

gNetDGP: An End-to-End Graph Neural Network for Disease Gene Prioritization

Supplementary Material

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May 19, 2021

Table 1: AUC-ROC performances of SmuDGE and gNetDGP on monogenic and multi-genic diseases using generic setting. Best performances are in bold.

| Disease Type | SmuDGE | gNetDGP |
|--------------|--------|-------------|
| Monogenic | 0.80 | 0.86 |
| Multigenic | 0.89 | 0.94 |

Table 2: Experimental performances of DiGI, SmuDGE and gNetDGP on 12 disease classes. For each metric, the highest value is in bold face.

| Disease Class | Metric | DiGI | SmuDGE | gNetDGP |
|------------------|---------|-------------|-------------|-------------|
| Ophthalmological | auc-roc | 0.71 | 0.80 | 0,86 |
| | auc-pr | 0.71 | 0.83 | 0,87 |
| Connective | auc-roc | 0.71 | 0.43 | 0,72 |
| | auc-pr | 0.75 | 0.45 | 0,76 |
| Endocrine | auc-roc | 0.76 | 0.82 | 0,82 |
| | auc-pr | 0.78 | 0.82 | 0,84 |
| Skeletal | auc-roc | 0.81 | 0.65 | 0,89 |
| | auc-pr | 0.84 | 0.70 | 0,90 |
| Metabolic | auc-roc | 0.83 | 0.85 | 0,89 |
| | auc-pr | 0.87 | 0.81 | 0,89 |
| Cardiovascular | auc-roc | 0.71 | 0.69 | 0,74 |
| | auc-pr | 0.77 | 0.67 | 0,77 |
| Dermatological | auc-roc | 0.79 | 0.82 | 0,88 |
| | auc-pr | 0.85 | 0.80 | 0,91 |
| Renal | auc-roc | 0.72 | 0.76 | 0,73 |
| | auc-pr | 0.72 | 0.77 | 0,77 |
| Hematological | auc-roc | 0.70 | 0.68 | 0,86 |
| | auc-pr | 0.75 | 0.70 | 0,88 |
| Immunological | auc-roc | 0.86 | 0.82 | 0,89 |
| | auc-pr | 0.92 | 0.76 | 0,91 |
| Muscular | auc-roc | 0.74 | 0.78 | 0,84 |
| | auc-pr | 0.81 | 0.82 | 0,86 |
| Developmental | auc-roc | 0.69 | 0.65 | 0,70 |
| | auc-pr | 0.64 | 0.72 | 0,69 |