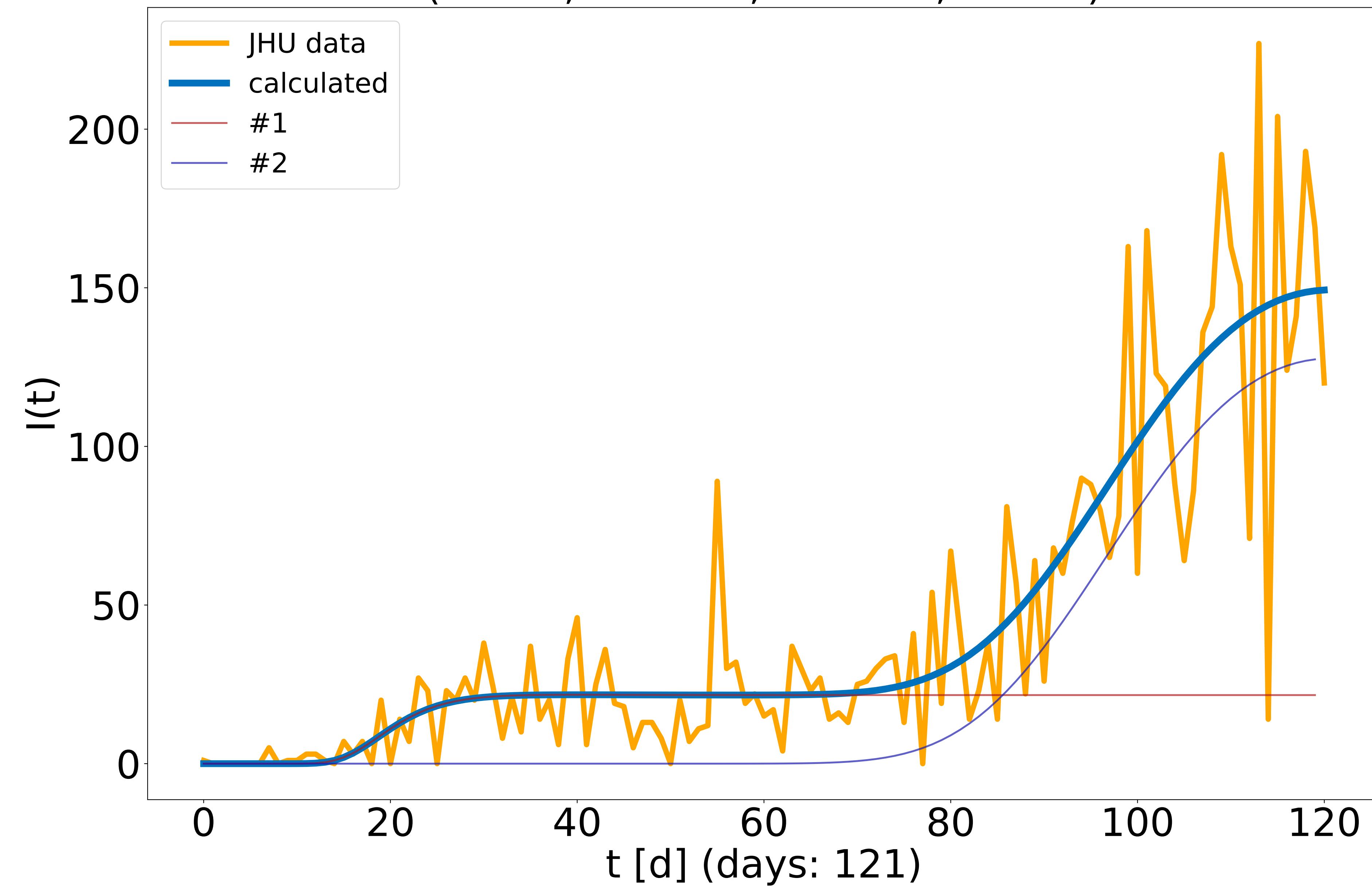
(i: 5.2, a: 0.013, b: 0.001, t: 94.9)



Wake, North Carolina, US, Wake ($R^2 = 0.765$)

(i: 21.6, a: 0.002, b: 0.194, t: 34.9)

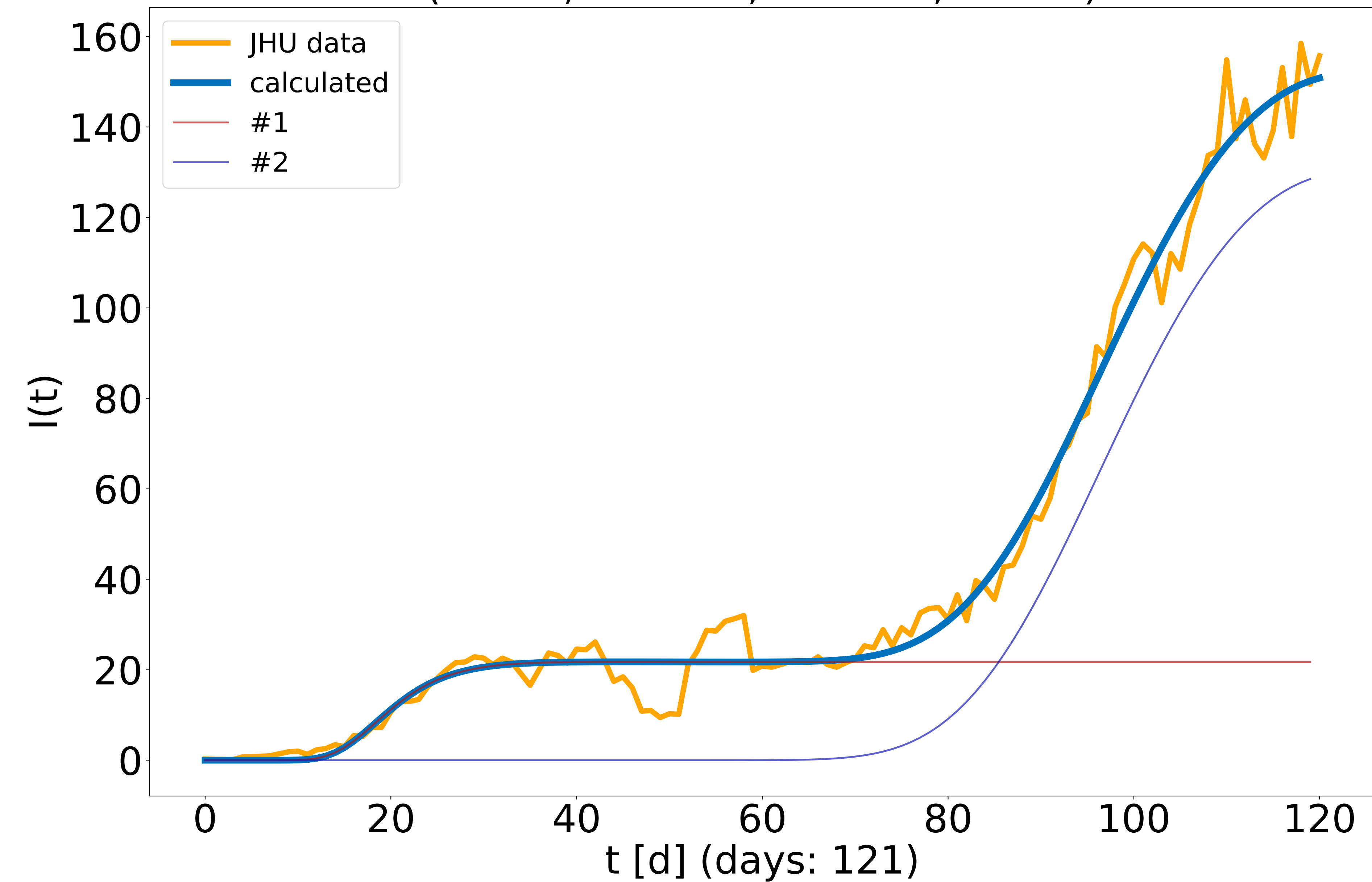
(i: 17.9, a: 0.146, b: 0.027, t: 84.2)



Wake, North Carolina, US, Wake ($R^2 = 0.987$)

(i: 21.7, a: 0.001, b: 0.18, t: 39.6)

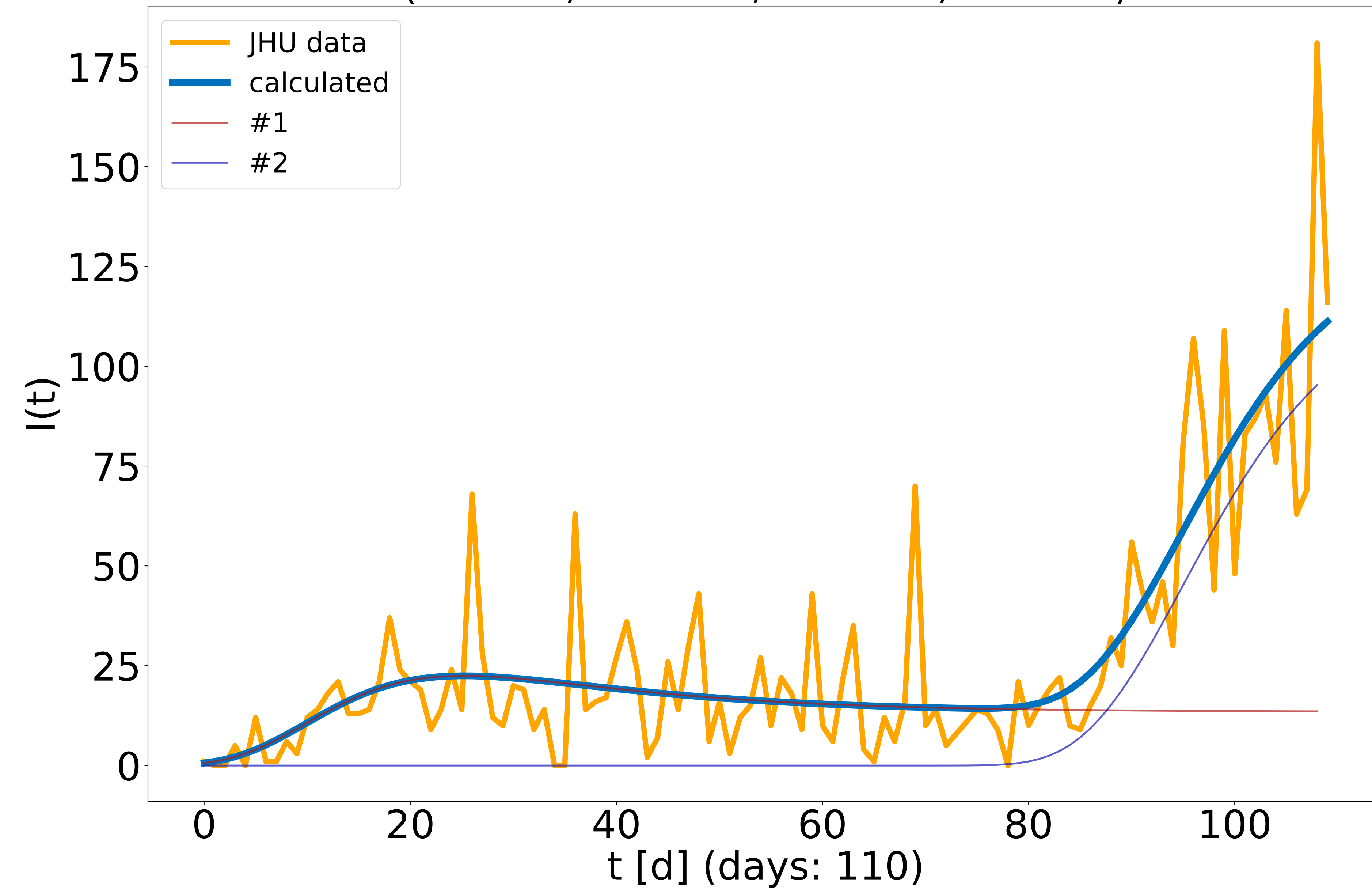
(i: 45.6, a: 0.091, b: 0.032, t: 92.1)



Oklahoma, Oklahoma, US, Oklahoma ($R^2 = 0.715$)

(i: 13.5, a: 0.104, b: 0.075, t: 11.9)

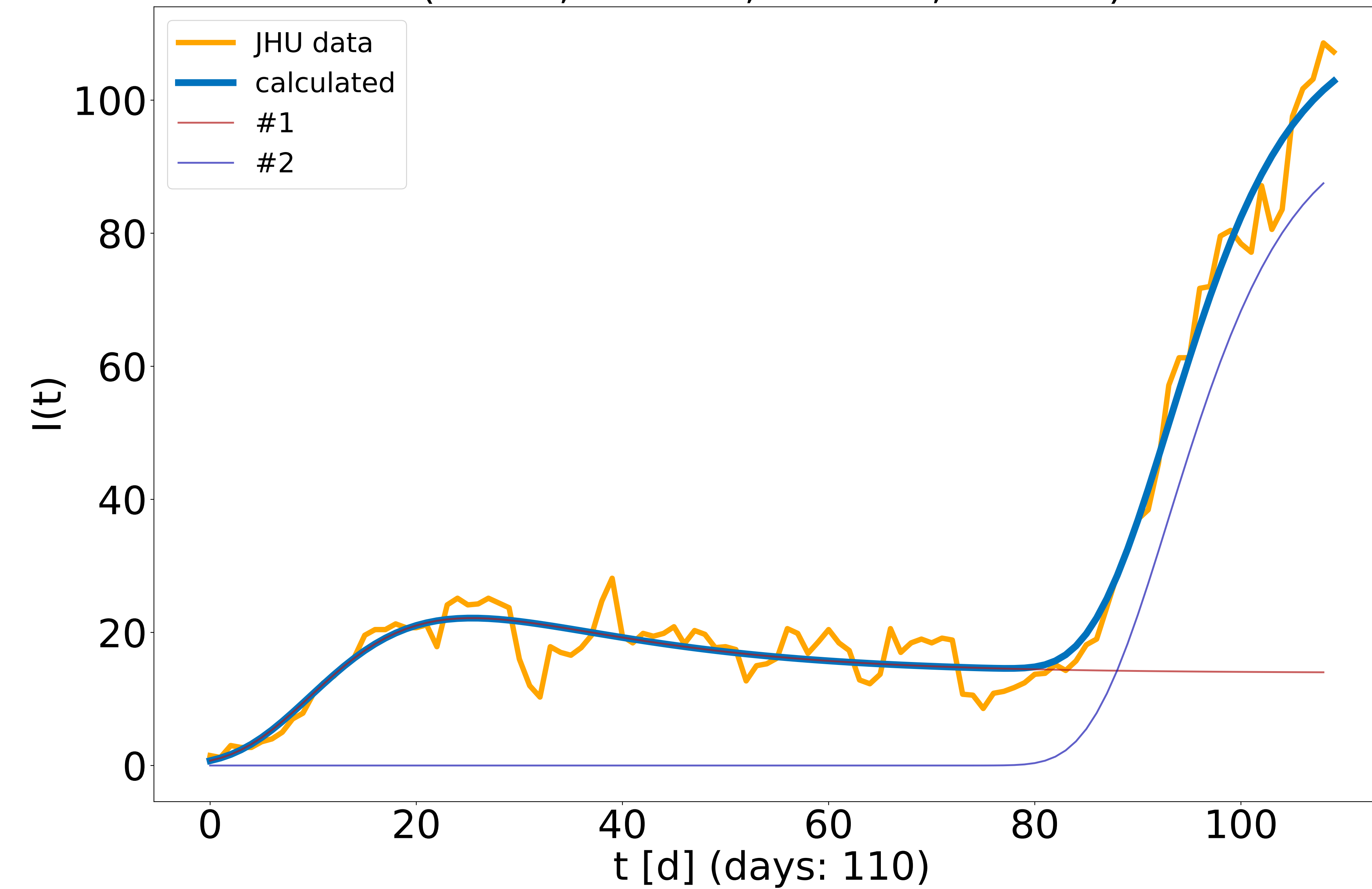
(i: 117.3, a: 0.001, b: 0.085, t: 133.0)



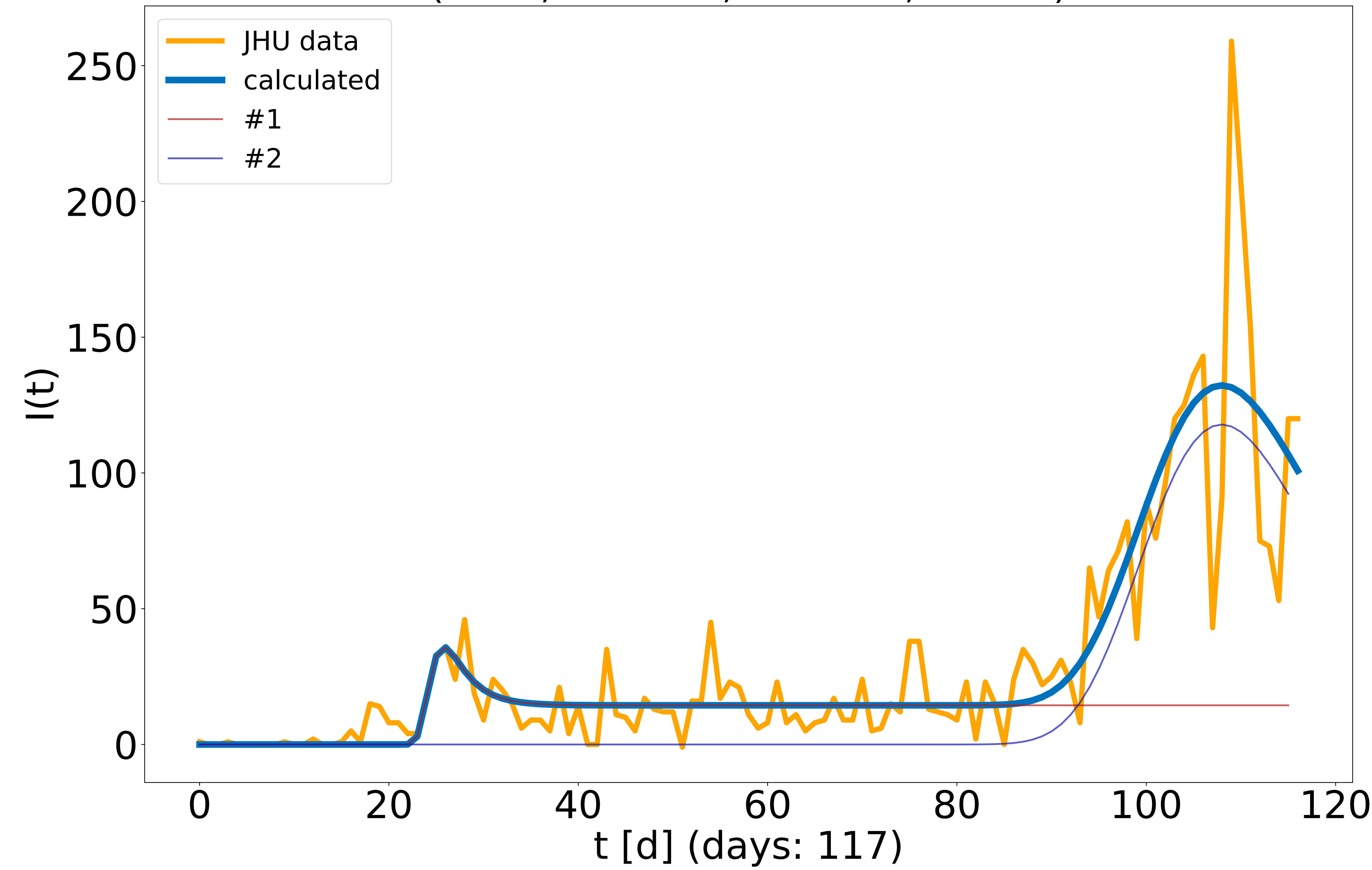
Oklahoma, Oklahoma, US, Oklahoma ($R^2 = 0.98$)

(i: 13.9, a: 0.096, b: 0.076, t: 12.2)

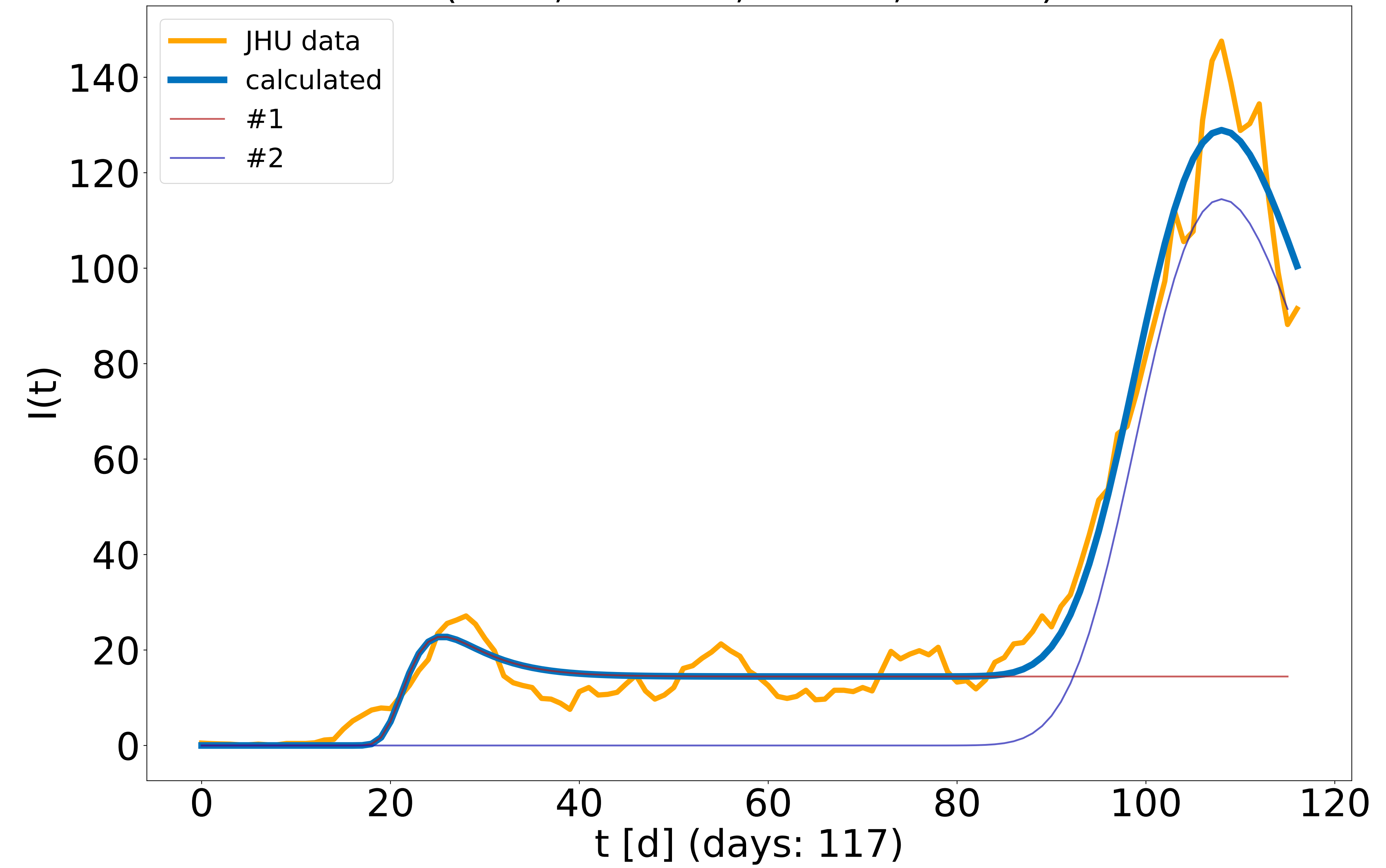
(i: 96.3, a: 0.001, b: 0.109, t: 124.2)



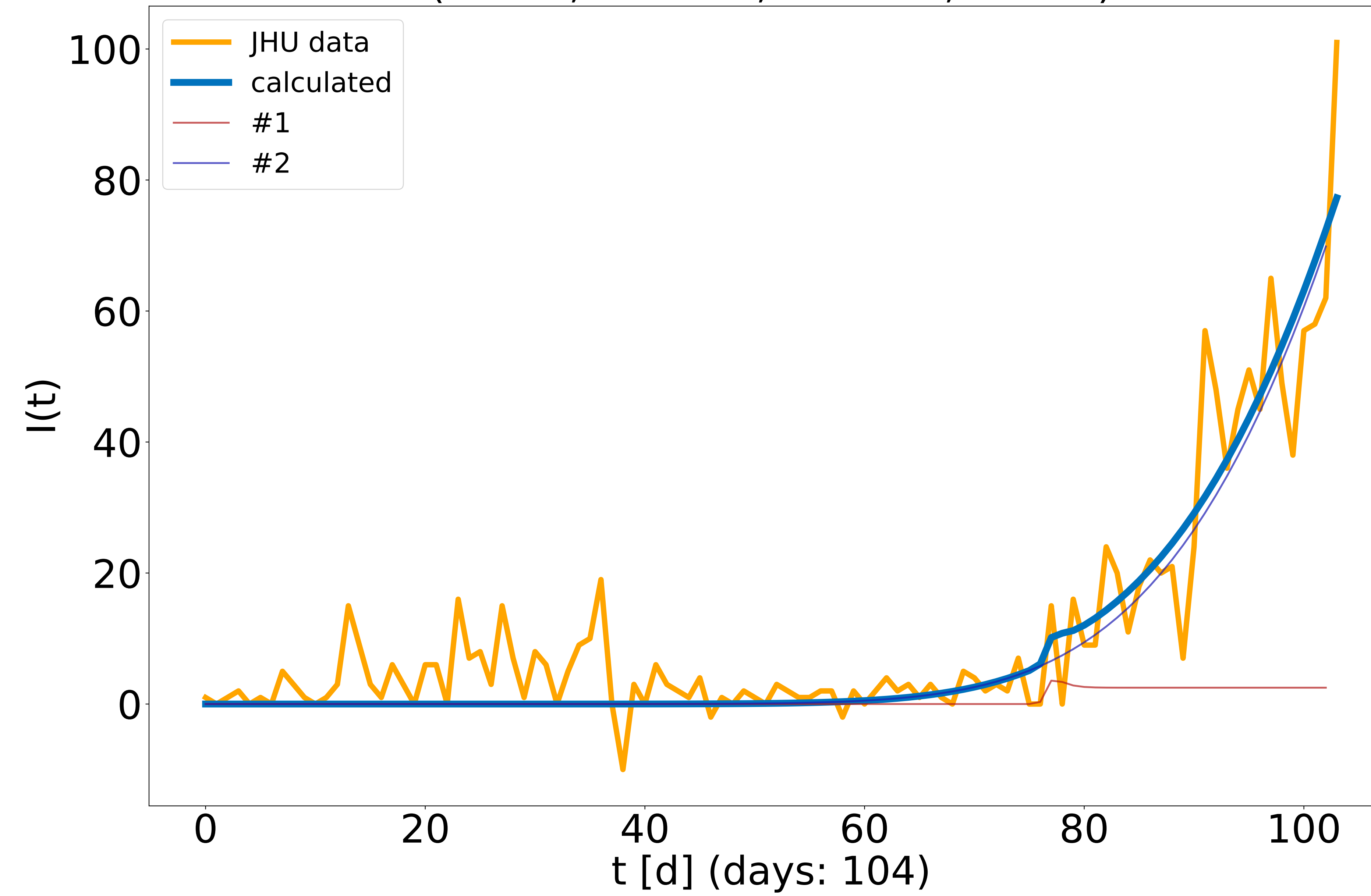
Tulsa, Oklahoma, US, Tulsa ($R^2 = 0.764$)
(i: 14.4, a: 1.261, b: 0.509, t: 23.8)
(i: 0.1, a: 0.789, b: 0.041, t: 83.6)



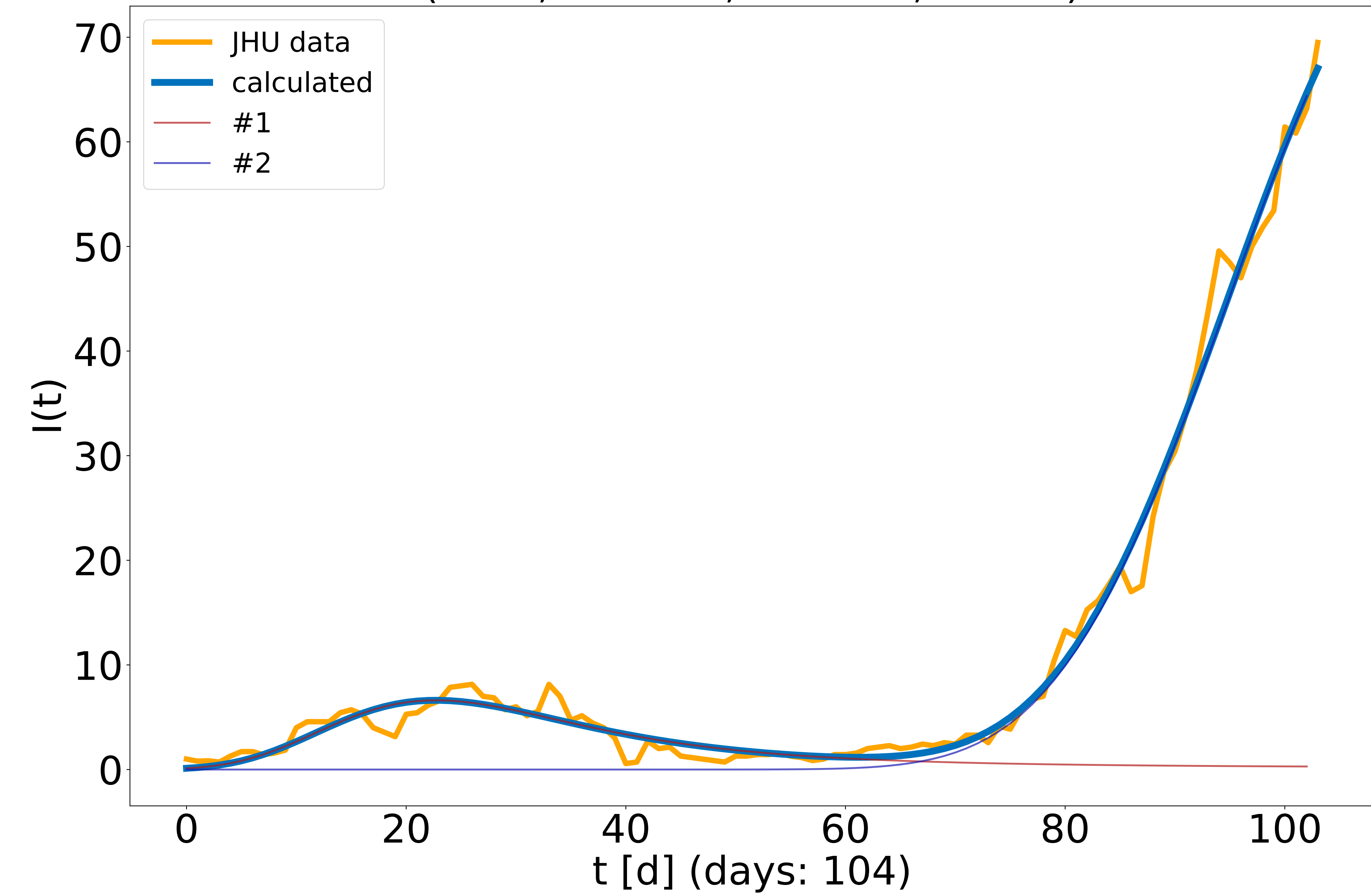
Tulsa, Oklahoma, US, Tulsa ($R^2 = 0.978$)
(i: 14.5, a: 0.343, b: 0.276, t: 21.9)
(i: 0.1, a: 0.757, b: 0.04, t: 82.7)



Berkeley, South Carolina, US, Berkeley ($R^2 = 0.85$)
(i: 2.5, a: 1.544, b: 1.4, t: 76.6)
(i: 34.4, a: 0.086, b: 0.012, t: 92.9)



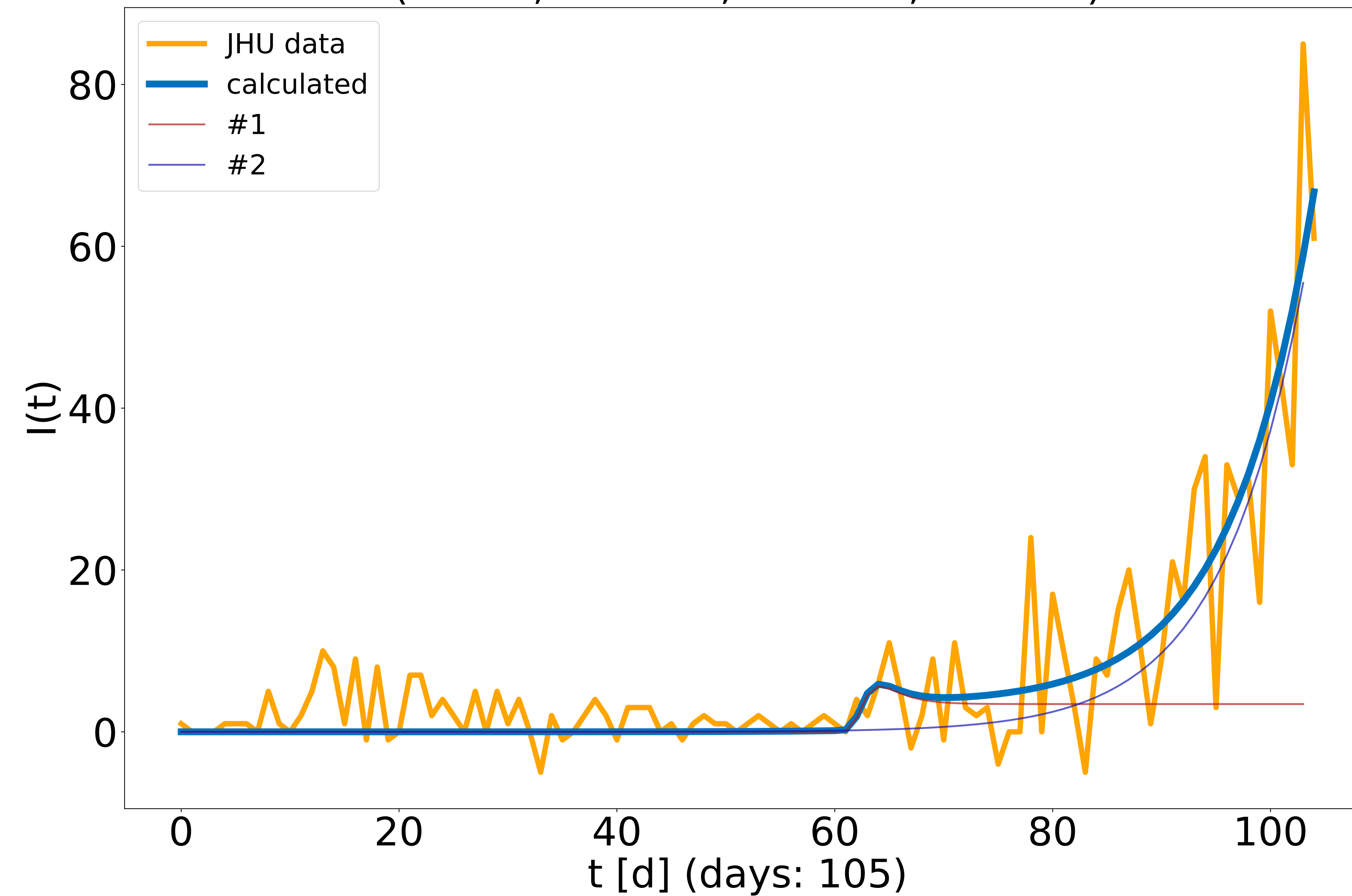
Berkeley, South Carolina, US, Berkeley ($R^2 = 0.99$)
(i: 0.2, a: 0.445, b: 0.046, t: 1.0)
(i: 0.1, a: 0.325, b: 0.018, t: 59.7)



Dorchester, South Carolina, US, Dorchester ($R^2 = 0.78$)

(i: 3.4, a: 0.866, b: 0.642, t: 62.6)

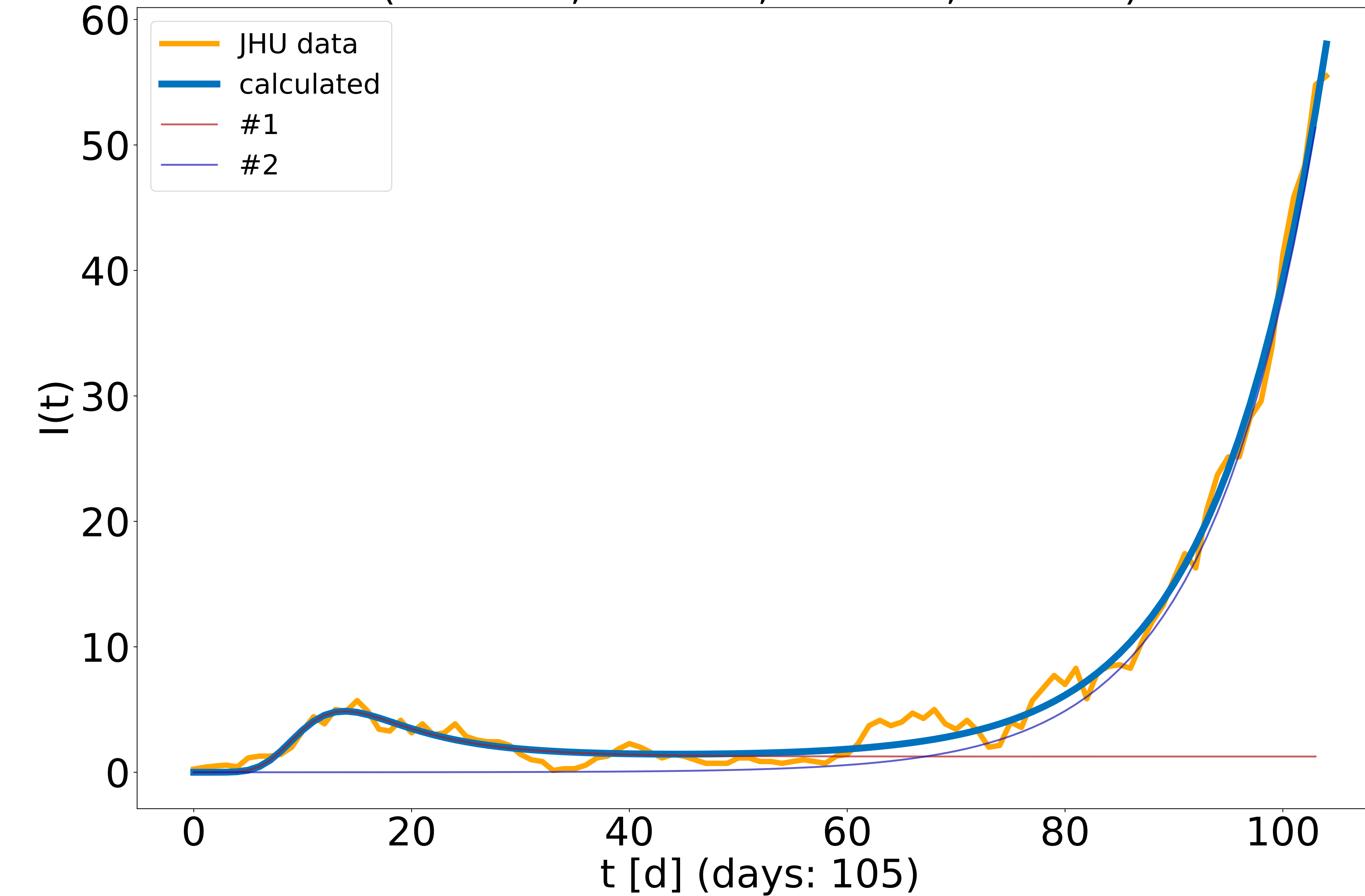
(i: 42.0, a: 0.133, b: 0.001, t: 100.9)



Dorchester, South Carolina, US, Dorchester ($R^2 = 0.991$)

(i: 1.3, a: 0.574, b: 0.156, t: 7.4)

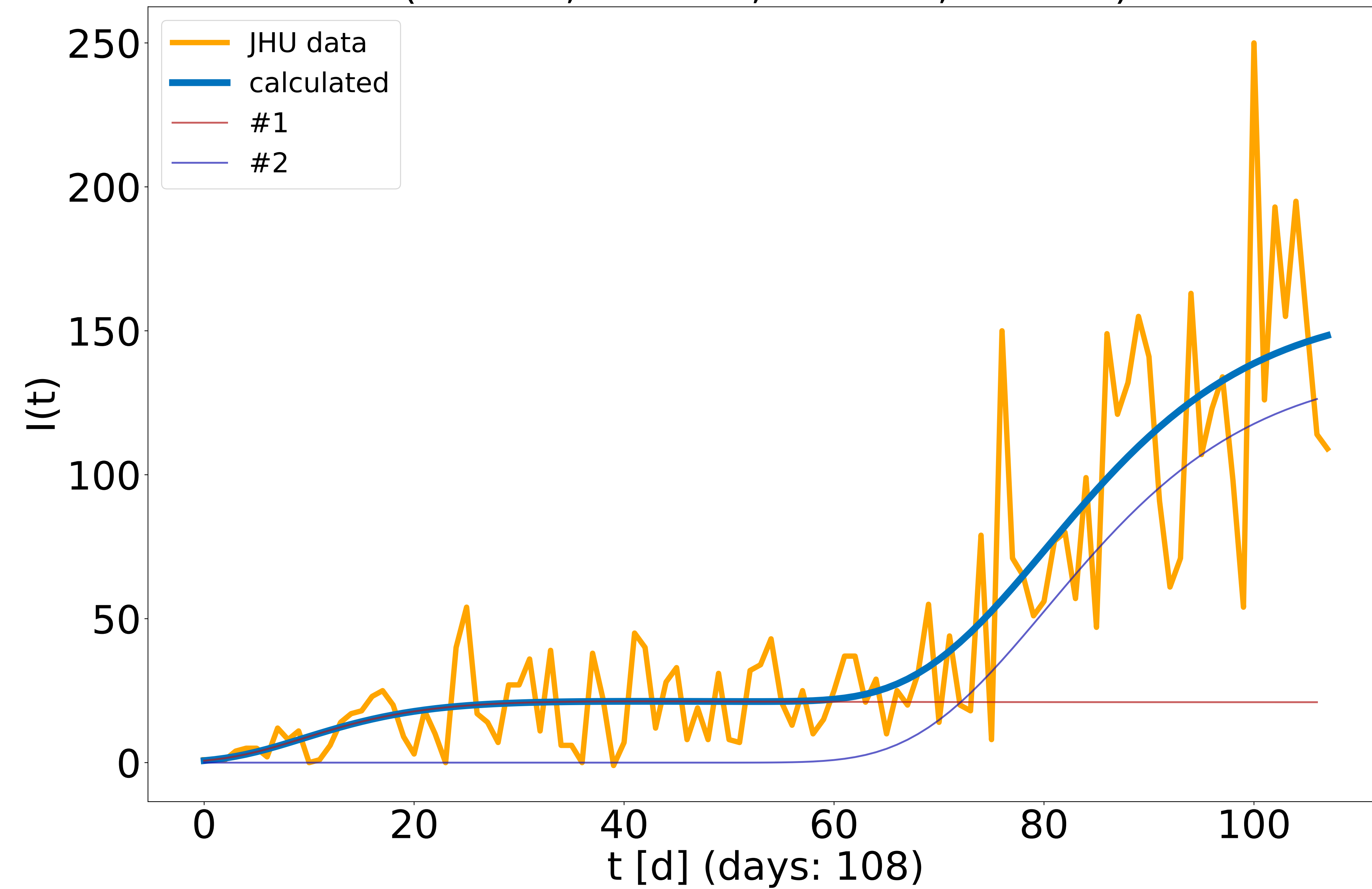
(i: 1823.5, a: 0.093, b: 0.001, t: 140.0)



Greenville, South Carolina, US, Greenville ($R^2 = 0.759$)

(i: 21.0, a: 0.004, b: 0.103, t: 32.2)

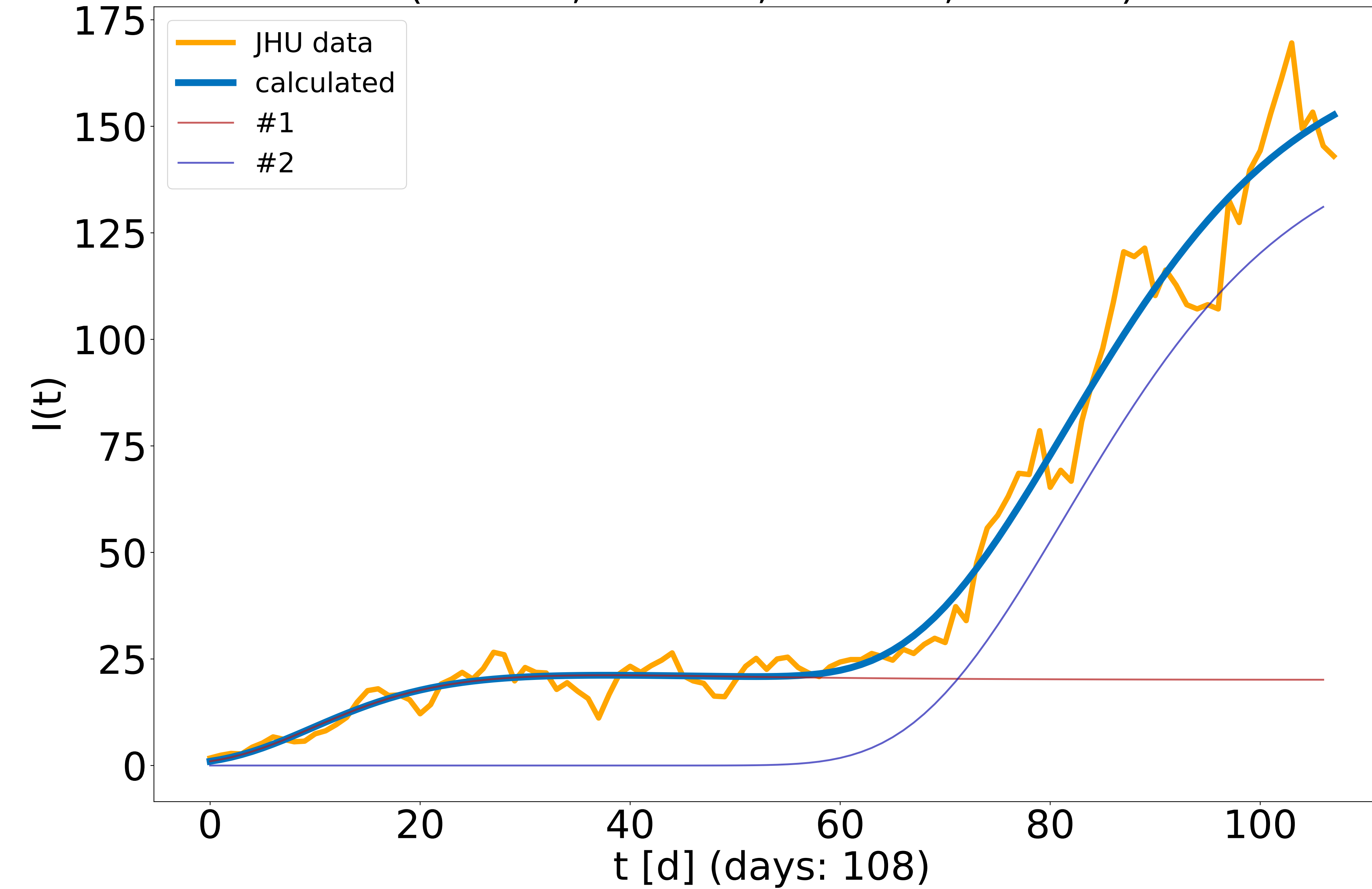
(i: 136.6, a: 0.001, b: 0.065, t: 126.5)



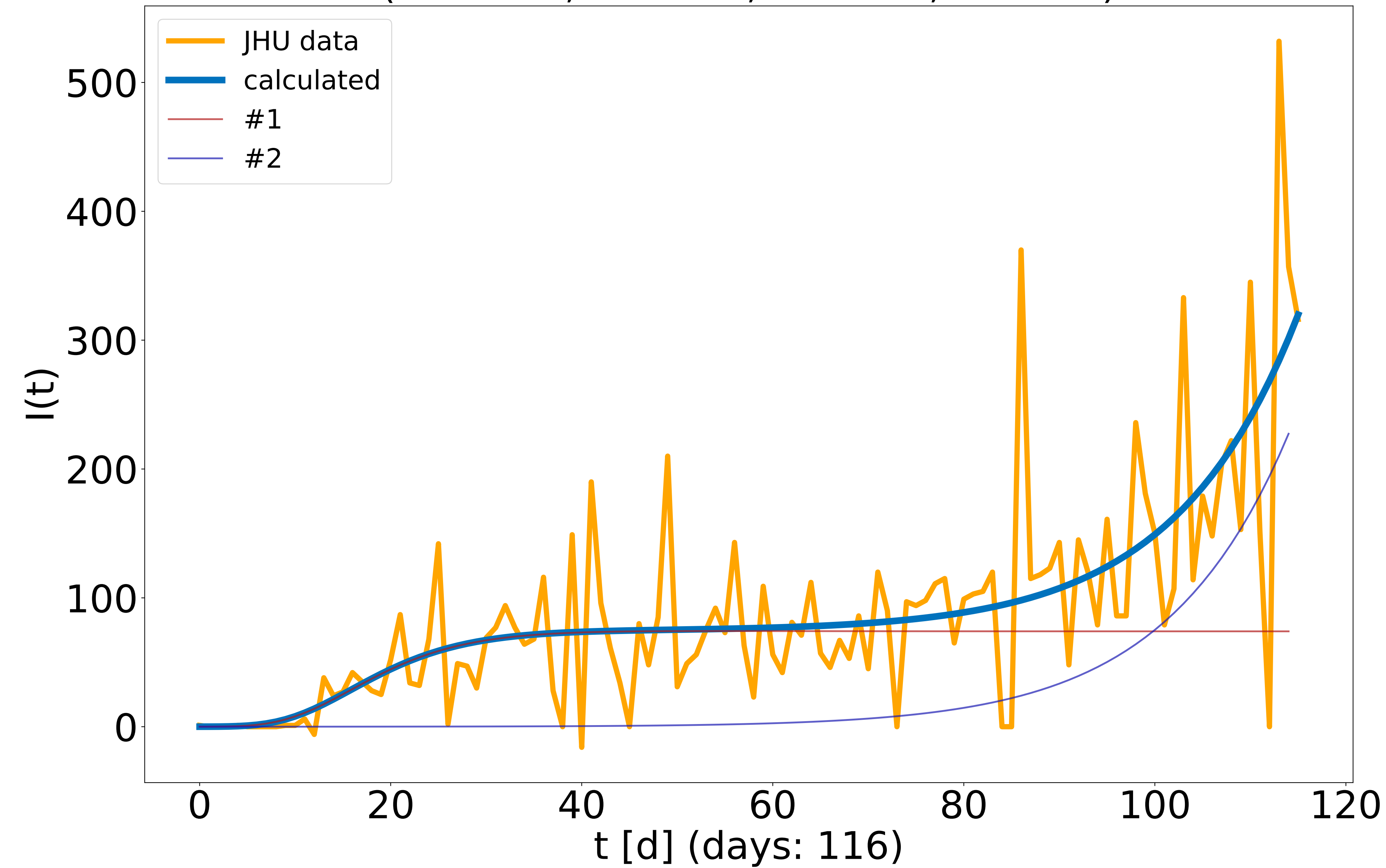
Greenville, South Carolina, US, Greenville ($R^2 = 0.979$)

(i: 20.1, a: 0.012, b: 0.086, t: 26.2)

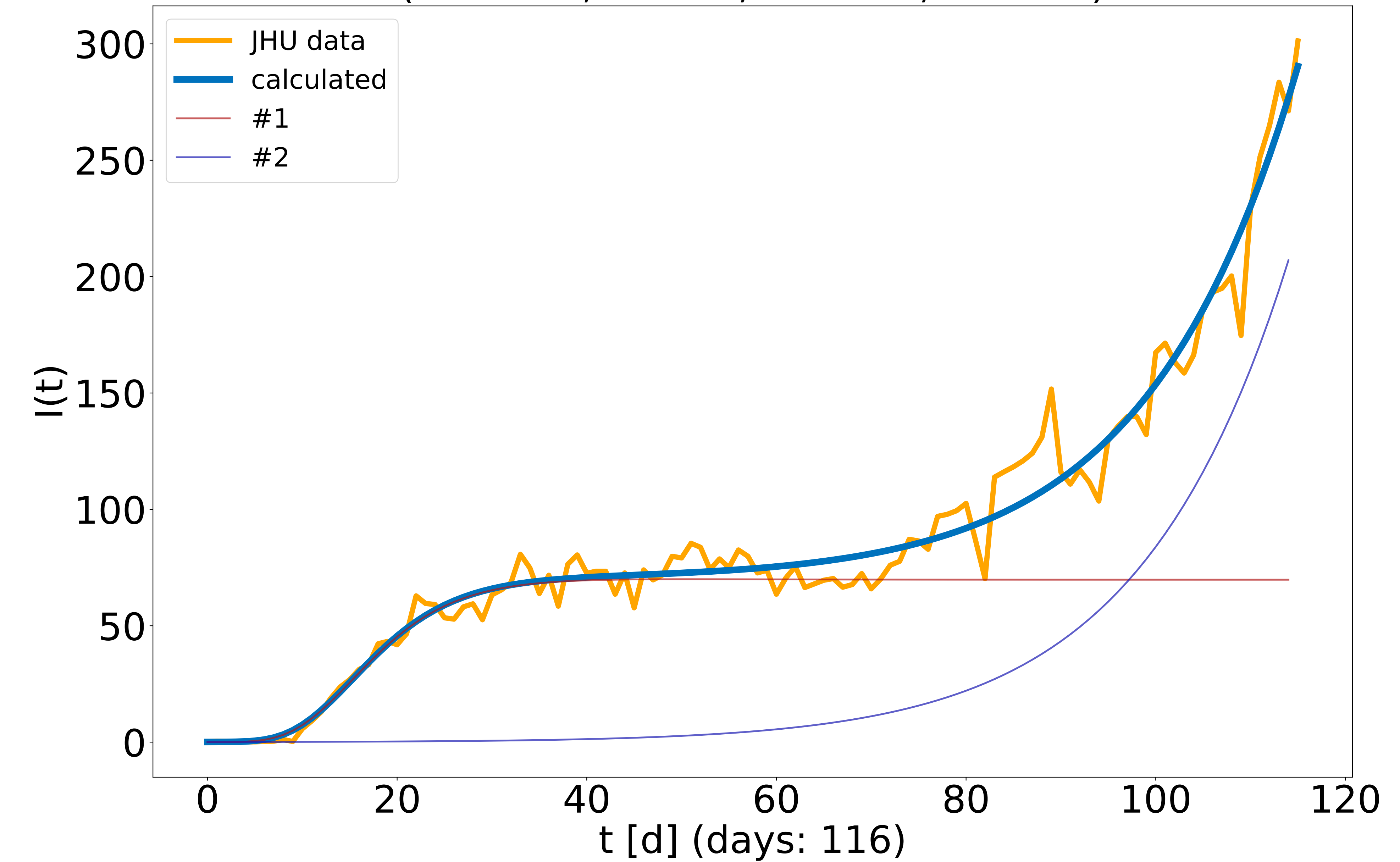
(i: 147.8, a: 0.001, b: 0.057, t: 132.6)



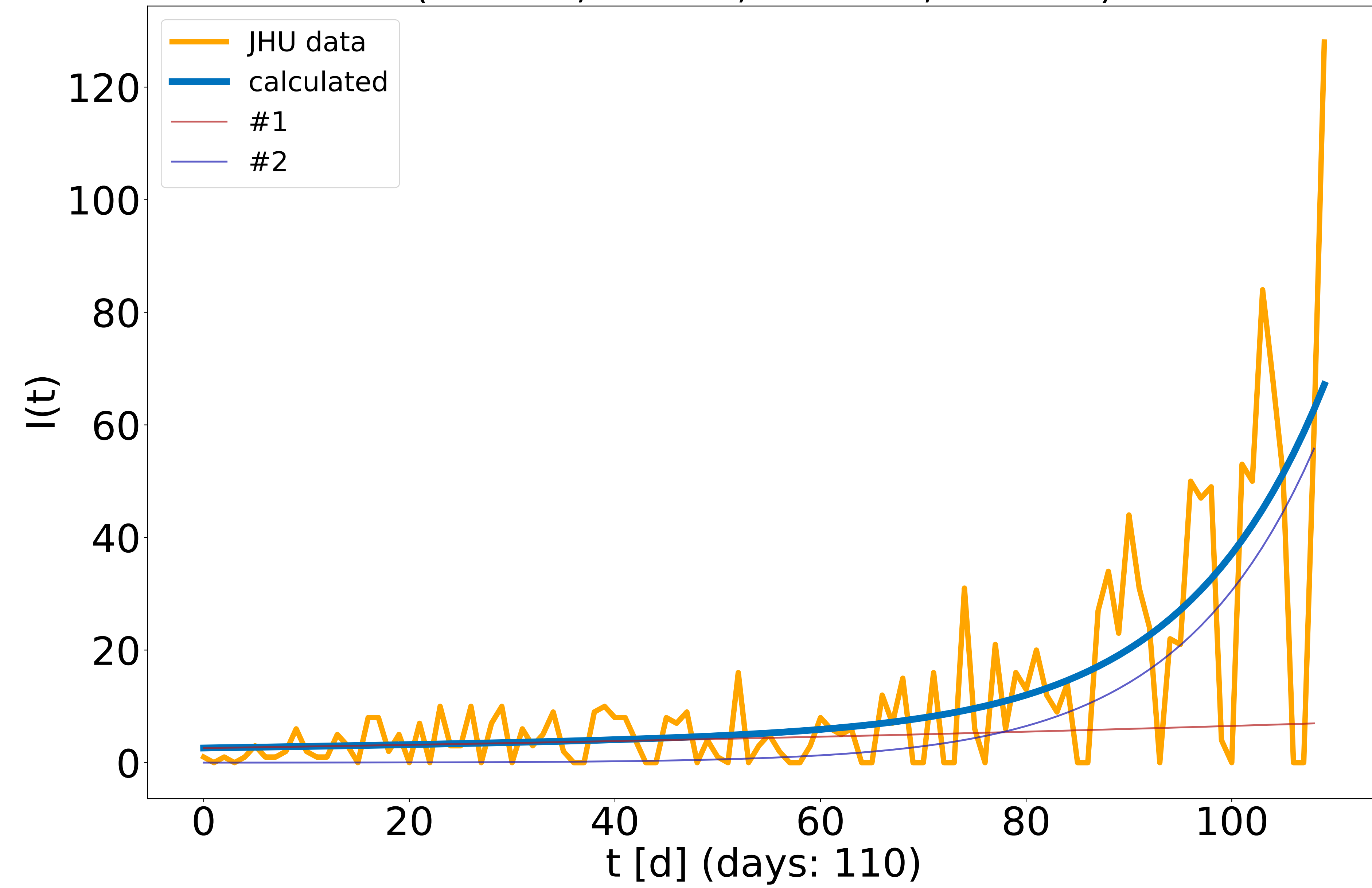
Shelby, Tennessee, US, Shelby ($R^2 = 0.521$)
(i: 74.0, a: 0.001, b: 0.115, t: 45.9)
(i: 1641.4, a: 0.074, b: 0.001, t: 140.0)



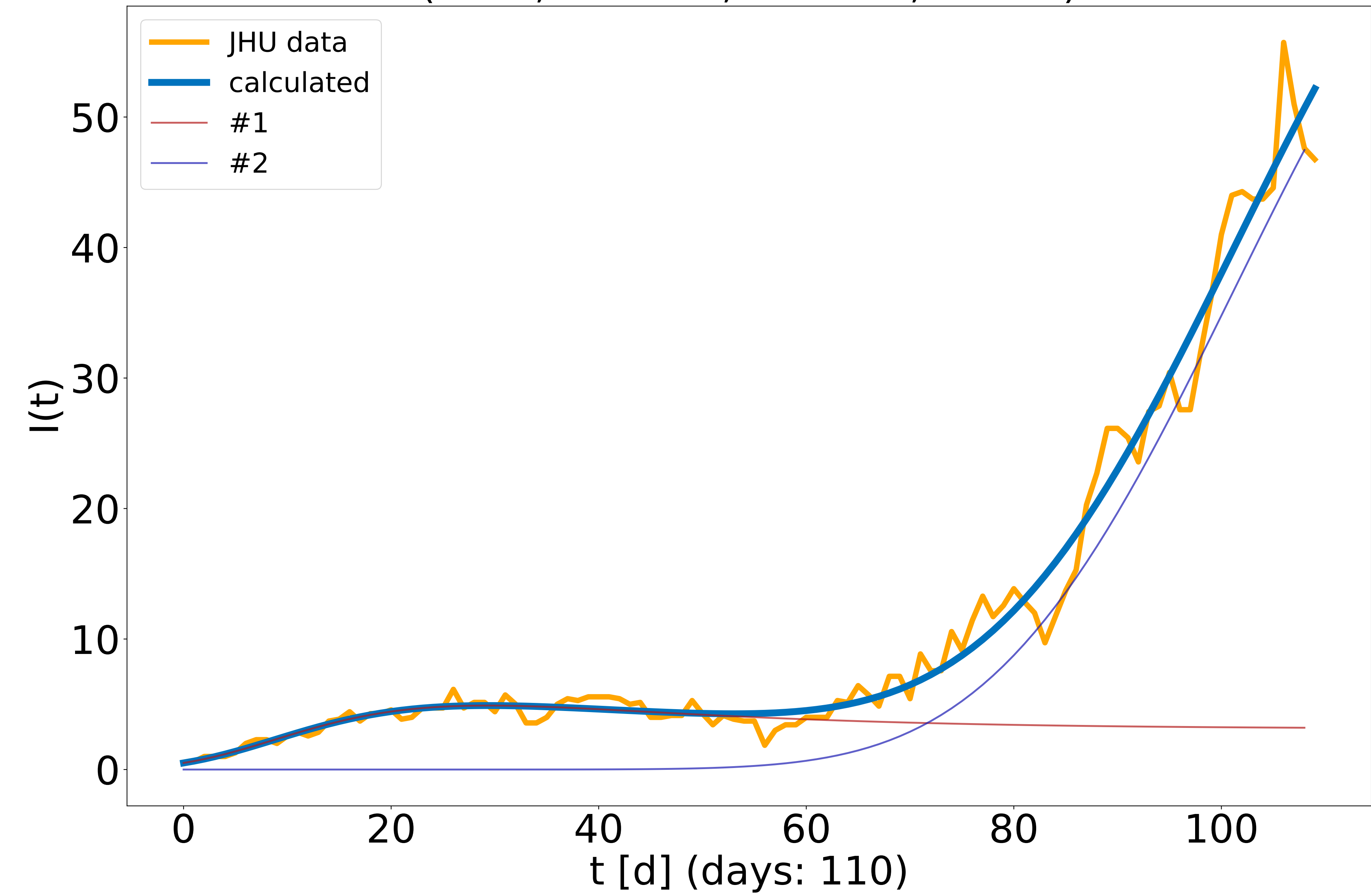
Shelby, Tennessee, US, Shelby ($R^2 = 0.972$)
(i: 69.8, a: 0.001, b: 0.129, t: 42.8)
(i: 1038.2, a: 0.06, b: 0.001, t: 140.0)



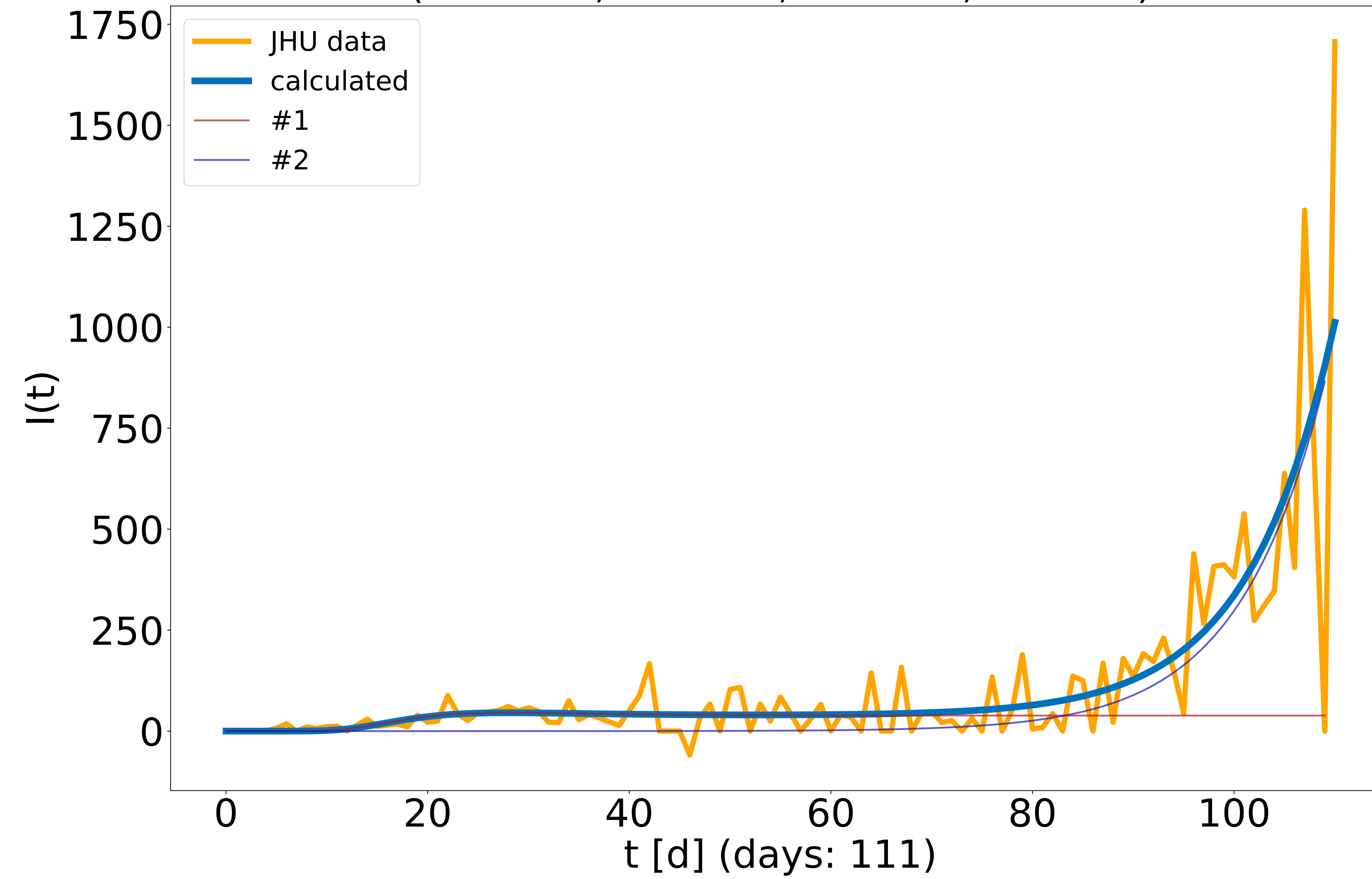
Bell, Texas, US, Bell ($R^2 = 0.534$)
(i: 7.4, a: 0.008, b: 0.001, t: 114.8)
(i: 565.1, a: 0.07, b: 0.001, t: 140.0)



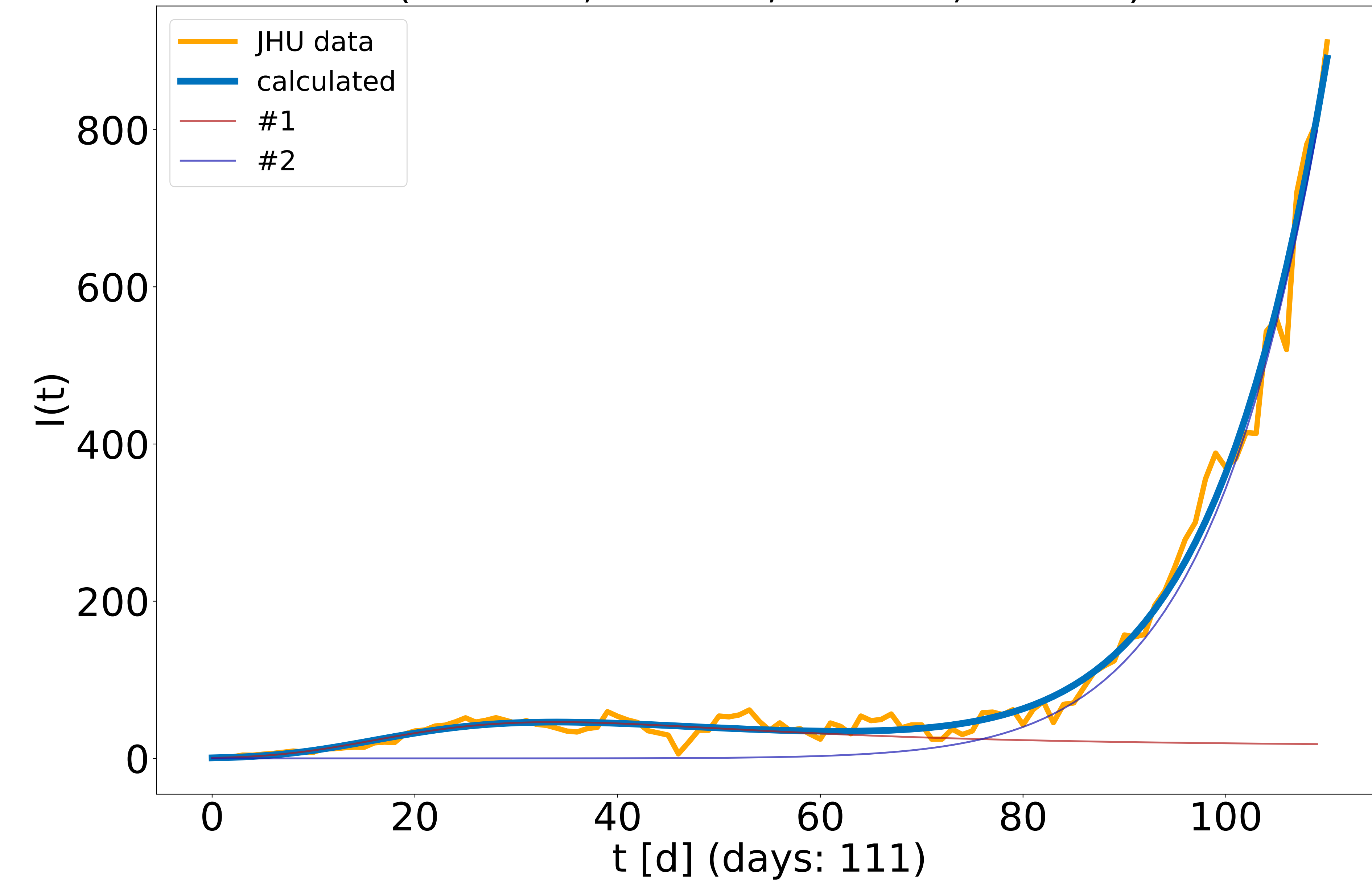
Bell, Texas, US, Bell ($R^2 = 0.981$)
(i: 3.1, a: 0.072, b: 0.059, t: 12.3)
(i: 0.1, a: 0.214, b: 0.012, t: 49.9)



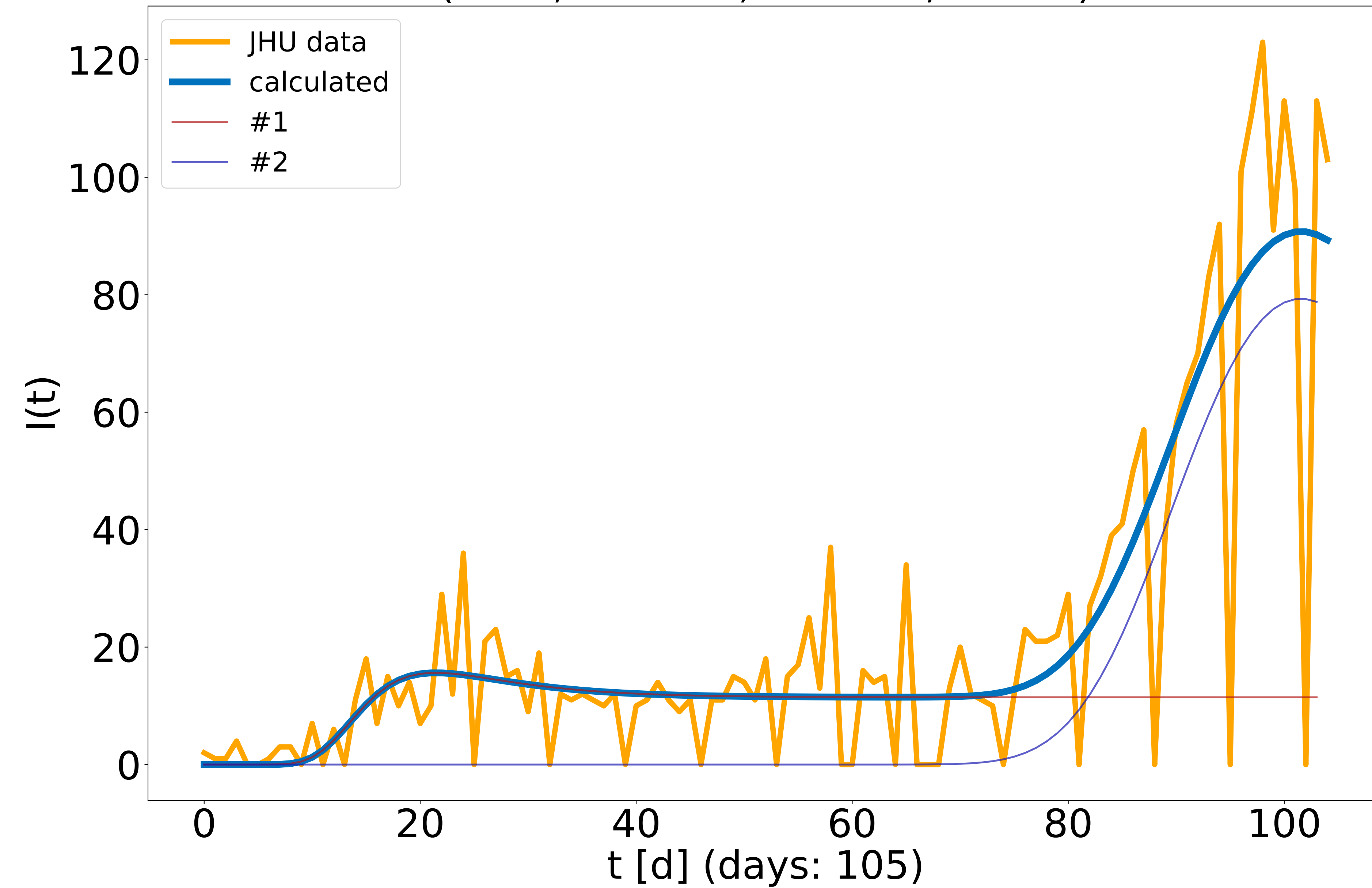
Bexar, Texas, US, Bexar ($R^2 = 0.652$)
(i: 38.4, a: 0.063, b: 0.14, t: 21.0)
(i: 2874.9, a: 0.115, b: 0.001, t: 119.3)



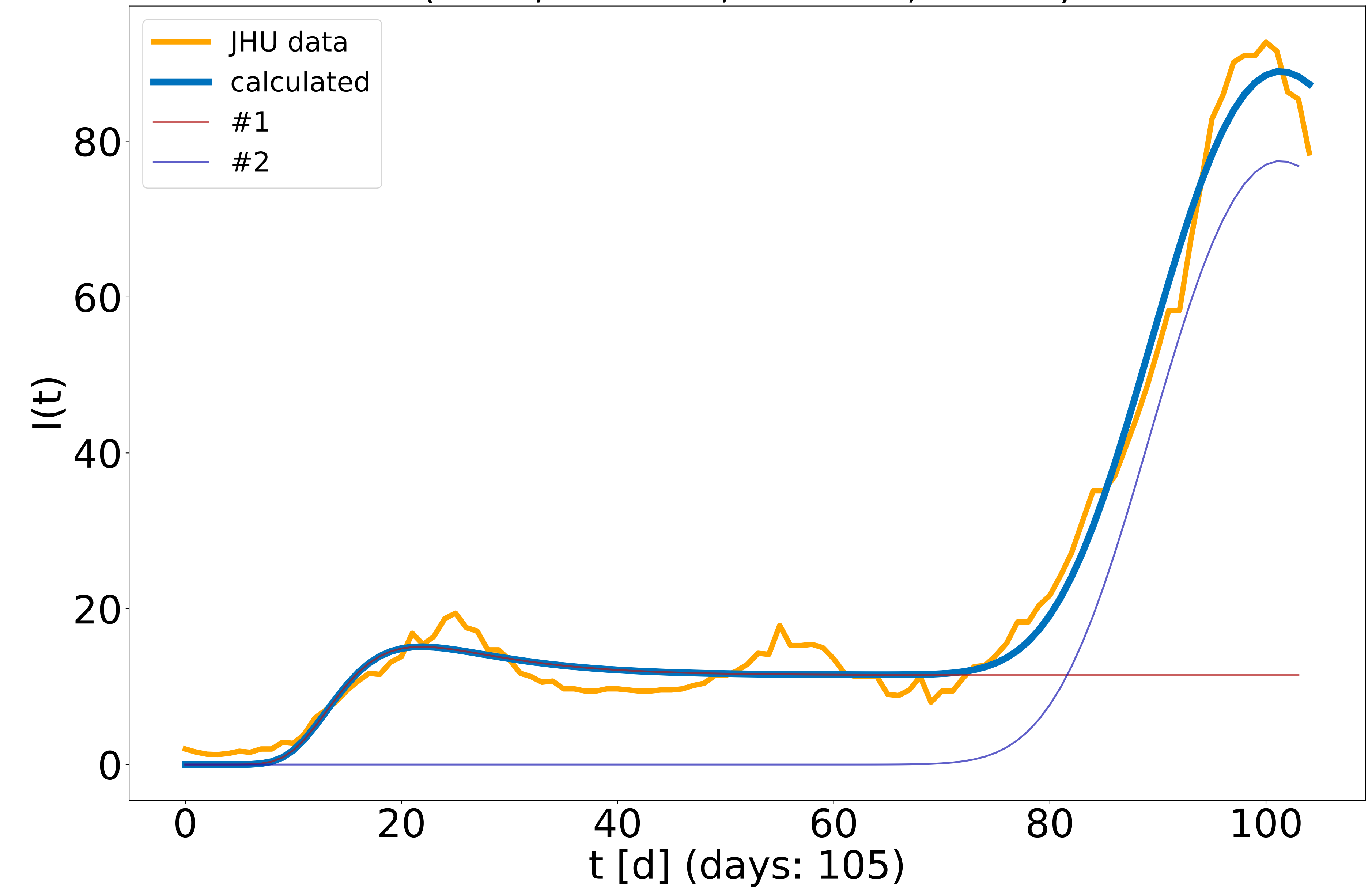
Bexar, Texas, US, Bexar ($R^2 = 0.989$)
(i: 15.8, a: 0.138, b: 0.048, t: 12.8)
(i: 3000.0, a: 0.076, b: 0.005, t: 125.0)



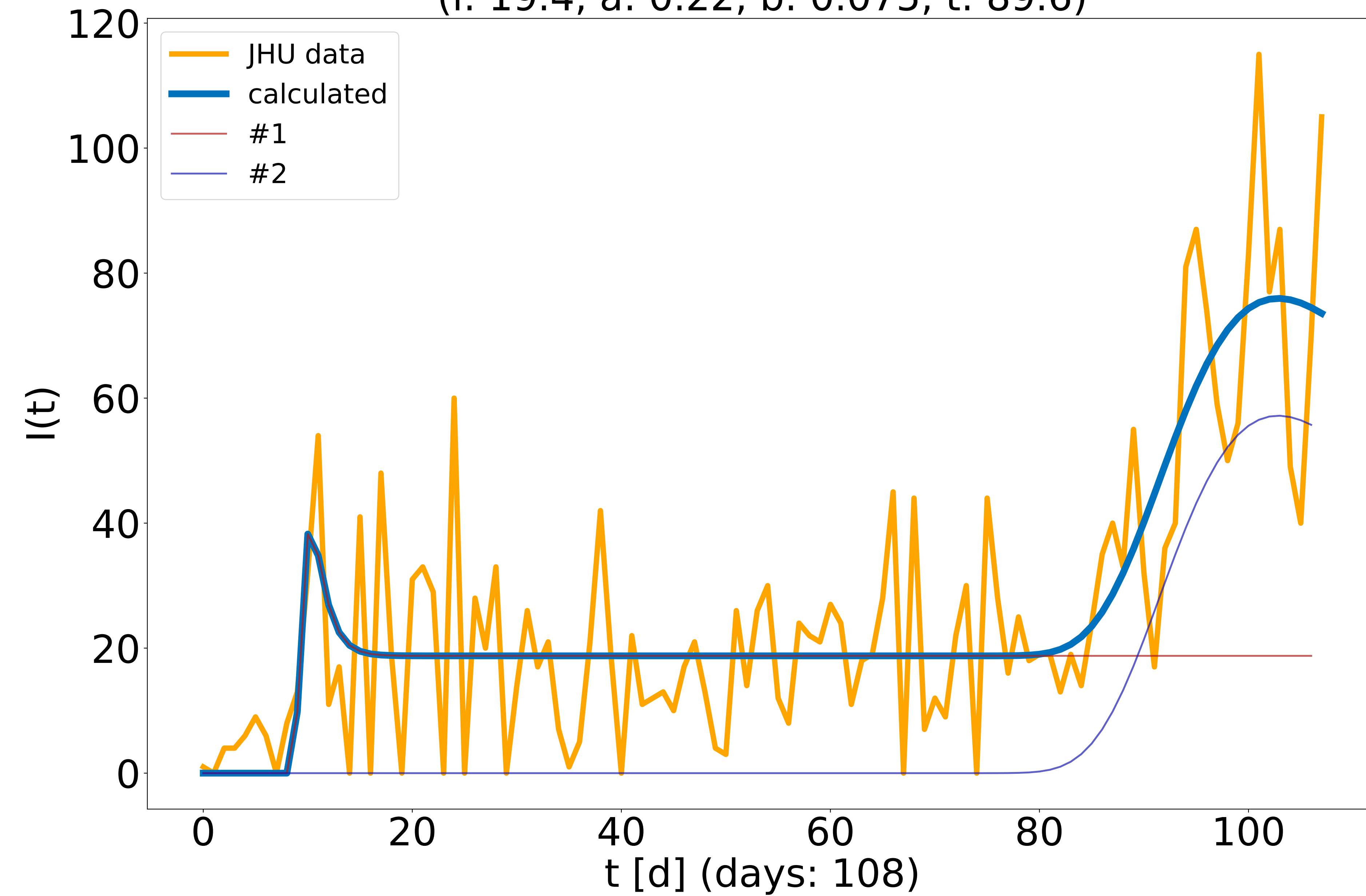
Cameron, Texas, US, Cameron ($R^2 = 0.715$)
(i: 11.5, a: 0.146, b: 0.173, t: 15.7)
(i: 0.1, a: 0.568, b: 0.031, t: 69.6)



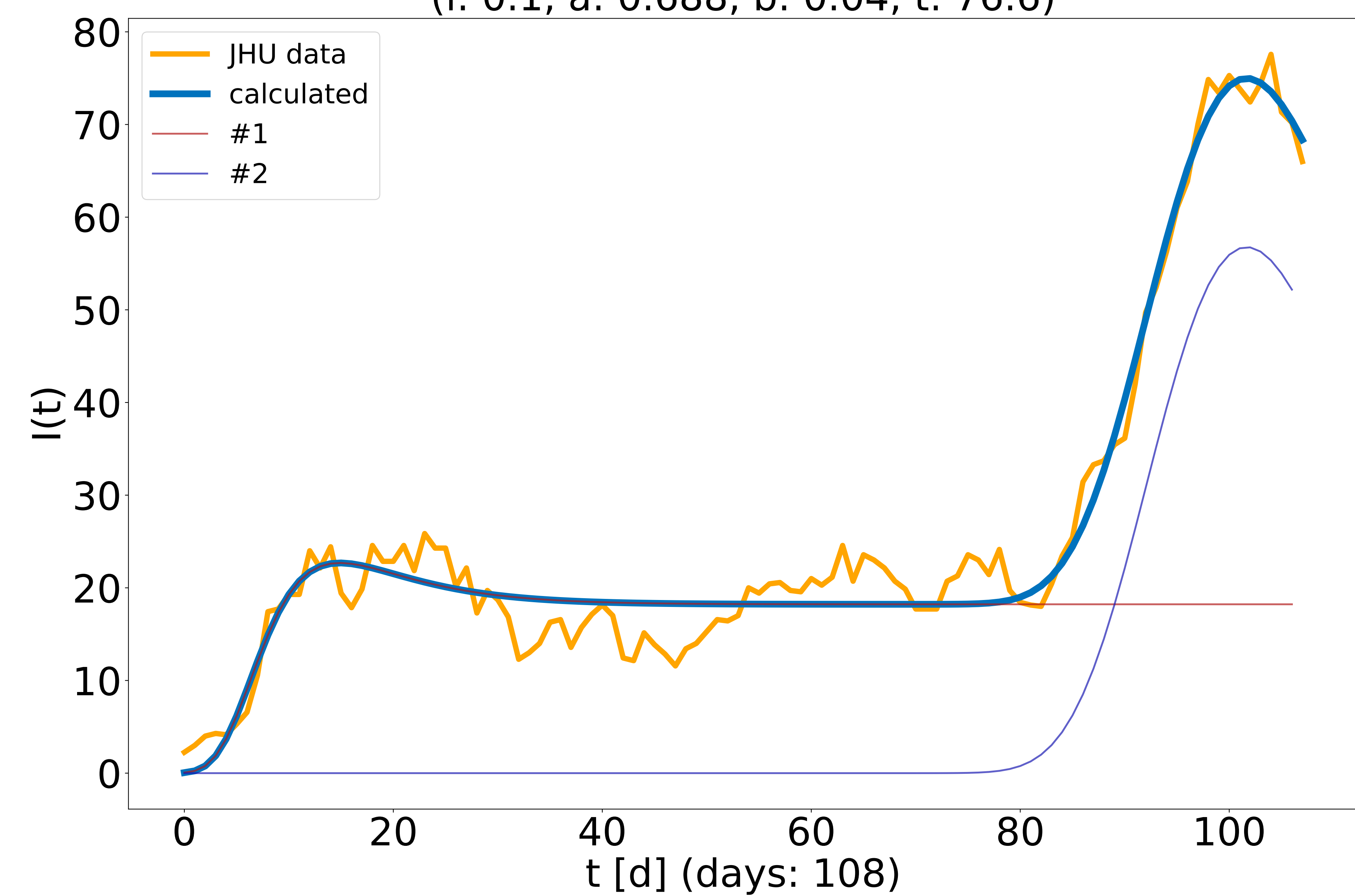
Cameron, Texas, US, Cameron ($R^2 = 0.987$)
(i: 11.5, a: 0.123, b: 0.165, t: 15.8)
(i: 0.1, a: 0.563, b: 0.031, t: 69.2)



Denton, Texas, US, Denton ($R^2 = 0.643$)
(i: 18.8, a: 2.0, b: 0.992, t: 9.3)
(i: 19.4, a: 0.22, b: 0.075, t: 89.6)



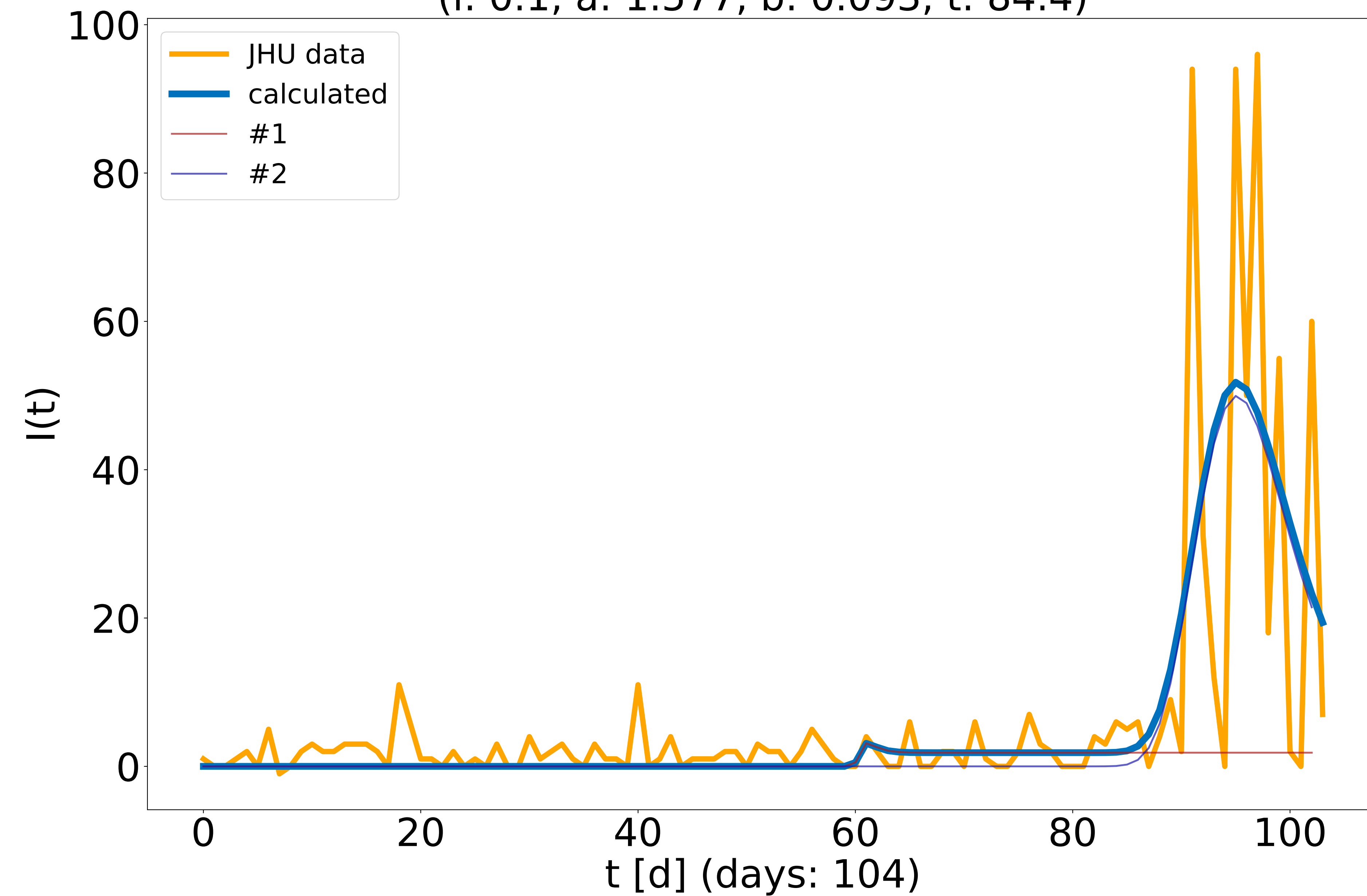
Denton, Texas, US, Denton ($R^2 = 0.974$)
(i: 18.2, a: 0.109, b: 0.183, t: 9.4)
(i: 0.1, a: 0.688, b: 0.04, t: 76.6)



Guadalupe, Texas, US, Guadalupe ($R^2 = 0.49$)

(i: 1.8, a: 2.0, b: 1.4, t: 60.4)

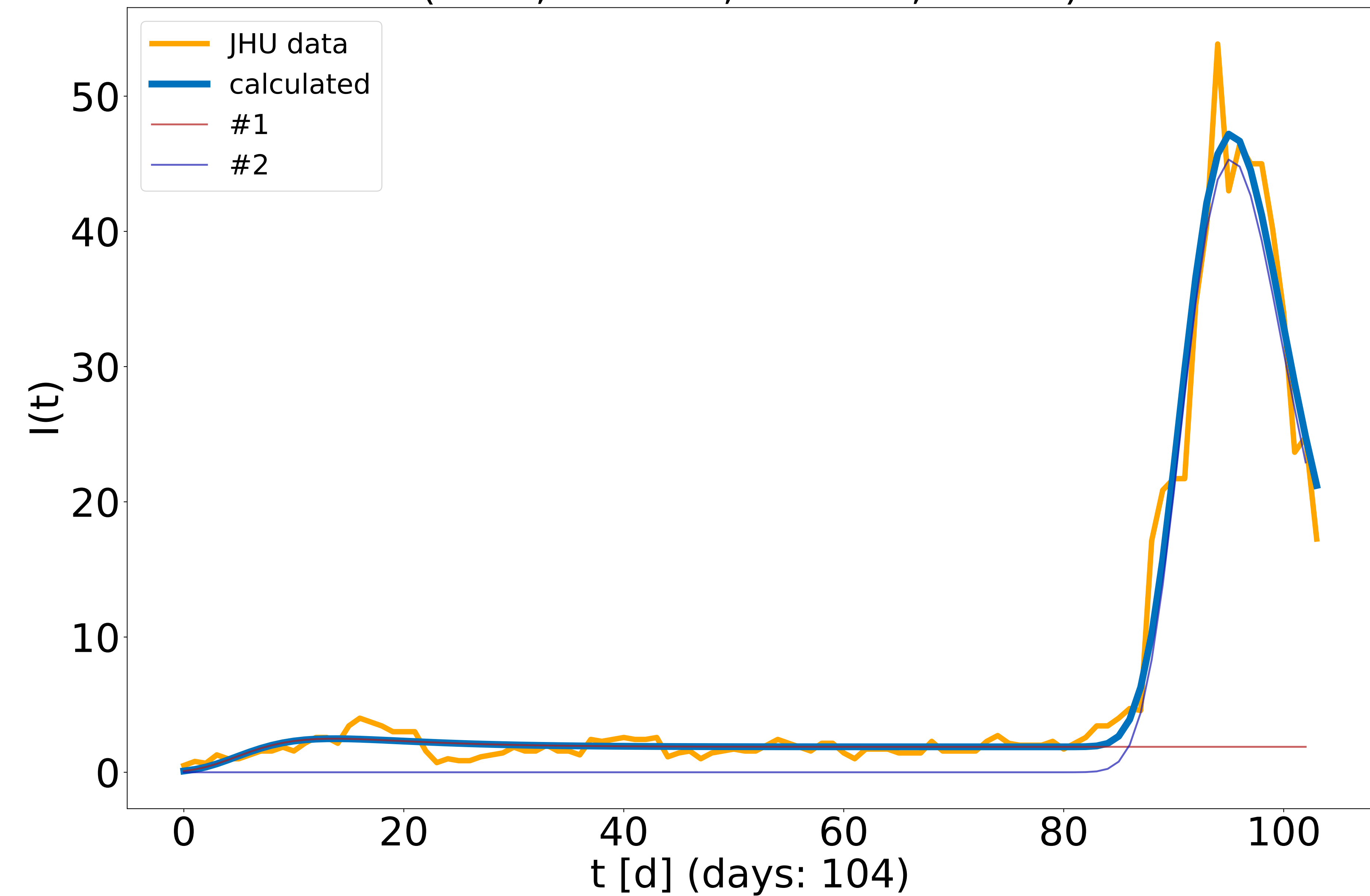
(i: 0.1, a: 1.577, b: 0.093, t: 84.4)



Guadalupe, Texas, US, Guadalupe ($R^2 = 0.978$)

(i: 1.9, a: 0.121, b: 0.16, t: 7.5)

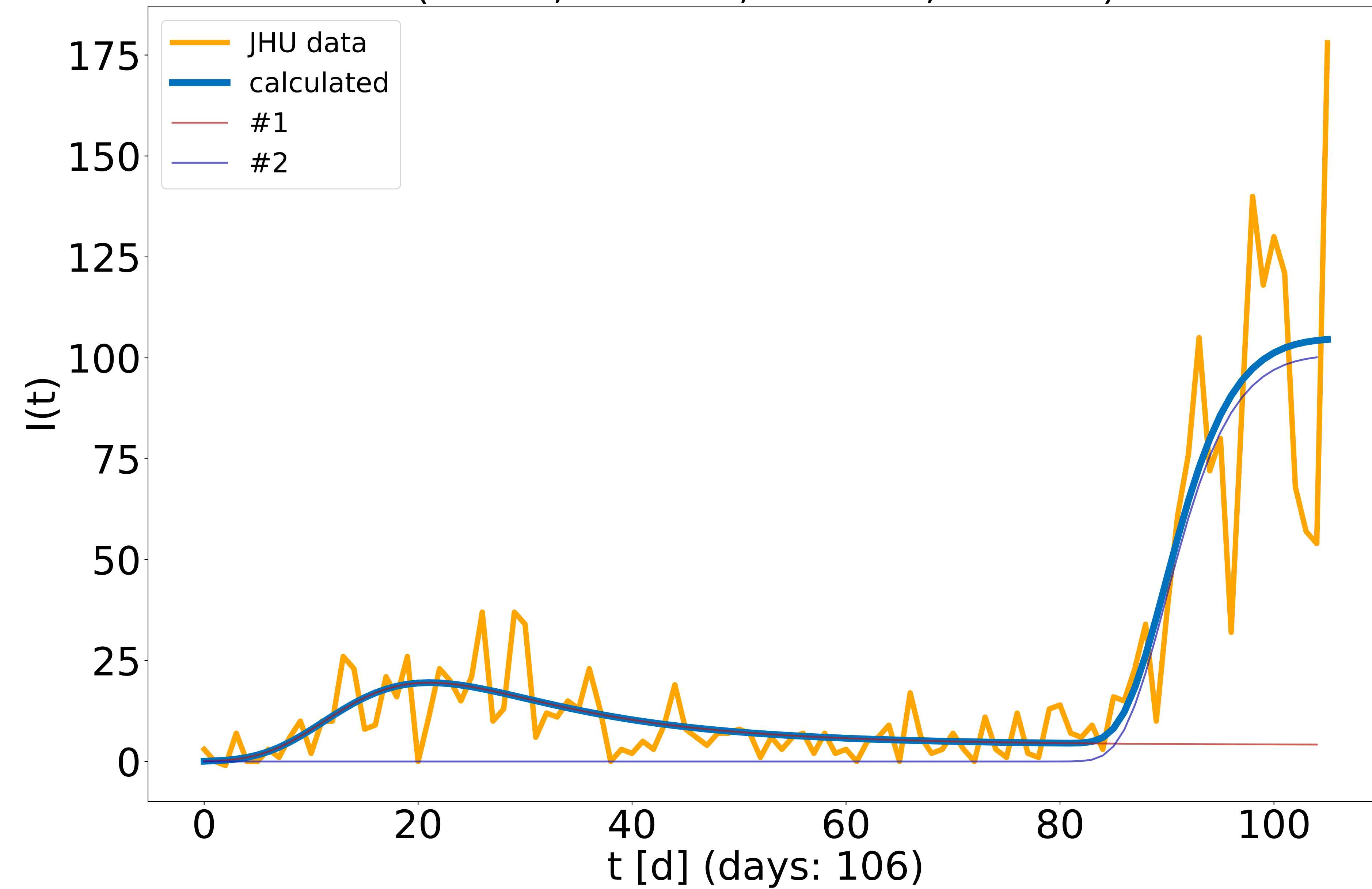
(i: 0.1, a: 1.394, b: 0.084, t: 83.3)



Lubbock, Texas, US, Lubbock ($R^2 = 0.794$)

(i: 4.1, a: 0.313, b: 0.074, t: 7.5)

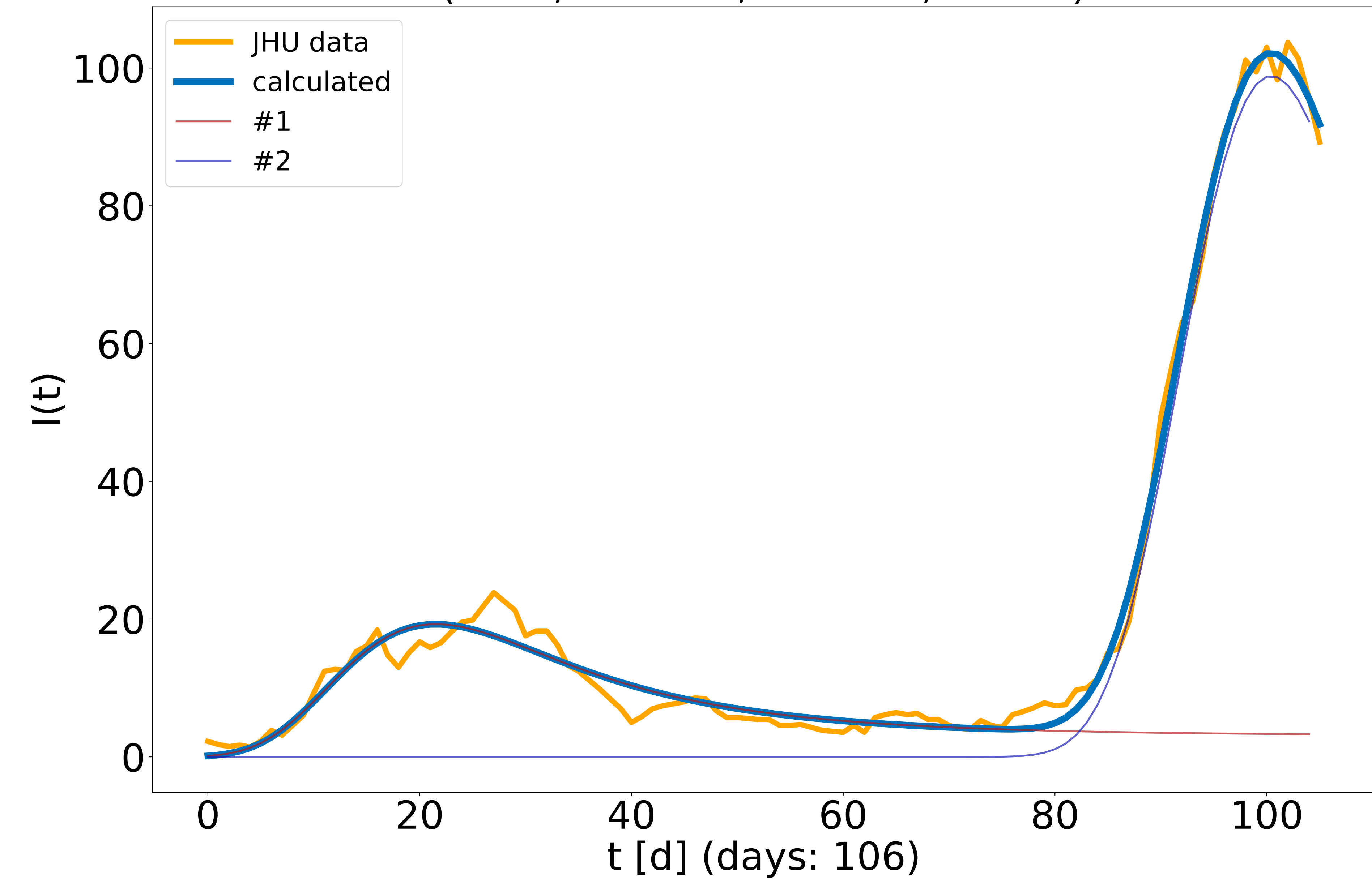
(i: 99.3, a: 0.006, b: 0.195, t: 102.3)



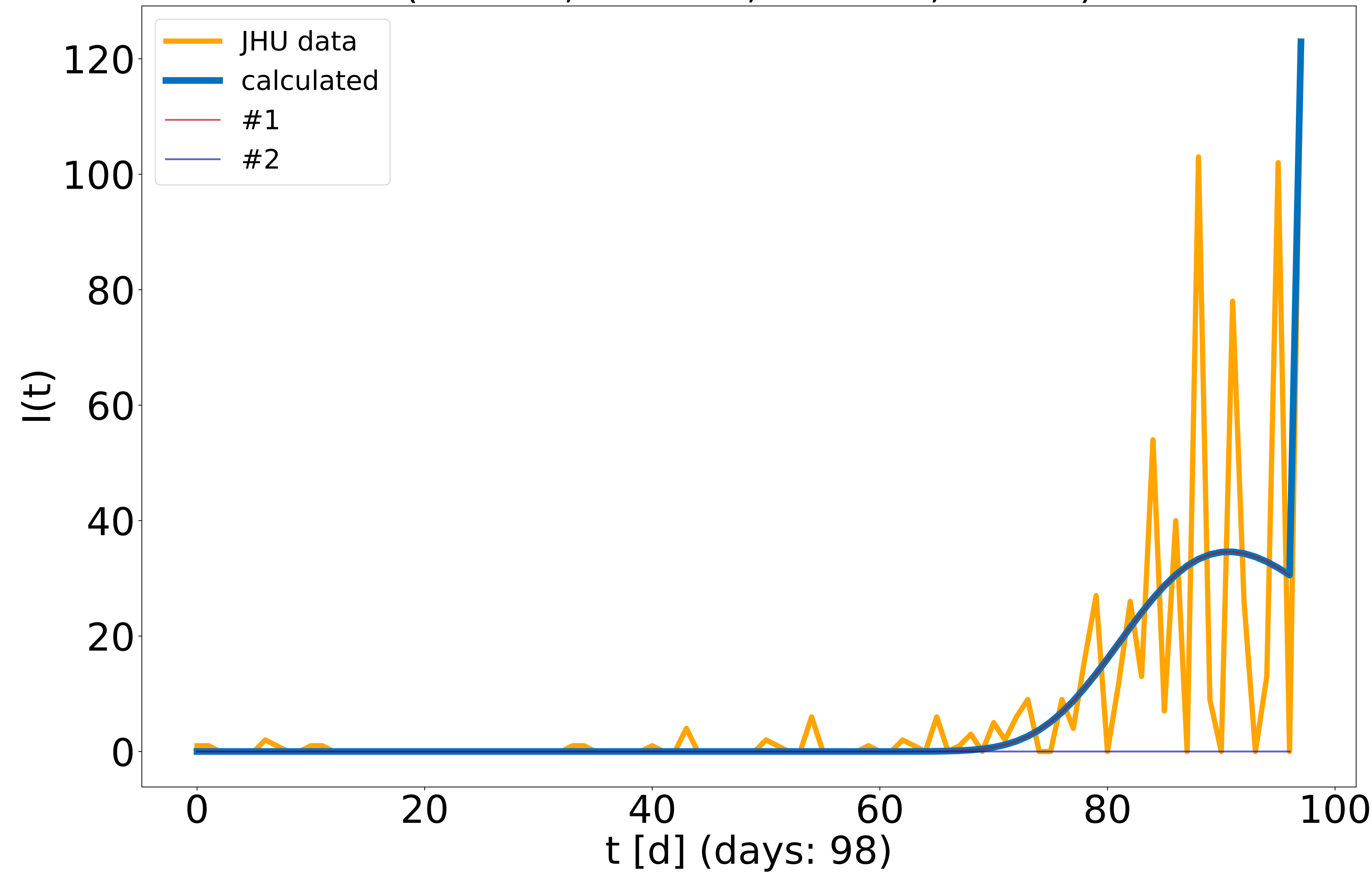
Lubbock, Texas, US, Lubbock ($R^2 = 0.994$)

(i: 3.1, a: 0.324, b: 0.066, t: 6.3)

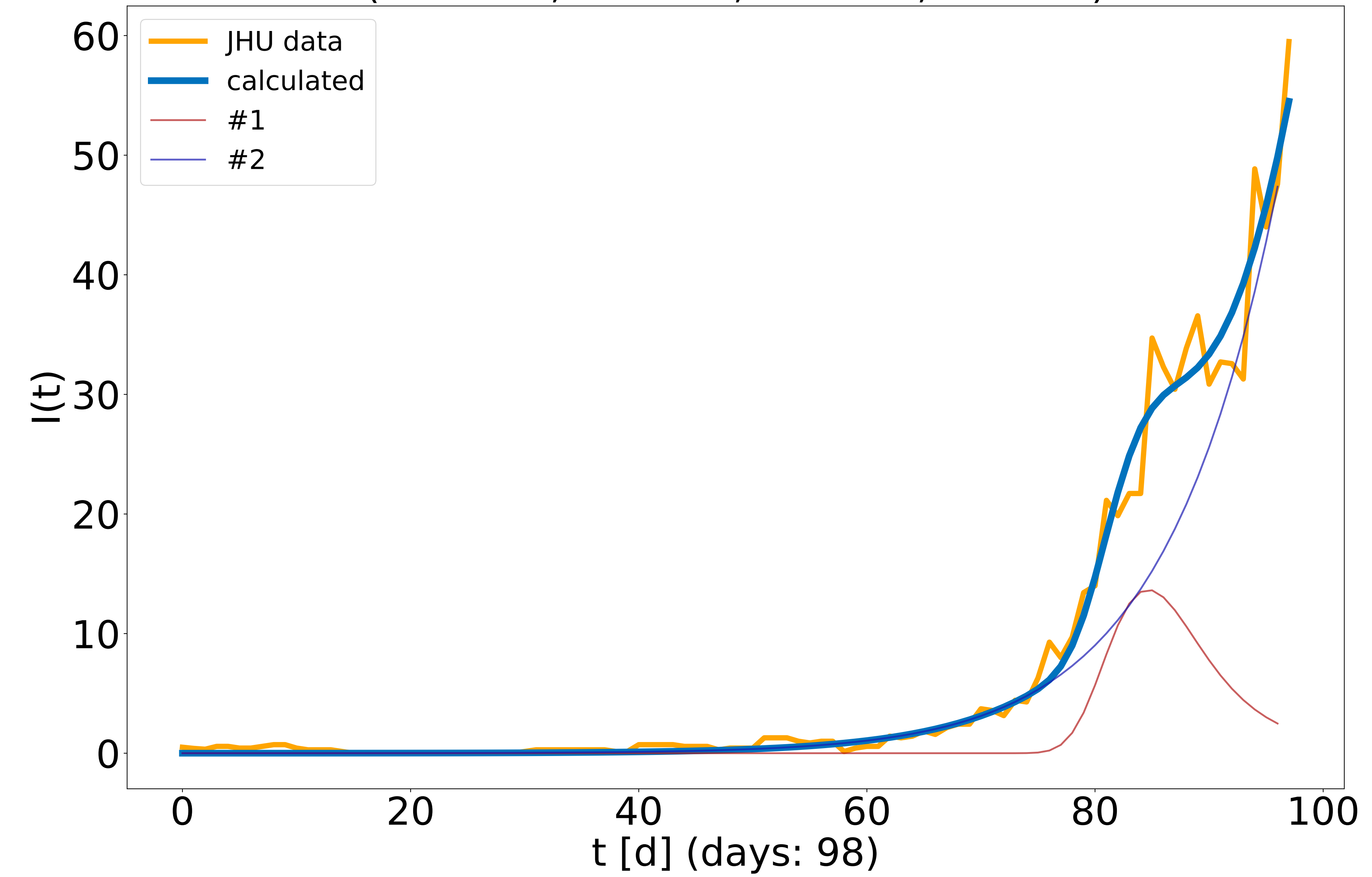
(i: 0.1, a: 0.781, b: 0.042, t: 76.4)



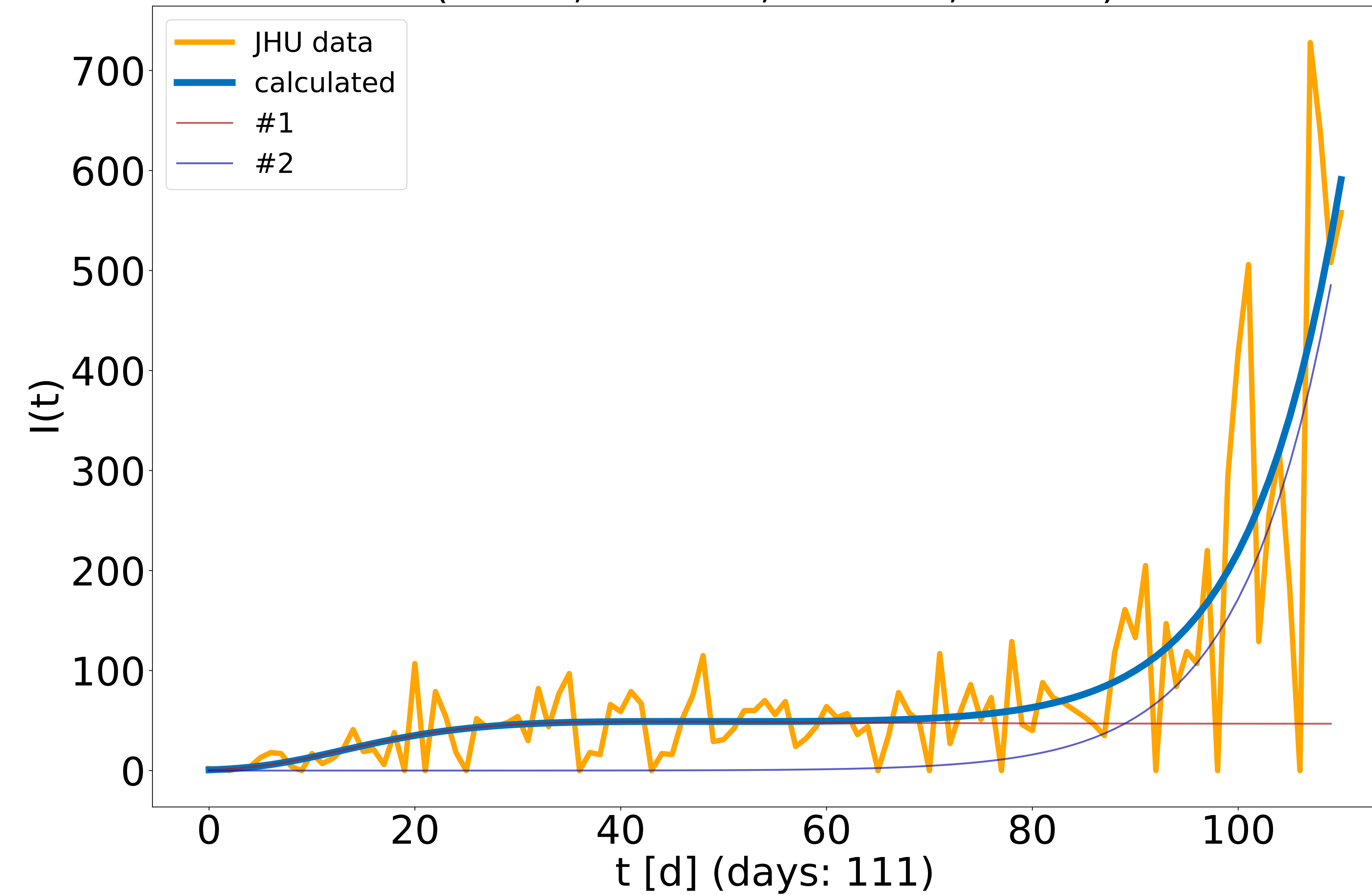
Starr, Texas, US, Starr ($R^2 = 0.569$)
(i: 0.1, a: 0.658, b: 0.041, t: 66.5)
(i: 153.7, a: 1.999, b: 1.399, t: 97.2)



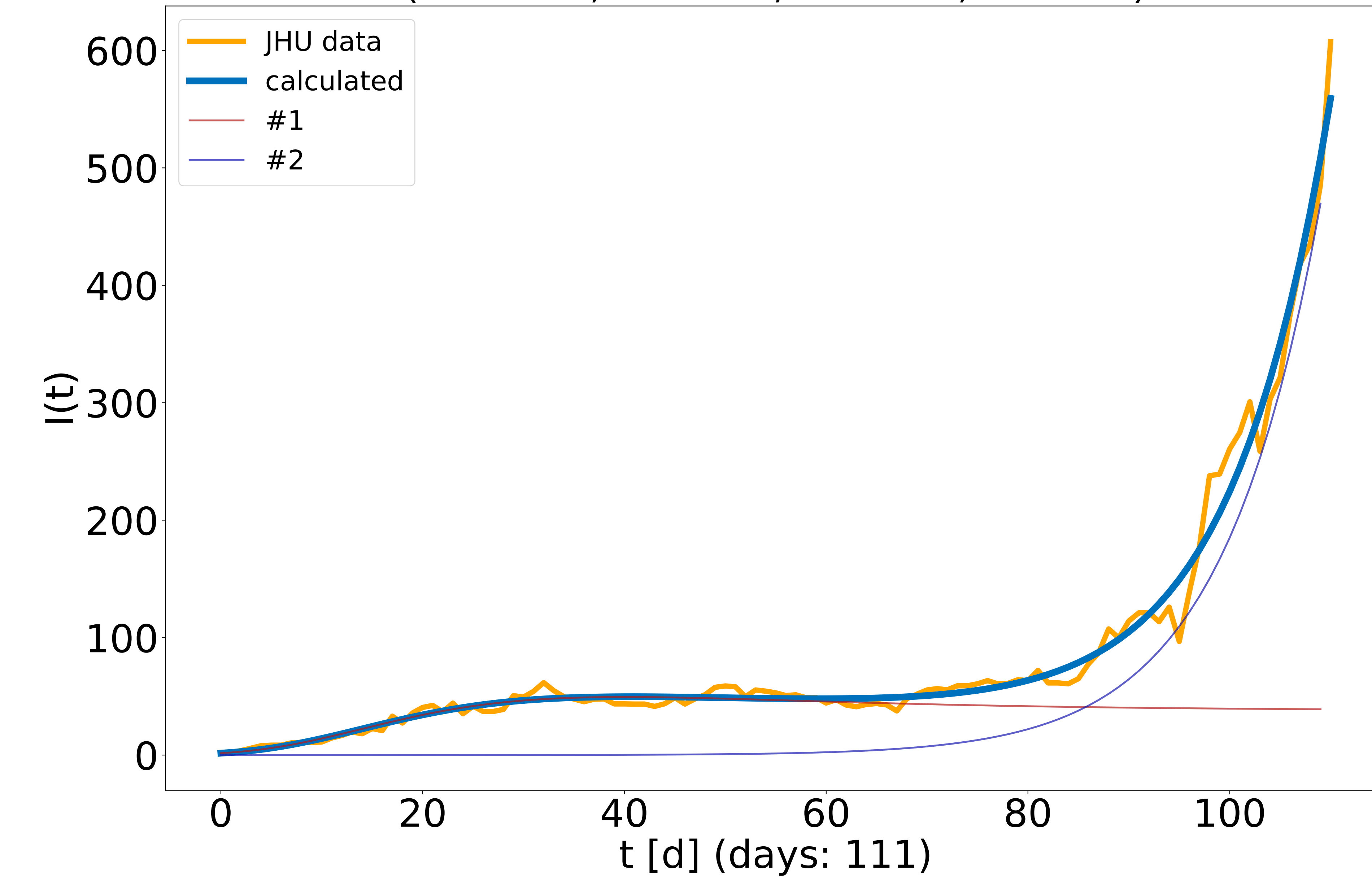
Starr, Texas, US, Starr ($R^2 = 0.982$)
(i: 0.1, a: 1.445, b: 0.108, t: 75.4)
(i: 2999.1, a: 0.094, b: 0.001, t: 138.4)



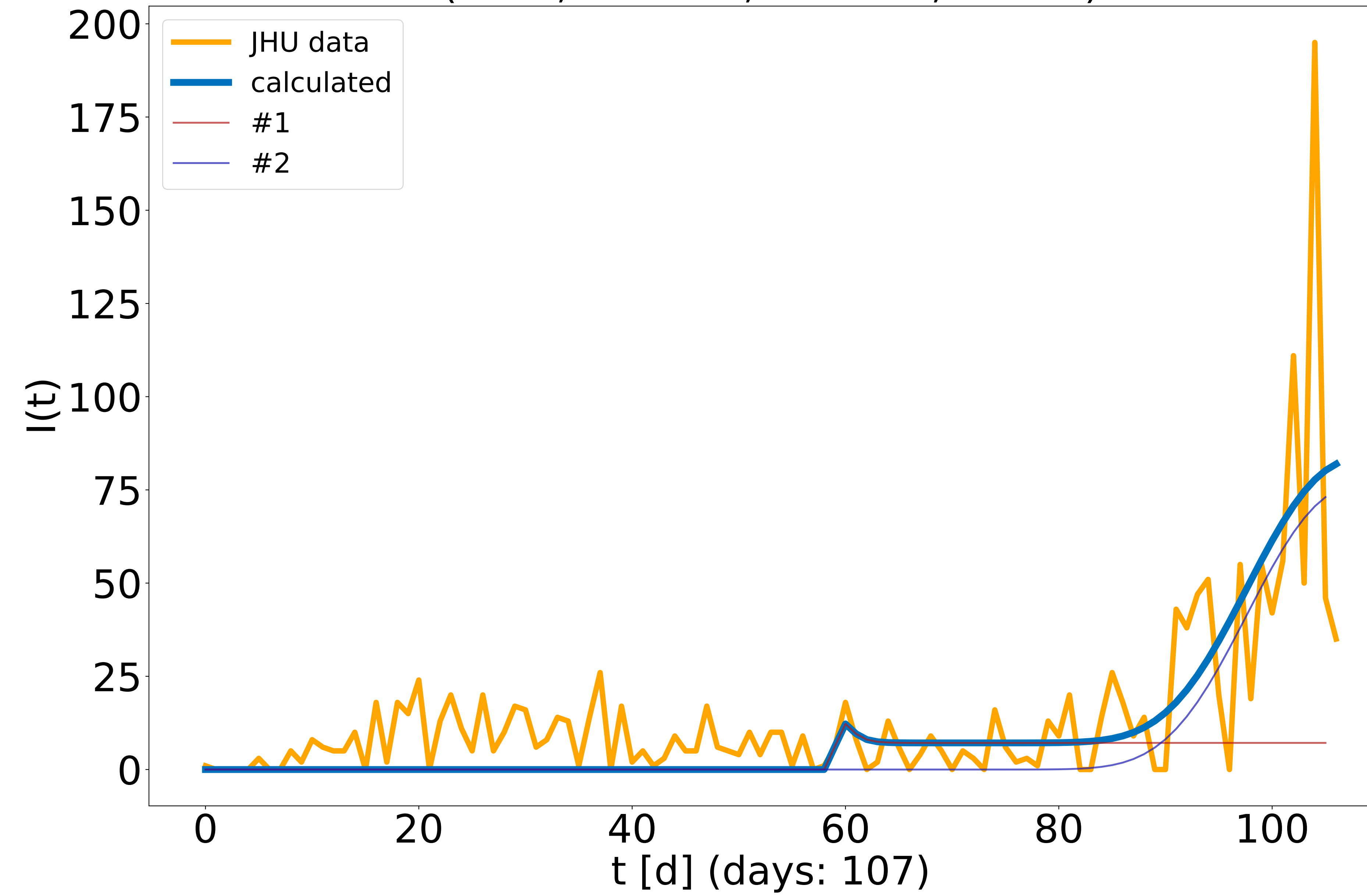
Travis, Texas, US, Travis ($R^2 = 0.695$)
(i: 46.8, a: 0.01, b: 0.083, t: 31.2)
(i: 55.3, a: 0.119, b: 0.001, t: 90.4)



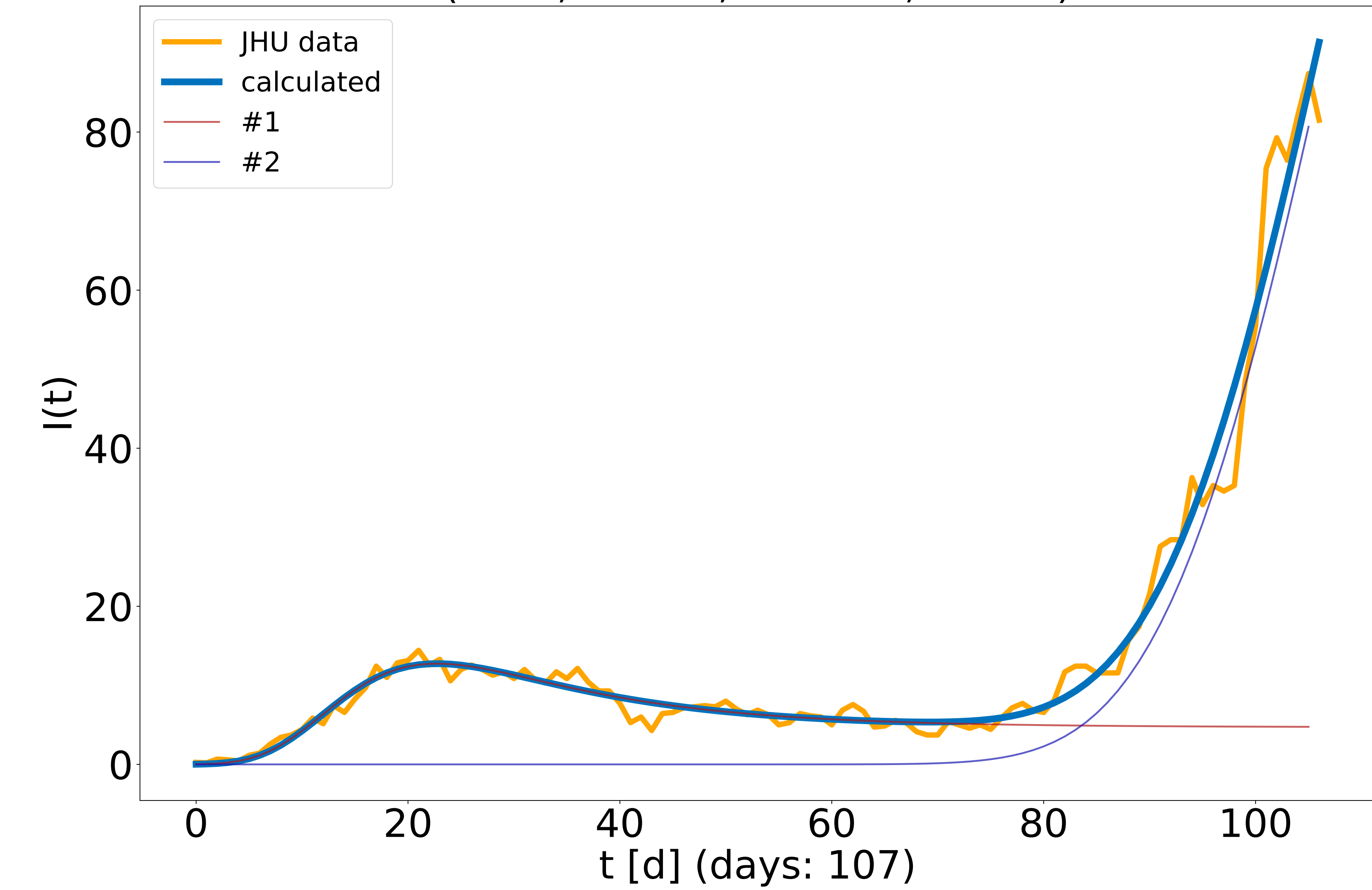
Travis, Texas, US, Travis ($R^2 = 0.985$)
(i: 38.0, a: 0.04, b: 0.056, t: 22.3)
(i: 2880.4, a: 0.099, b: 0.001, t: 127.0)



Webb, Texas, US, Webb ($R^2 = 0.489$)
(i: 7.1, a: 2.0, b: 1.334, t: 59.1)
(i: 0.1, a: 0.661, b: 0.037, t: 80.6)



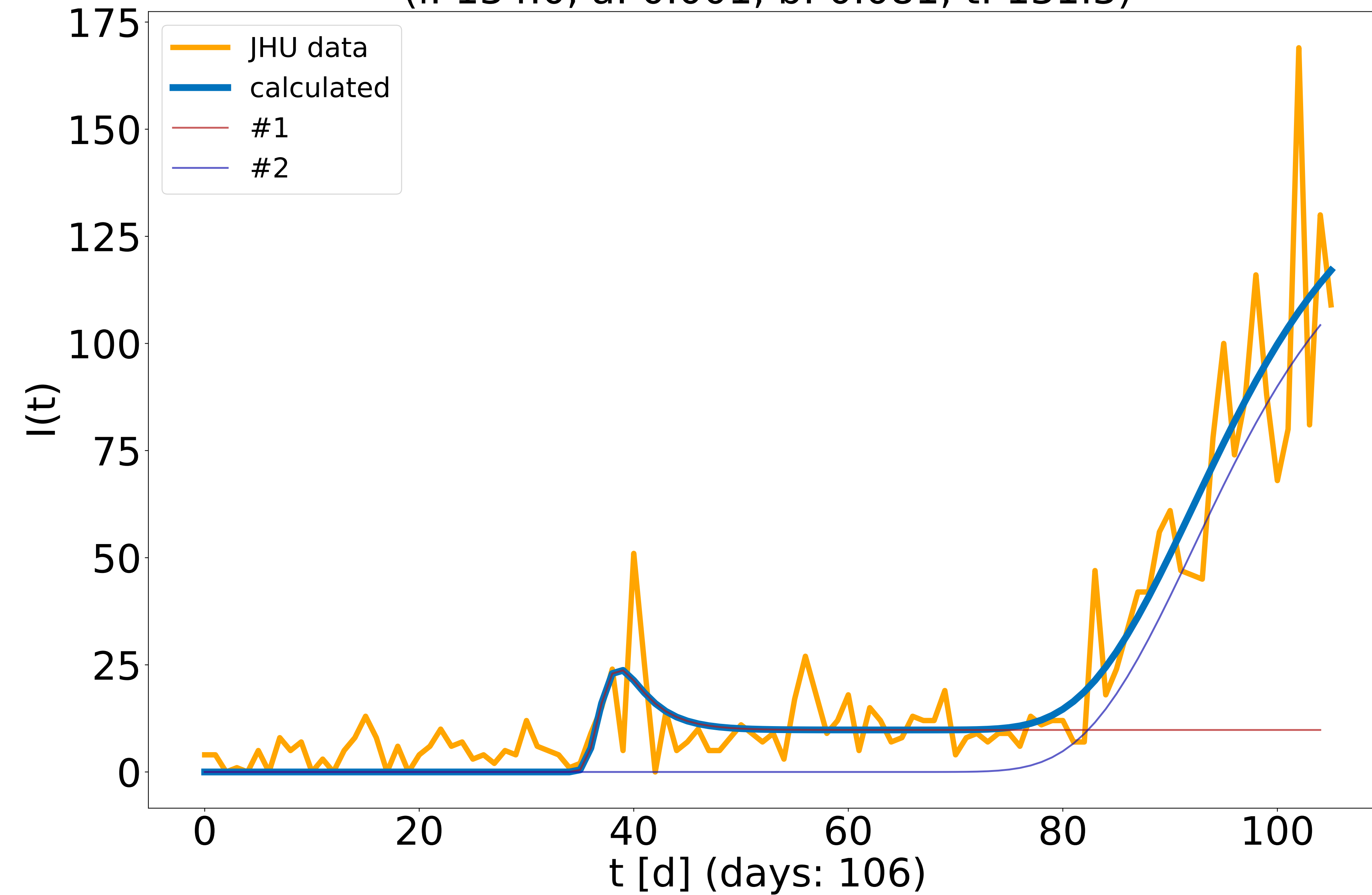
Webb, Texas, US, Webb ($R^2 = 0.977$)
(i: 4.7, a: 0.221, b: 0.081, t: 10.5)
(i: 0.1, a: 0.34, b: 0.017, t: 68.9)



Williamson, Texas, US, Williamson ($R^2 = 0.872$)

(i: 9.8, a: 1.104, b: 0.454, t: 36.4)

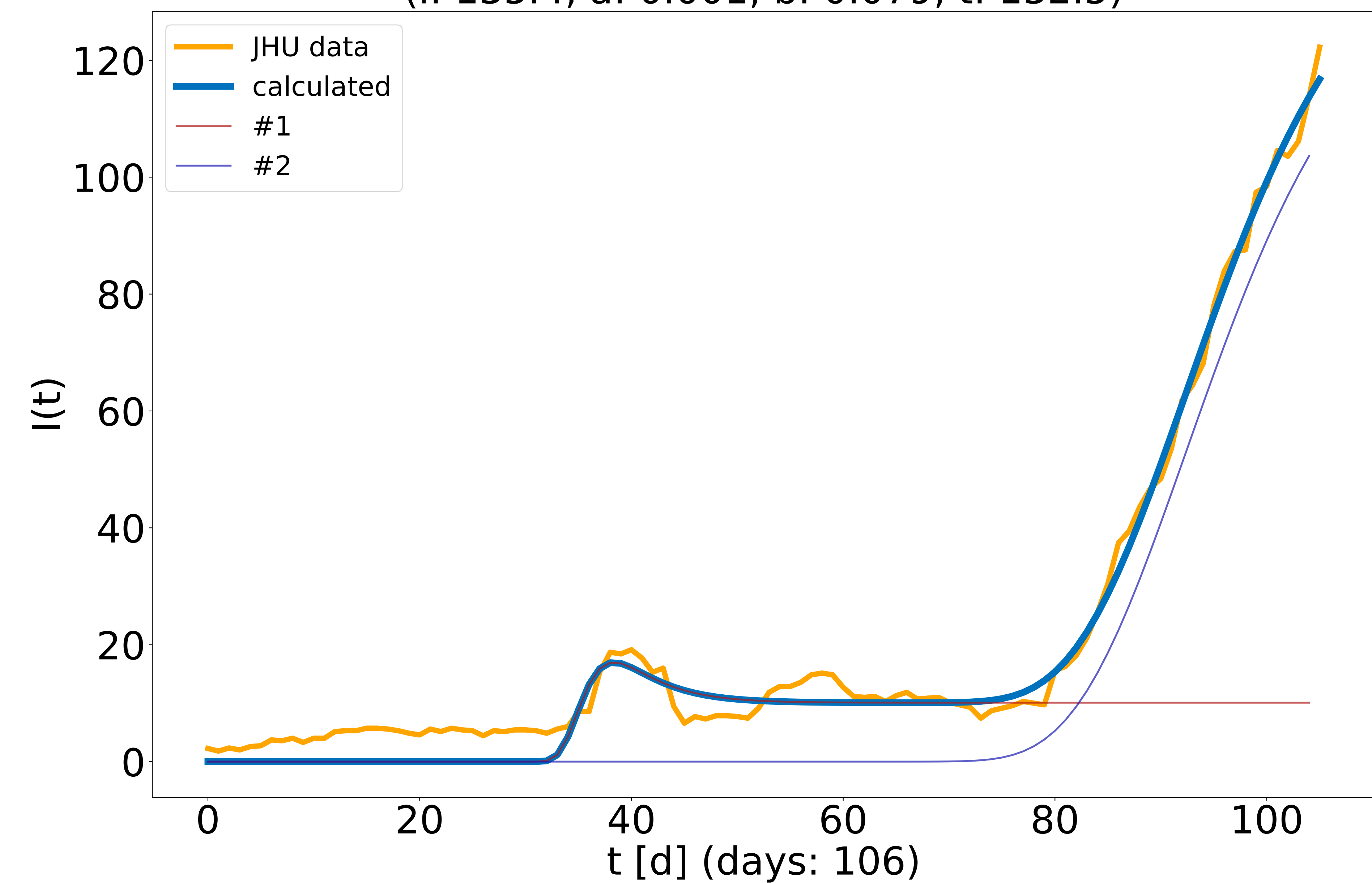
(i: 134.0, a: 0.001, b: 0.081, t: 131.3)



Williamson, Texas, US, Williamson ($R^2 = 0.987$)

(i: 10.1, a: 0.46, b: 0.325, t: 35.3)

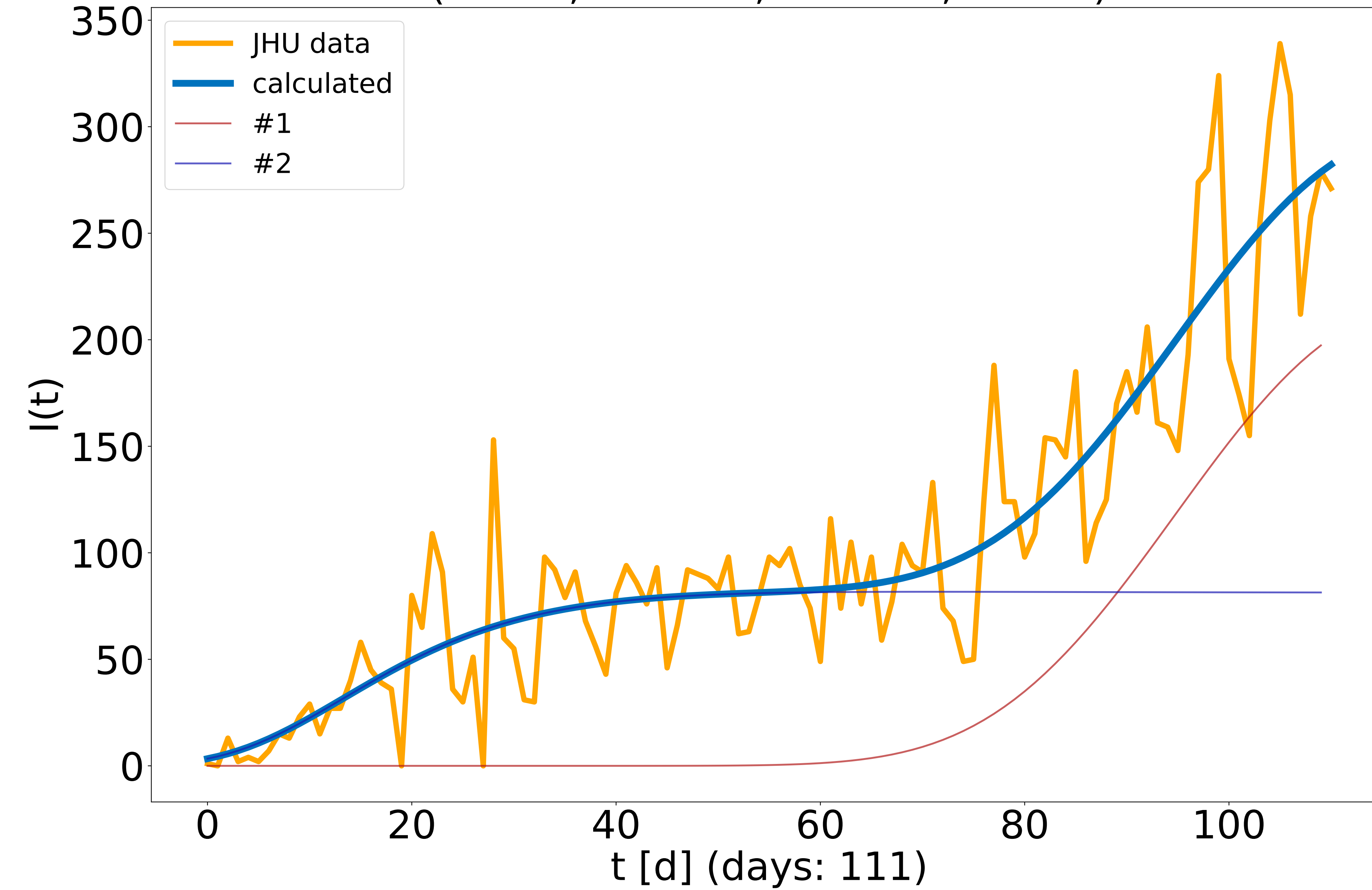
(i: 135.4, a: 0.001, b: 0.079, t: 132.5)



Salt Lake, Utah, US, Salt Lake ($R^2 = 0.834$)

(i: 0.1, a: 0.305, b: 0.015, t: 50.4)

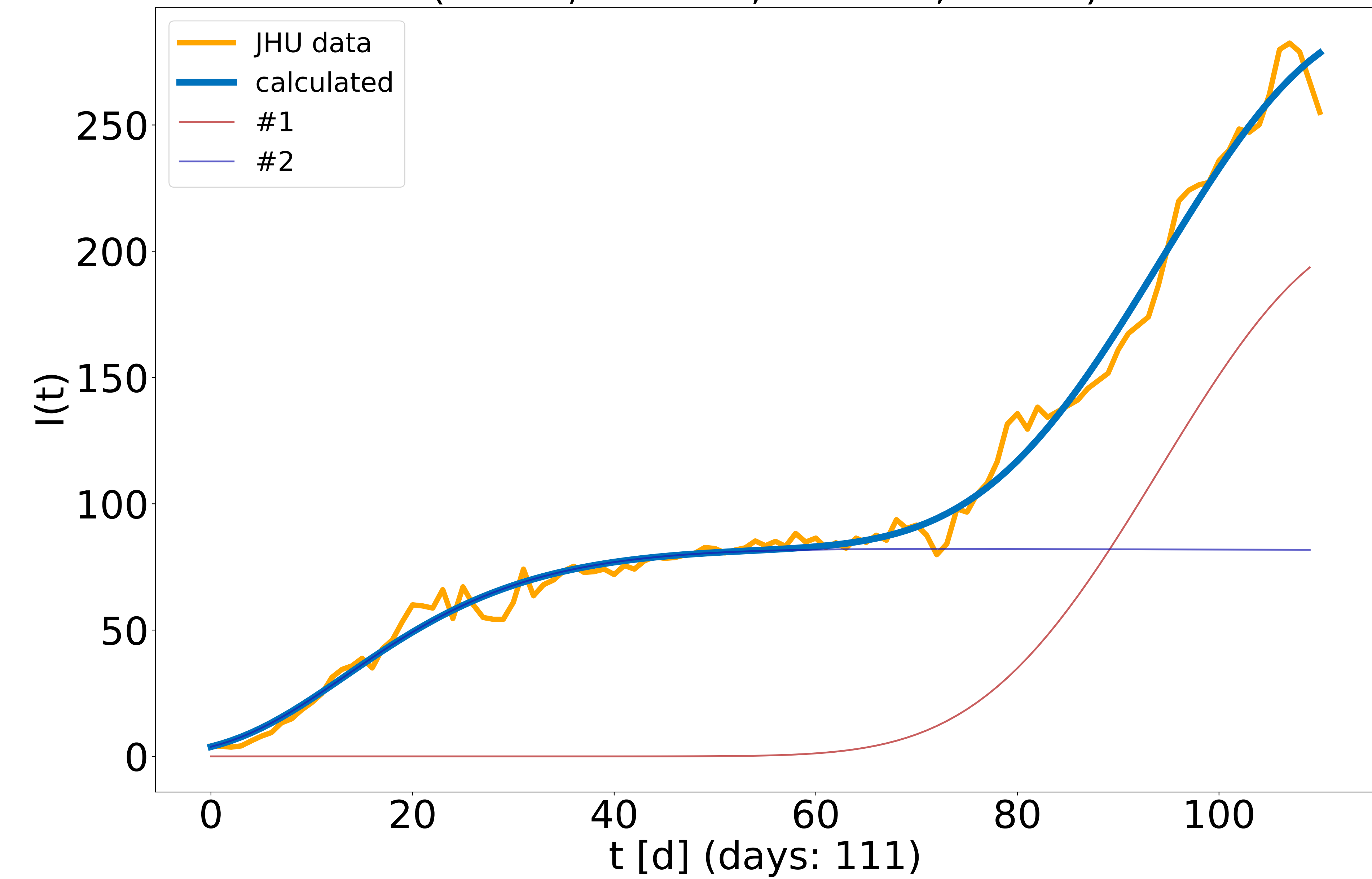
(i: 81.3, a: 0.001, b: 0.071, t: 56.5)



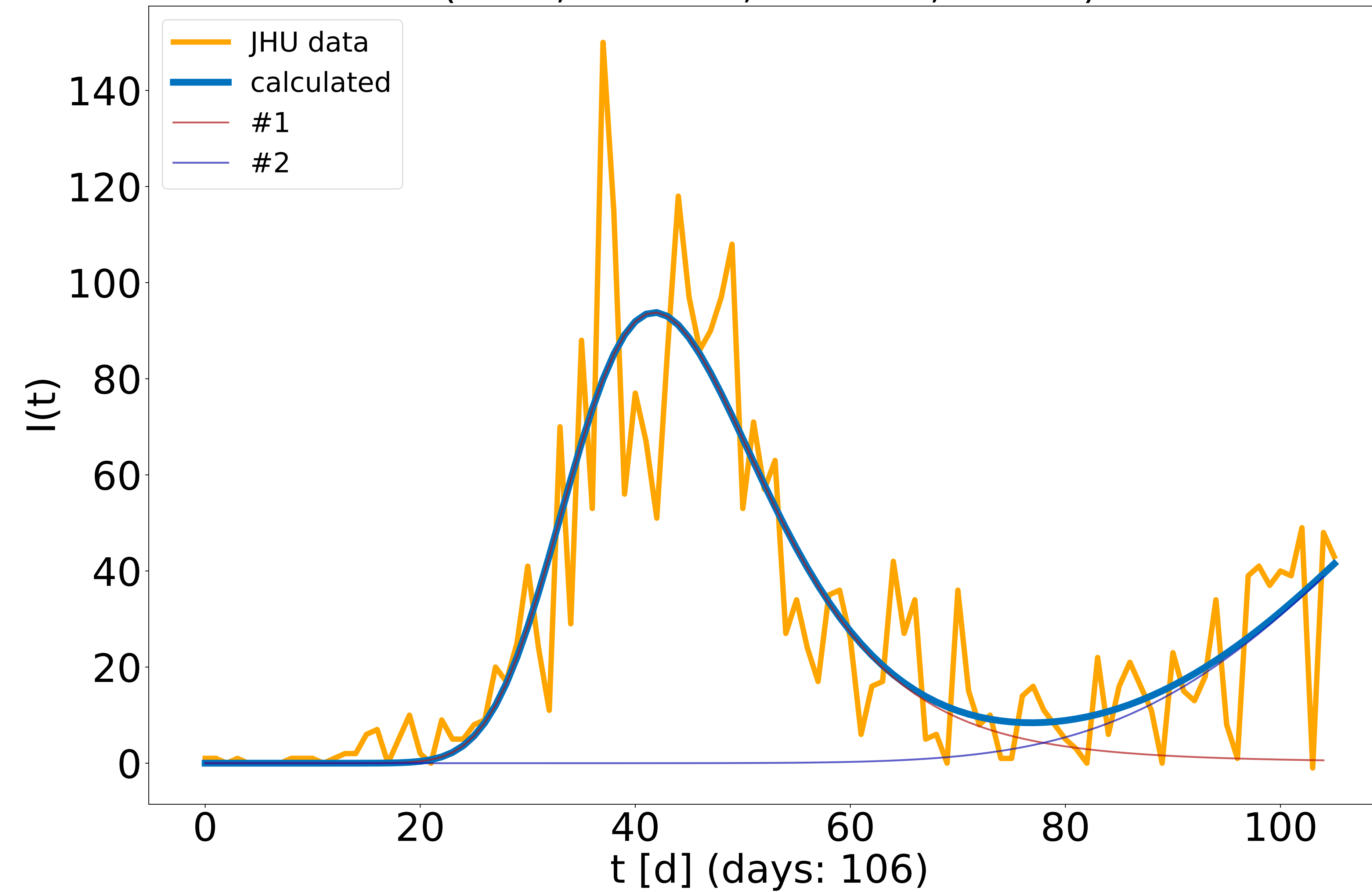
Salt Lake, Utah, US, Salt Lake ($R^2 = 0.991$)

(i: 0.1, a: 0.311, b: 0.015, t: 50.8)

(i: 81.7, a: 0.001, b: 0.069, t: 57.8)



Brown, Wisconsin, US, Brown ($R^2 = 0.77$)
(i: 0.1, a: 0.787, b: 0.042, t: 18.2)
(i: 0.1, a: 0.212, b: 0.011, t: 55.1)



Brown, Wisconsin, US, Brown ($R^2 = 0.972$)
(i: 0.1, a: 0.762, b: 0.041, t: 17.5)
(i: 0.1, a: 0.25, b: 0.014, t: 58.8)

