*Table R1: The performance of different graph-based prediction models on the NYC datasets (’\*’ indicates that the codes are publicly available and reproduced in this paper).*

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Dataset*** | ***Model*** | ***Seed*** | ***All day*** | | | ***High-frequency accident periods*** | | |
| ***RMSE*** | ***Recall*** | ***MAP*** | ***RMSE*** | ***Recall*** | ***MAP*** |
| ***NYC*** | *GSNet\** | *100* | *7.5838* | *33.32%* | *0.1823* | *6.8216* | *34.11%* | *0.1762* |
| *500* | *7.5148* | *32.96%* | *0.1825* | *6.7340* | *34.32%* | *0.1766* |
| *1000* | *7.5388* | *33.88%* | *0.1868* | *6.7782* | *34.84%* | *0.1858* |
| *1500* | *7.5471* | *33.13%* | *0.1854* | *6.7648* | *35.05%* | *0.1893* |
| *2019* | *7.6150* | *33.16%* | *0.1786* | *6.7758* | *34.15%* | *0.1767* |
| *-* | *7.5599 ± 0.0346* | *33.29% ± 0.31%* | *0.1831 ± 0.0028* | *6.7749 ± 0.0276* | *34.49% ± 0.37%* | *0.1809 ± 0.0054* |
| *C-ViT\** | *100* | *7.0799* | *31.02%* | *0.1702* | *6.4268* | *30.48%* | *0.1554* |
| *500* | *7.0875* | *32.27%* | *0.1745* | *6.3813* | *33.41%* | *0.1707* |
| *1000* | *6.9115* | *32.50%* | *0.1833* | *6.2247* | *33.28%* | *0.1681* |
| *1500* | *7.1718* | *32.16%* | *0.1746* | *6.4647* | *32.58%* | *0.1638* |
| *2019* | *7.0053* | *33.86%* | *0.1875* | *6.2658* | *34.46%* | *0.1802* |
| *-* | *7.0512 ± 0.0858* | *32.36% ± 0.89%* | *0.1780 ± 0.0062* | *6.3527 ± 0.0907* | *32.84% ± 1.30%* | *0.1676 ± 0.0080* |
| *TWCCnet\** | *100* | *7.5658* | *32.53%* | *0.1815* | *6.7243* | *33.10%* | *0.1744* |
| *500* | *7.6800* | *32.37%* | *0.1768* | *6.8386* | *33.24%* | *0.1714* |
| *1000* | *7.5737* | *33.87%* | *0.1864* | *6.7912* | *34.29%* | *0.1777* |
| *1500* | *7.5071* | *33.04%* | *0.1882* | *6.7156* | *34.04%* | *0.1850* |
| *2019* | *7.5838* | *33.30%* | *0.1778* | *6.7685* | *34.11%* | *0.1700* |
| *-* | *7.5821 ± 0.0546* | *33.02% ± 0.53%* | *0.1821 ± 0.0044* | *6.7676 ± 0.0442* | *33.76% ± 0.48%* | *0.1757 ± 0.0052* |
| *MGHSTN\** | *100* | *6.5916* | *34.26%* | *0.1932* | *6.0806* | *35.47%* | *0.1925* |
| *500* | *6.5333* | *34.76%* | *0.1947* | *6.0028* | *35.51%* | *0.1908* |
| *1000* | *6.9773* | *34.70%* | *0.1866* | *6.4758* | *35.26%* | *0.1801* |
| *1500* | *6.8812* | *34.69%* | *0.1950* | *6.4089* | *35.44%* | *0.1921* |
| *2019* | *6.5606* | *34.33%* | *0.1939* | *6.0325* | *35.05%* | *0.1920* |
| *-* | *6.7088 ± 0.1798* | *34.55% ± 0.20%* | *0.1927 ± 0.0030* | *6.2001 ± 0.1964* | *35.35% ± 0.17%* | *0.1895 ± 0.0046* |
| ***MG-STNET*** | *100* | *7.1489* | *33.22%* | *0.1816* | *6.4381* | *33.48%* | *0.1703* |
| *500* | *7.0137* | *34.08%* | *0.1876* | *6.2517* | *34.74%* | *0.1787* |
| *1000* | *7.1595* | *33.87%* | *0.1858* | *6.4341* | *34.39%* | *0.1754* |
| *1500* | *7.0492* | *33.78%* | *0.1870* | *6.3529* | *33.83%* | *0.1758* |
| *2019* | *7.1288* | 34.76% | 0.1933 | 6.4459 | 35.58% | 0.1869 |
| *-* | *7.1000 ± 0.0568* | *33.94% ± 0.49%* | *0.1871 ± 0.0037* | *6.3845 ± 0.0730* | *34.40% ± 0.72%* | *0.1774 ± 0.0053* |

*Table R2: The performance of different graph-based prediction models on the Chicago datasets (’\*’ indicates that the codes are publicly available and reproduced in this paper).*

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Dataset*** | ***Model*** | ***Seed*** | ***All day*** | | | ***High-frequency accident periods*** | | |
| ***RMSE*** | ***Recall*** | ***MAP*** | ***RMSE*** | ***Recall*** | ***MAP*** |
| ***Chicago*** | *GSNet\** | *100* | *11.2496* | *20.45%* | *0.0943* | *8.7142* | *22.36%* | *0.1239* |
| *500* | *10.8845* | *21.47%* | *0.1059* | *8.4721* | *22.36%* | *0.1306* |
| *1000* | *11.2174* | *17.77%* | *0.0705* | *8.5702* | *19.48%* | *0.0912* |
| *1500* | *11.1431* | *19.38%* | *0.0748* | *8.4330* | *19.75%* | *0.0871* |
| *2019* | *10.8617* | *19.80%* | *0.0843* | *8.2382* | *20.85%* | *0.1047* |
| ***-*** | *11.0713 ± 0.1623* | *19.77% ± 1.20%* | *0.0860 ± 0.0127* | *8.4855 ± 0.1541* | *20.96% ± 1.21%* | *0.1075 ± 0.0169* |
| *C-ViT\** | *100* | *9.0152* | *18.90%* | *0.0816* | *6.6392* | *20.03%* | *0.0938* |
| *500* | *9.3244* | *20.69%* | *0.0926* | *6.9882* | *22.91%* | *0.1207* |
| *1000* | *9.4602* | *20.16%* | *0.0921* | *7.0743* | *21.67%* | *0.1135* |
| *1500* | *9.7179* | *20.39%* | *0.0903* | *7.3080* | *21.95%* | *0.1020* |
| *2019* | *9.4456* | *20.93%* | *0.0980* | *7.0350* | *21.95%* | *0.1247* |
| ***-*** | *9.3927 ± 0.2236* | *20.21% ± 0.69%* | *0.0909 ± 0.0052* | *7.0089 ± 0.2109* | *21.70% ± 0.92%* | *0.1109 ± 0.0113* |
| *TWCCnet\** | *100* | *11.1236* | *19.68%* | *0.0820* | *8.6568* | *23.05%* | *0.1105* |
| *500* | *11.4930* | *21.59%* | *0.0908* | *8.7656* | *22.91%* | *0.1053* |
| *1000* | *10.7778* | *20.81%* | *0.0947* | *8.2176* | *21.81%* | *0.1153* |
| *1500* | *10.8709* | *21.23%* | *0.0979* | *8.3328* | *22.22%* | *0.1185* |
| *2019* | *11.3128* | *20.16%* | *0.0845* | *8.4820* | *22.63%* | *0.1145* |
| ***-*** | *11.1156 ± 0.2613* | *20.69% ± 0.68%* | *0.0900 ± 0.0059* | *8.4910 ± 0.1973* | *22.52% ± 0.45%* | *0.1128 ± 0.0045* |
| *MGHSTN\** | *100* | *7.7354* | *20.16%* | *0.0813* | *5.8000* | *20.99%* | *0.0892* |
| *500* | *7.5624* | *20.75%* | *0.0997* | *5.6999* | *22.36%* | *0.1279* |
| *1000* | *7.7916* | *21.29%* | *0.0948* | *6.1035* | *23.18%* | *0.1359* |
| *1500* | *8.9705* | *14.49%* | *0.0389* | *7.2676* | *18.52%* | *0.0617* |
| *2019* | *7.4907* | *20.33%* | *0.0997* | *5.9133* | *21.54%* | *0.1133* |
| ***-*** | *7.9101 ± 0.5306* | *19.40% ± 2.44%* | *0.0829 ± 0.0225* | *6.1569 ± 0.5599* | *21.32% ± 1.55%* | *0.1056 ± 0.0266* |
| ***MG-STNET*** | *100* | *9.1687* | *22.24%* | *0.0967* | *6.6093* | *23.05%* | *0.1196* |
| *500* | *9.4668* | *22.18%* | *0.1051* | *6.9238* | *23.05%* | *0.1262* |
| *1000* | *9.1154* | *22.42%* | *0.0948* | *6.6233* | *23.87%* | *0.1250* |
| *1500* | *9.0398* | *21.82%* | *0.0961* | *6.4680* | *23.05%* | *0.1174* |
| *2019* | *9.1195* | *22.12%* | *0.0985* | *6.4882* | *23.18%* | *0.1206* |
| *-* | *9.1820 ± 0.1453* | *22.16% ± 0.19%* | *0.0982 ± 0.0036* | *6.6225 ± 0.1598* | *23.24% ± 0.31%* | *0.1218 ± 0.0033* |