

**Table 1. Datasets summary of demographics, usages, sources, clinical states, and scanners**

| Usage                   | No. | Name                               | Subjects | Age   | Source                                                                                                                                          | State  | Scanner              | 1.5T/3T |
|-------------------------|-----|------------------------------------|----------|-------|-------------------------------------------------------------------------------------------------------------------------------------------------|--------|----------------------|---------|
| Training & validation   | 1   | CoRR_BNU                           | 74       | 19-30 | <a href="http://fcon_1000.projects.nitrc.org/indi/CoRR/html/bnu_1.html">http://fcon_1000.projects.nitrc.org/indi/CoRR/html/bnu_1.html</a>       | normal | Siemens              | 3T      |
|                         | 2   | CoRR_IACAS                         | 27       | 19-43 | <a href="http://fcon_1000.projects.nitrc.org/indi/CoRR/html/iacas_1.html">http://fcon_1000.projects.nitrc.org/indi/CoRR/html/iacas_1.html</a>   | normal | GE                   | 3T      |
|                         | 3   | CoRR_IPCAS_1                       | 25       | 18-24 | <a href="http://fcon_1000.projects.nitrc.org/indi/CoRR/html/ipcas_1.html">http://fcon_1000.projects.nitrc.org/indi/CoRR/html/ipcas_1.html</a>   | normal | Siemens              | 3T      |
|                         | 4   | CoRR_IPCAS_2                       | 33       | 11-15 | <a href="http://fcon_1000.projects.nitrc.org/indi/CoRR/html/ipcas_2.html">http://fcon_1000.projects.nitrc.org/indi/CoRR/html/ipcas_2.html</a>   | normal | Siemens              | 3T      |
|                         | 5   | CoRR_IPCAS_3                       | 29       | 17-25 | <a href="http://fcon_1000.projects.nitrc.org/indi/CoRR/html/ipcas_3.html">http://fcon_1000.projects.nitrc.org/indi/CoRR/html/ipcas_3.html</a>   | normal | Siemens              | 3T      |
|                         | 6   | CoRR_IPCAS_4                       | 18       | 21-28 | <a href="http://fcon_1000.projects.nitrc.org/indi/CoRR/html/ipcas_4.html">http://fcon_1000.projects.nitrc.org/indi/CoRR/html/ipcas_4.html</a>   | normal | GE                   | 3T      |
|                         | 7   | CoRR_IPCAS_5                       | 22       | 18-19 | <a href="http://fcon_1000.projects.nitrc.org/indi/CoRR/html/ipcas_5.html">http://fcon_1000.projects.nitrc.org/indi/CoRR/html/ipcas_5.html</a>   | normal | Siemens              | 3T      |
|                         | 8   | CoRR_IPCAS_6                       | 2        | 21-25 | <a href="http://fcon_1000.projects.nitrc.org/indi/CoRR/html/ipcas_6.html">http://fcon_1000.projects.nitrc.org/indi/CoRR/html/ipcas_6.html</a>   | normal | Siemens              | 3T      |
|                         | 9   | CoRR_IPCAS_7                       | 67       | 6-17  | <a href="http://fcon_1000.projects.nitrc.org/indi/CoRR/html/ipcas_7.html">http://fcon_1000.projects.nitrc.org/indi/CoRR/html/ipcas_7.html</a>   | normal | Siemens              | 3T      |
|                         | 10  | CoRR_IPCAS_8                       | 13       | 50-62 | <a href="http://fcon_1000.projects.nitrc.org/indi/CoRR/html/ipcas_8.html">http://fcon_1000.projects.nitrc.org/indi/CoRR/html/ipcas_8.html</a>   | normal | Siemens              | 3T      |
|                         | 11  | CoRR_XHCUMS                        | 21       | 36-62 | <a href="http://fcon_1000.projects.nitrc.org/indi/CoRR/html/xhcums_1.html">http://fcon_1000.projects.nitrc.org/indi/CoRR/html/xhcums_1.html</a> | normal | Siemens              | 3T      |
|                         | 12  | SALD                               | 477      | 19-80 | <a href="http://fcon_1000.projects.nitrc.org/indi/retro/sald.html">http://fcon_1000.projects.nitrc.org/indi/retro/sald.html</a>                 | normal | Siemens              | 3T      |
| Processing time         | 13  | A subset of the validation dataset | 30       | /     | /                                                                                                                                               | normal | GE, Siemens          | 3T      |
| Test-retest reliability | 14  | CoRR_HNU                           | 30       | 20-30 | <a href="http://fcon_1000.projects.nitrc.org/indi/CoRR/html/hnu_1.html">http://fcon_1000.projects.nitrc.org/indi/CoRR/html/hnu_1.html</a>       | normal | GE                   | 3T      |
| Distorted brain         | 15  | Stroke                             | 9        | 37-71 | In-house                                                                                                                                        | stroke | Philip               | 3T      |
| Generalizability        | 16  | ABIDE II                           | 30       | 5-64  | <a href="http://fcon_1000.projects.nitrc.org/indi/abide/abide_II.html">http://fcon_1000.projects.nitrc.org/indi/abide/abide_II.html</a>         | ASD    | Philips, GE, Siemens | 1.5T/3T |
|                         | 17  | HCP                                | 30       | 22-35 | <a href="https://www.humanconnectome.org/study/hcp-young-adult">https://www.humanconnectome.org/study/hcp-young-adult</a>                       | normal | Siemens              | 3T      |

**Table S2. Dice overlaps of anatomical parcellations between FastCSR and FreeSurfer**

| Parcellated structure name | ABIDE 30 subjects                 |                                   | HCP 30 subjects                   |                                   |
|----------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
|                            | LH Dice overlap (mean $\pm$ std.) | RH Dice overlap (mean $\pm$ std.) | LH Dice overlap (mean $\pm$ std.) | RH Dice overlap (mean $\pm$ std.) |
| bankssts                   | 0.953 $\pm$ 0.014                 | 0.950 $\pm$ 0.011                 | 0.947 $\pm$ 0.020                 | 0.947 $\pm$ 0.019                 |
| caudalanteriorcingulate    | 0.958 $\pm$ 0.012                 | 0.957 $\pm$ 0.013                 | 0.954 $\pm$ 0.018                 | 0.958 $\pm$ 0.012                 |
| caudalmiddlefrontal        | 0.980 $\pm$ 0.003                 | 0.976 $\pm$ 0.004                 | 0.982 $\pm$ 0.004                 | 0.979 $\pm$ 0.005                 |
| cuneus                     | 0.967 $\pm$ 0.007                 | 0.969 $\pm$ 0.007                 | 0.969 $\pm$ 0.008                 | 0.970 $\pm$ 0.009                 |
| entorhinal                 | 0.862 $\pm$ 0.074                 | 0.892 $\pm$ 0.042                 | 0.781 $\pm$ 0.054                 | 0.876 $\pm$ 0.066                 |
| fusiform                   | 0.969 $\pm$ 0.008                 | 0.976 $\pm$ 0.006                 | 0.958 $\pm$ 0.008                 | 0.978 $\pm$ 0.005                 |
| inferiorparietal           | 0.982 $\pm$ 0.003                 | 0.985 $\pm$ 0.002                 | 0.983 $\pm$ 0.003                 | 0.986 $\pm$ 0.003                 |
| inferiortemporal           | 0.976 $\pm$ 0.005                 | 0.978 $\pm$ 0.005                 | 0.975 $\pm$ 0.005                 | 0.982 $\pm$ 0.003                 |
| isthmuscingulate           | 0.944 $\pm$ 0.014                 | 0.947 $\pm$ 0.013                 | 0.955 $\pm$ 0.008                 | 0.958 $\pm$ 0.010                 |
| lateraloccipital           | 0.984 $\pm$ 0.002                 | 0.983 $\pm$ 0.003                 | 0.984 $\pm$ 0.004                 | 0.984 $\pm$ 0.004                 |
| lateralorbitofrontal       | 0.978 $\pm$ 0.004                 | 0.952 $\pm$ 0.022                 | 0.982 $\pm$ 0.003                 | 0.963 $\pm$ 0.027                 |
| lingual                    | 0.982 $\pm$ 0.004                 | 0.981 $\pm$ 0.004                 | 0.980 $\pm$ 0.006                 | 0.981 $\pm$ 0.005                 |
| medialorbitofrontal        | 0.909 $\pm$ 0.032                 | 0.955 $\pm$ 0.015                 | 0.905 $\pm$ 0.028                 | 0.960 $\pm$ 0.011                 |
| middletemporal             | 0.973 $\pm$ 0.007                 | 0.976 $\pm$ 0.004                 | 0.972 $\pm$ 0.005                 | 0.979 $\pm$ 0.004                 |
| parahippocampal            | 0.923 $\pm$ 0.040                 | 0.932 $\pm$ 0.030                 | 0.834 $\pm$ 0.112                 | 0.929 $\pm$ 0.046                 |
| paracentral                | 0.975 $\pm$ 0.006                 | 0.977 $\pm$ 0.005                 | 0.978 $\pm$ 0.006                 | 0.981 $\pm$ 0.003                 |
| parsopercularis            | 0.972 $\pm$ 0.004                 | 0.965 $\pm$ 0.008                 | 0.975 $\pm$ 0.005                 | 0.969 $\pm$ 0.006                 |
| parsorbitalis              | 0.961 $\pm$ 0.009                 | 0.966 $\pm$ 0.009                 | 0.967 $\pm$ 0.007                 | 0.973 $\pm$ 0.005                 |
| parstriangularis           | 0.965 $\pm$ 0.007                 | 0.971 $\pm$ 0.006                 | 0.969 $\pm$ 0.006                 | 0.972 $\pm$ 0.005                 |
| pericalcarine              | 0.965 $\pm$ 0.011                 | 0.969 $\pm$ 0.008                 | 0.957 $\pm$ 0.014                 | 0.961 $\pm$ 0.019                 |
| postcentral                | 0.981 $\pm$ 0.003                 | 0.980 $\pm$ 0.004                 | 0.985 $\pm$ 0.003                 | 0.985 $\pm$ 0.002                 |
| posteriorcingulate         | 0.966 $\pm$ 0.007                 | 0.968 $\pm$ 0.009                 | 0.971 $\pm$ 0.007                 | 0.974 $\pm$ 0.006                 |
| precentral                 | 0.984 $\pm$ 0.002                 | 0.982 $\pm$ 0.002                 | 0.987 $\pm$ 0.002                 | 0.986 $\pm$ 0.002                 |
| precuneus                  | 0.981 $\pm$ 0.004                 | 0.982 $\pm$ 0.003                 | 0.985 $\pm$ 0.003                 | 0.985 $\pm$ 0.002                 |
| rostralanteriorcingulate   | 0.843 $\pm$ 0.095                 | 0.936 $\pm$ 0.021                 | 0.894 $\pm$ 0.077                 | 0.946 $\pm$ 0.018                 |
| rostralmiddlefrontal       | 0.980 $\pm$ 0.003                 | 0.985 $\pm$ 0.003                 | 0.983 $\pm$ 0.004                 | 0.986 $\pm$ 0.002                 |
| superiorfrontal            | 0.984 $\pm$ 0.003                 | 0.988 $\pm$ 0.002                 | 0.987 $\pm$ 0.003                 | 0.990 $\pm$ 0.001                 |
| superiorparietal           | 0.983 $\pm$ 0.003                 | 0.983 $\pm$ 0.002                 | 0.987 $\pm$ 0.002                 | 0.985 $\pm$ 0.003                 |
| superiortemporal           | 0.980 $\pm$ 0.005                 | 0.980 $\pm$ 0.004                 | 0.979 $\pm$ 0.008                 | 0.980 $\pm$ 0.007                 |
| supramarginal              | 0.980 $\pm$ 0.003                 | 0.981 $\pm$ 0.004                 | 0.983 $\pm$ 0.003                 | 0.982 $\pm$ 0.005                 |
| frontalpole                | 0.937 $\pm$ 0.021                 | 0.931 $\pm$ 0.017                 | 0.942 $\pm$ 0.016                 | 0.945 $\pm$ 0.016                 |
| temporalpole               | 0.936 $\pm$ 0.023                 | 0.939 $\pm$ 0.023                 | 0.904 $\pm$ 0.031                 | 0.935 $\pm$ 0.019                 |
| transversetemporal         | 0.965 $\pm$ 0.008                 | 0.952 $\pm$ 0.016                 | 0.959 $\pm$ 0.027                 | 0.948 $\pm$ 0.032                 |
| insula                     | 0.944 $\pm$ 0.022                 | 0.930 $\pm$ 0.038                 | 0.948 $\pm$ 0.018                 | 0.925 $\pm$ 0.023                 |

Note: LH = Left Hemisphere; RH = Right Hemisphere