Supplementary material for
"RISE: Randomized Input Sampling for
Explanation of Black-box Models"

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Algorithm to compute deletion score.

**Algorithm 1**

1: **procedure** `DELETION`
2: **Input**: black box $f$, image $I$, importance map $S$, number of pixels $N$ removed per step
3: **Output**: deletion score $d$
4: $n \leftarrow 0$
5: $h_n \leftarrow f(I)$
6: **while** $I$ has non-zero pixels **do**
7:  
8:  
9: $n \leftarrow n + 1$
10: $h_n \leftarrow f(I)$
11: $d \leftarrow \text{AreaUnderCurve}(h_i \ vs. \ i/n, \ \forall i = 0, \ldots, n)$
12: **return** $d$

Algorithm to compute insertion score.

**Algorithm 2**

1: **procedure** `INSERTION`
2: **Input**: black box $f$, image $I$, importance map $S$, number of pixels $N$ removed per step
3: **Output**: insertion score $d$
4: $n \leftarrow 0$
5: $I' \leftarrow \text{Blur}(I)$
6: $h_n \leftarrow f(I)$
7: **while** $I \neq I'$ **do**
8:  
9:  
10: $h_n \leftarrow f(I')$
11: $d \leftarrow \text{AreaUnderCurve}(h_i \ vs. \ i/n, \ \forall i = 0, \ldots, n)$
12: **return** $d$
Figure 1: RISE generated importance maps (second column) for representative images (first column) with deletion (third column) and insertion curves (fourth column).
Figure 2: RISE generated importance maps (second column) for representative images (first column) with deletion (third column) and insertion curves (fourth column).
Figure 3: RISE generated importance maps (second column) for representative images (first column) with deletion (third column) and insertion curves (fourth column).

Figure 4: Failure cases. In some cases RISE does pick up more important features, but cannot get rid of the background noise (in part due to MC approximation with only a subset) like in rows 1 and 2.