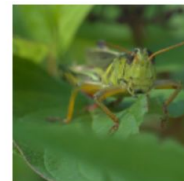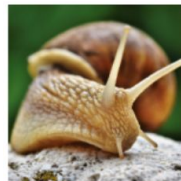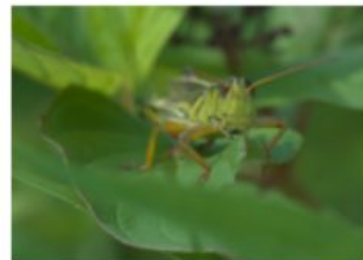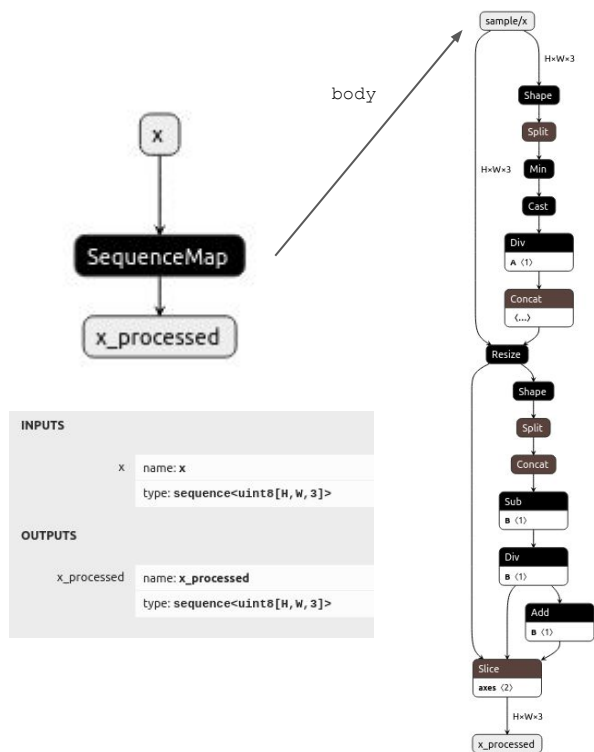# ONNX Pre-processing WG

Monthly meeting - Jan 12, 2022

Agenda

- SequenceMap function - status update

- Using model local functions

- Open floor

SequenceMap function - status update

Using model local functions

```
1  m = parser.parse_model('''
2  <
3    ir_version: 8,
4    opset_import: [ "" : 14, "local" : 1],
5    producer_name: "test",
6    producer_version: "1.0",
7    model_version: 1,
8    doc_string: "Test preprocessing model",
9    metadata_props: [ "preprocessing_fn" : "local.sample_preprocess" ]
10 >
11 agraph (uint8[H, W, C] x) => (uint8[H, W, C] y)
12 {
13     x_processed = local.sample_preprocess(x)
14     y = Identity(x_processed)
15 }
16
17 <
18   opset_import: [ "" : 14 ],
19   domain: "local",
20   doc_string: "sample preprocessing function"
21 >
22 sample_preprocess (x) => (x_processed)
23 {
24     k256f = Constant <value = float[1] {256.0}> ()
25     k1f = Constant <value = float[1] {1.0}> ()
26     x_shape = Shape (x)
27     h, w, c = Split <axis = 0> (x_shape)
28     min_extent = Min (h, w)
29     min_extent_f = Cast <to = 1> (min_extent)
30     ratio_resize = Div (k256f, min_extent_f)
31     scales_resize = Concat <axis = 0> (ratio_resize, ratio_resize, k1f)
32     roi = Constant <value = float[6] {0.0, 0.0, 0.0, 1.0, 1.0, 1.0}> ()
33     x_resized = Resize <mode = \"linear\"> (x, roi, scales_resize)
34
35     k224 = Constant <value = int64[1] {224}> ()
36     k2 = Constant <value = int64[1] {2}> ()
37     axes = Constant <value = int64[2] {0, 1}> ()
38     x_shape2 = Shape (x_resized)
39     h2, w2, c2 = Split <axis = 0> (x_shape2)
40     hw = Concat <axis = 0> (h2, w2)
41     hw_diff = Sub (hw, k224)
42     start_xy = Div (hw_diff, k2)
43     end_xy = Add (start_xy, k224)
44     x_processed = Slice (x_resized, start_xy, end_xy, axes)
45 }
46 ''')
47
```

Tagging a single model local function as the preprocessing function.

```
metadata_props: [ "preprocessing_fn" : "local.sample_preprocess" ]
```

Found several issues working with model local functions and onnxruntime and onnx:

Optional inputs within model local function:
https://github.com/microsoft/onnxruntime/issues/10249

Nesting model local functions
https://github.com/microsoft/onnxruntime/issues/10250

Submodel extraction with model local functions
https://github.com/microsoft/onnxruntime/issues/10259
https://github.com/onnx/onnx/issues/3938

Open floor