**Constant parameters**

|  |  |
| --- | --- |
| **Parameter name** | **Value** |
| objective | count: poisson |
| eval\_metric | poisson-nloglik |
| tree\_method | gbtree |

**Tunable parameters**

|  |  |
| --- | --- |
| **Parameter name** | **Value** |
| max\_depth | [1, 7] |
| min\_child\_weight | [32, 256] |
| n\_estimators | [32, 4084] |
| reg\_lambda | [64, 1000] |
| alpha | [0.00001, 1.0] |
| subsample | [0.2, 0.7] |
| colsample\_bytree | [0.2, 0.7] |
| colsample\_bylevel | [0.2, 0.7] |
| eta | [0.0001, 0.5] |
| gamma | [0.0001, 0.01] |
| grow\_policy | [depthwise, lossguide] |

**Final IBD parameters**

|  |  |
| --- | --- |
| **Parameter name** | **Value** |
| max\_depth | 2 |
| min\_child\_weight | 150 |
| n\_estimators | 1611 |
| reg\_lambda | 719 |
| alpha | 5.66e-05, |
| subsample | 0.62 |
| colsample\_bytree | 0.67 |
| colsample\_bylevel | 0.42 |
| eta | 0.028 |
| gamma | 0.0005 |
| grow\_policy | lossguide |

**Final MM parameters**

|  |  |
| --- | --- |
| **Parameter name** | **Value** |
| max\_depth | 2 |
| min\_child\_weight | 192 |
| n\_estimators | 315 |
| reg\_lambda | 383 |
| alpha | 0.0009 |
| subsample | 0.53 |
| colsample\_bytree | 0.49 |
| colsample\_bylevel | 0.67 |
| eta | 0.04 |
| gamma | 0.006 |
| grow\_policy | depthwise |