| Classifier  | Linear Classifier |       |       |       |       |      | kNN         |
|-------------|-------------------|-------|-------|-------|-------|------|-------------|
| Feature     | conv1             | conv2 | conv3 | conv4 | conv5 | FC   | FC          |
| Random      | 11.6              | 17.1  | 16.9  | 16.3  | 14.1  | 12.0 | 3.5         |
| Supervised  | 19.3              | 36.3  | 44.2  | 48.3  | 50.5  | -    | -           |
| Context     | 17.5              | 23.0  | 24.5  | 23.2  | 20.6  | 30.4 | -           |
| BiGAN       | 17.7              | 24.5  | 31.0  | 29.9  | 28.0  | 32.2 | -           |
| Colour      | 13.1              | 24.8  | 31.0  | 32.6  | 31.8  | 35.2 | -           |
| Jigsaw      | 19.2              | 30.1  | 34.7  | 33.9  | 28.3  | 38.1 | -           |
| NAT         | -                 | -     | -     | -     | -     | 36.0 | -           |
| Counting    | 18.0              | 30.6  | 34.3  | 32.5  | 25.7  | -    | -           |
| Split-Brain | 17.7              | 29.3  | 35.4  | 35.2  | 32.8  | -    | 11.8        |
| DeepCluster | 13.4              | 32.3  | 41.0  | 39.6  | 38.2  | -    | <b>26.8</b> |
| Instance    | 16.8              | 26.5  | 31.8  | 34.1  | 35.6  | -    | 31.3        |
| AND         | 15.6              | 27.0  | 35.9  | 39.7  | 37.9  | 36.7 | 31.3        |

learning methods on ImageNet. The results of existing methods

are from (Wu et al., 2018; Bojanowski & Joulin, 2017).