

Supplemental Table 1. Performance of **Constant Patch Size Training Scheme** (CPS) and **Progressive Growing of Patch Size Training Scheme** (PGPS) and **Random Patch Size Sampling Training Scheme** (RPSS) on Task06 Lung Cancer of Medical Segmentation Decathlon for different numbers of training iterations. (**Iterations Per Epoch**: Number of training iterations per epoch normalized to default training iterations of nnU-Net; **Dice Score**: Evaluated in 5-fold Cross-Validation; **Runtime**: Training runtime per fold on one NVIDIA A100-SXM4-80GB GPU; **Voxels Shown**: Total number of voxels iterated during training normalized to CPS training)

| Iterations Per Epoch | Training Scheme | Dice Score↑ | Runtime↓ | Voxels Shown↓ |
|----------------------|-----------------|---------------|----------|---------------|
| 10% | CPS | 0.6073 | 2.49 h | 10.0 % |
| | RPSS | 0.5971 | 1.72 h | ~ 3.5 % |
| | PGPS | 0.6608 | 1.69 h | 3.5 % |
| 25% | CPS | 0.6435 | 4.22 h | 25.0 % |
| | RPSS | 0.6386 | 2.37 h | ~ 8.8 % |
| | PGPS | 0.6753 | 2.35 h | 8.8 % |
| 50% | CPS | 0.6833 | 7.40 h | 50.0 % |
| | RPSS | 0.7005 | 3.52 h | ~ 17.7 % |
| | PGPS | 0.7009 | 3.43 h | 17.7 % |
| 100% | CPS | 0.7211 | 13.55 h | 100.0 % |
| | RPSS | 0.7173 | 5.69 h | ~ 35.4 % |
| | PGPS | 0.7263 | 5.70 h | 35.4 % |

Supplemental Table 2. All training input tensor sizes for nnU-Net model training with Progressive Growing of Patch Size Curriculum on the Medical Segmentation Decathlon tasks. The input is given as batch size * width * height * depth. These are the values used for PGPS+. The raw PGPS uses a constant batch size for all patch size stages, which is here given for the final patch size. The maximum patch size during model training is also used for inference.

| | Brain | Heart | Liver | Hippocampus | Prostate |
|-----------|---------------|--------------|----------------|--------------|--------------|
| 1. Stage | 24*64*32*32 | 24*32*32*32 | 24*64*32*32 | 24*16*8*8 | 24*8*64*64 |
| 2. Stage | 12*64*64*32 | 12*32*64*32 | 12*64*64*32 | 12*16*16*8 | 12*8*128*64 |
| 3. Stage | 6*64*64*64 | 6*32*64*64 | 6*64*64*64 | 9*16*16*16 | 6*8*128*128 |
| 4. Stage | 4*96*64*64 | 4*48*64*64 | 4*96*64*64 | 9*24*16*16 | 4*12*128*128 |
| 5. Stage | 3*96*96*64 | 3*48*96*64 | 3*96*96*64 | 9*24*24*16 | 3*12*192*128 |
| 6. Stage | 2*96*96*96 | 2*48*96*96 | 2*96*96*96 | 9*24*24*24 | 2*12*192*192 |
| 7. Stage | 2*128*96*96 | 2*64*96*96 | 2*128*96*96 | 9*32*24*24 | 2*16*192*192 |
| 8. Stage | 2*128*128*96 | 2*64*128*96 | 2*128*128*96 | 9*32*32*24 | 2*16*256*192 |
| 9. Stage | 2*128*128*128 | 2*64*128*128 | 2*128*128*128 | 9*32*32*32 | 2*16*256*256 |
| 10. Stage | - | 2*80*128*128 | - | 9*40*32*32 | 2*20*256*256 |
| 11. Stage | - | 2*80*160*128 | - | 9*40*40*32 | 2*20*320*256 |
| 12. Stage | - | 2*80*160*160 | - | 9*40*40*40 | - |
| 13. Stage | - | 2*80*192*160 | - | 9*40*48*40 | - |
| 14. Stage | - | - | - | 9*40*56*40 | - |
| 15. Stage | - | - | - | - | - |
| | Lung | Pancreas | Hepatic Vessel | Spleen | Colon |
| 1. Stage | 24*32*32*32 | 24*16*32*32 | 24*32*32*32 | 24*32*32*32 | 24*16*32*32 |
| 2. Stage | 12*32*64*32 | 12*16*64*32 | 12*32*64*32 | 12*32*64*32 | 12*16*64*32 |
| 3. Stage | 6*32*64*64 | 6*16*64*64 | 6*32*64*64 | 6*32*64*64 | 6*16*64*64 |
| 4. Stage | 4*48*64*64 | 4*24*64*64 | 4*48*64*64 | 4*48*64*64 | 4*24*64*64 |
| 5. Stage | 3*48*96*64 | 3*24*96*64 | 3*48*96*64 | 3*48*96*64 | 3*24*96*64 |
| 6. Stage | 2*48*96*96 | 2*24*96*96 | 2*48*96*96 | 2*48*96*96 | 2*24*96*96 |
| 7. Stage | 2*64*96*96 | 2*32*96*96 | 2*64*96*96 | 2*64*96*96 | 2*32*96*96 |
| 8. Stage | 2*64*128*96 | 2*32*128*96 | 2*64*128*96 | 2*64*128*96 | 2*32*128*96 |
| 9. Stage | 2*64*128*128 | 2*32*128*128 | 2*64*128*128 | 2*64*128*128 | 2*32*128*128 |
| 10. Stage | 2*80*128*128 | 2*40*128*128 | 2*64*160*128 | 2*64*160*128 | 2*40*128*128 |
| 11. Stage | 2*80*160*128 | 2*40*160*128 | 2*64*160*160 | 2*64*160*160 | 2*40*160*128 |
| 12. Stage | 2*80*160*160 | 2*40*160*160 | 2*64*192*160 | 2*64*192*160 | 2*40*160*160 |
| 13. Stage | 2*80*192*160 | 2*40*192*160 | 2*64*192*192 | - | 2*48*160*160 |
| 14. Stage | - | 2*40*192*192 | - | - | 2*48*192*160 |
| 15. Stage | - | 2*40*224*192 | - | - | 2*56*192*160 |