The paper on the Lottery Ticket Hypothesis investigates neural network pruning and proposes that within large, randomly-initialized networks, there exist smaller subnetworks ("winning tickets") that can achieve comparable accuracy to the original network when trained in isolation. These subnetworks are efficient in terms of both computation and the number of parameters. The authors demonstrate through experiments that these winning tickets can be identified through a process of iterative pruning, significantly reducing the size of the network without compromising performance. This finding suggests a new perspective on network design, emphasizing the importance of initialization and the potential for smaller networks to perform as well as larger ones.

The "Early Bird Tickets" paper introduces a method to efficiently train deep neural networks by identifying "Early-Bird" (EB) tickets early in the training process. These are smaller, critical subnetworks within larger networks that can achieve similar accuracy with significantly reduced computational cost. The authors propose a mask distance metric for identifying these EB tickets early, bypassing the need for full training. Their experiments demonstrate up to 10.7× energy savings while maintaining or improving accuracy compared to state-of-the-art training methods. This approach offers a promising solution for the cost-prohibitive training of deep networks, making efficient training more accessible and environmentally friendly.