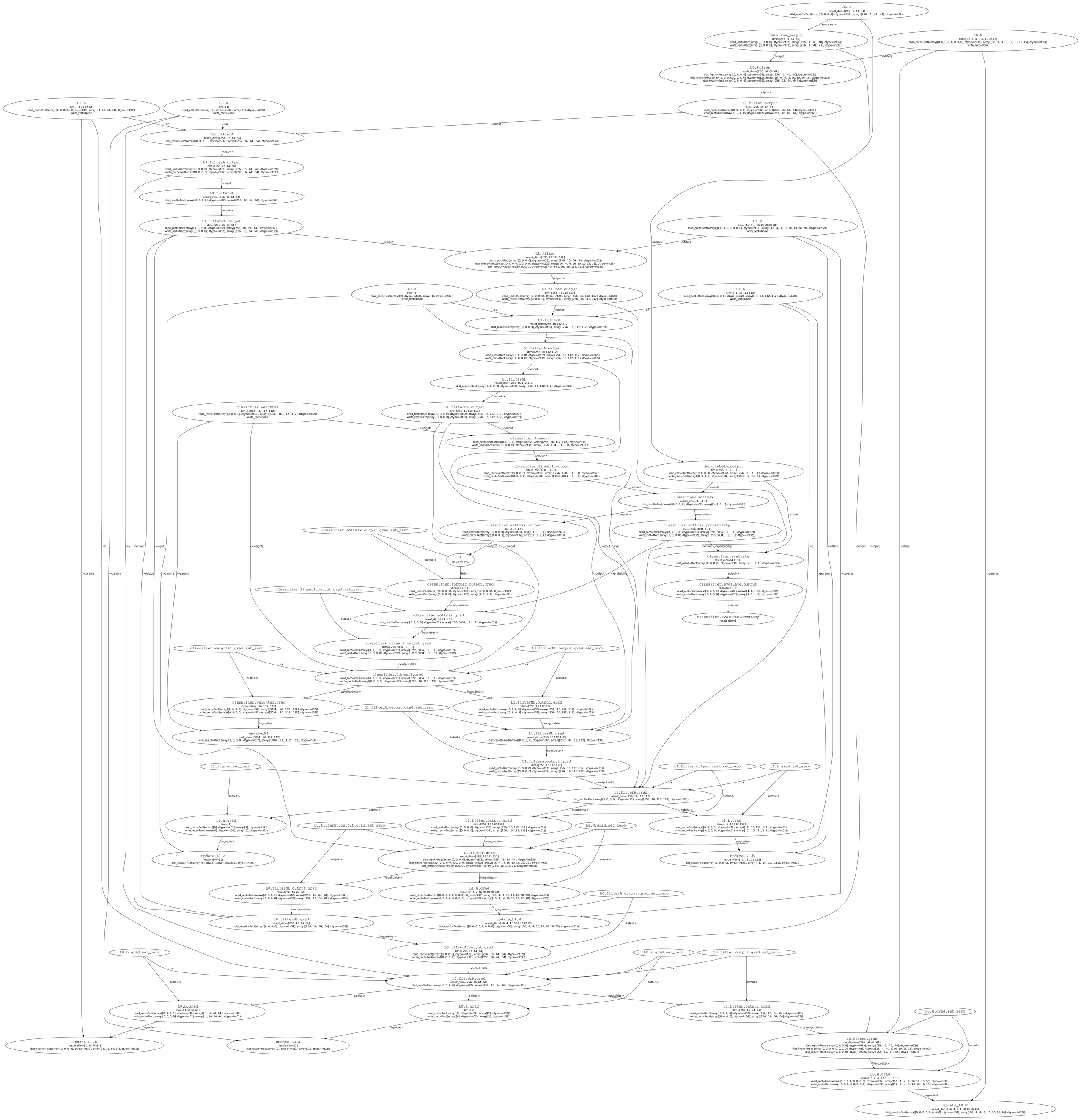
data
result_dim=[256 1 41 41]
dist_result=Rect(array([0, 0, 0, 0], dtype=int32), array([256, 1, 41, 41], dtype=int32))
raw_data->
data.raw_output
dim=[256 1 41 41]
read_rect=Rect(array([0, 0, 0, 0], dtype=int32), array([256, 1, 40, 40], dtype=int32))
write_rect=Rect(array([0, 0, 0, 0], dtype=int32), array([256, 1, 41, 41], dtype=int32))
->input
L0.W
dim=[16 4 4 1 10 10 16 16]
read_rect=Rect(array([0, 0, 0, 0, 0, 0, 0, 0], dtype=int32), array([16, 4, 4, 1, 10, 10, 16, 16], dtype=int32))
write_rect=None
->filters
L0.filter
result_dim=[256 16 64 64]
dist_input=Rect(array([0, 0, 0, 0], dtype=int32), array([256, 1, 40, 40], dtype=int32))
dist_filters=Rect(array([0, 0, 0, 0, 0, 0, 0, 0], dtype=int32), array([16, 4, 4, 1, 10, 10, 16, 16], dtype=int32))
dist_result=Rect(array([0, 0, 0, 0], dtype=int32), array([256, 16, 64, 64], dtype=int32))
output->
L0.filter.output
dim=[256 16 64 64]
read_rect=Rect(array([0, 0, 0, 0], dtype=int32), array([256, 16, 64, 64], dtype=int32))
write_rect=Rect(array([0, 0, 0, 0], dtype=int32), array([256, 16, 64, 64], dtype=int32))
->input
L0.b
dim=[1 16 64 64]
read_rect=Rect(array([0, 0, 0, 0], dtype=int32), array([1, 16, 64, 64], dtype=int32))
write_rect=None
L0.a
dim=[1]
read_rect=Rect(array([0], dtype=int32), array([1], dtype=int32))
write_rect=None
->b
->a
L0.filterA
result_dim=[256 16 64 64]
dist_result=Rect(array([0, 0, 0, 0], dtype=int32), array([256, 16, 64, 64], dtype=int32))
output->
L0.filterA.output
dim=[256 16 64 64]
read_rect=Rect(array([0, 0, 0, 0], dtype=int32), array([256, 16, 64, 64], dtype=int32))
write_rect=Rect(array([0, 0, 0, 0], dtype=int32), array([256, 16, 64, 64], dtype=int32))
->input
L0.filterNL
result_dim=[256 16 64 64]
dist_result=Rect(array([0, 0, 0, 0], dtype=int32), array([256, 16, 64, 64], dtype=int32))
output->
L0.filterNL.output
dim=[256 16 64 64]
read_rect=Rect(array([0, 0, 0, 0], dtype=int32), array([256, 16, 64, 64], dtype=int32))
write_rect=Rect(array([0, 0, 0, 0], dtype=int32), array([256, 16, 64, 64], dtype=int32))
->input
L1.W
dim=[16 4 4 16 10 10 28 28]
read_rect=Rect(array([0, 0, 0, 0, 0, 0, 0, 0], dtype=int32), array([16, 4, 4, 16, 10, 10, 28, 28], dtype=int32))
write_rect=None
labels->
->filters
L1.filter
result_dim=[256 16 112 112]
dist_input=Rect(array([0, 0, 0, 0], dtype=int32), array([256, 16, 64, 64], dtype=int32))
dist_filters=Rect(array([0, 0, 0, 0, 0, 0, 0, 0], dtype=int32), array([16, 4, 4, 16, 10, 10, 28, 28], dtype=int32))
dist_result=Rect(array([0, 0, 0, 0], dtype=int32), array([256, 16, 112, 112], dtype=int32))
output->
L1.a
dim=[1]
read_rect=Rect(array([0], dtype=int32), array([1], dtype=int32))
write_rect=None
L1.filter.output
dim=[256 16 112 112]
read_rect=Rect(array([0, 0, 0, 0], dtype=int32), array([256, 16, 112, 112], dtype=int32))
write_rect=Rect(array([0, 0, 0, 0], dtype=int32), array([256, 16, 112, 112], dtype=int32))
L1.b
dim=[1 16 112 112]
read_rect=Rect(array([0, 0, 0, 0], dtype=int32), array([1, 16, 112, 112], dtype=int32))
write_rect=None
->a
->input
->b
L1.filterA
result_dim=[256 16 112 112]
dist_result=Rect(array([0, 0, 0, 0], dtype=int32), array([256, 16, 112, 112], dtype=int32))
output->
L1.filterA.output
dim=[256 16 112 112]
read_rect=Rect(array([0, 0, 0, 0], dtype=int32), array([256, 16, 112, 112], dtype=int32))
write_rect=Rect(array([0, 0, 0, 0], dtype=int32), array([256, 16, 112, 112], dtype=int32))
->input
L1.filterNL
result_dim=[256 16 112 112]
dist_result=Rect(array([0, 0, 0, 0], dtype=int32), array([256, 16, 112, 112], dtype=int32))
output->
classifier.weights1
dim=[3034 16 112 112]
read_rect=Rect(array([0, 0, 0, 0], dtype=int32), array([3034, 16, 112, 112], dtype=int32))
write_rect=None
L1.filterNL.output
dim=[256 16 112 112]
read_rect=Rect(array([0, 0, 0, 0], dtype=int32), array([256, 16, 112, 112], dtype=int32))
write_rect=Rect(array([0, 0, 0, 0], dtype=int32), array([256, 16, 112, 112], dtype=int32))
->weights
->input
classifier.linear1
read_rect=Rect(array([0, 0, 0, 0], dtype=int32), array([256, 16, 112, 112], dtype=int32))
write_rect=Rect(array([0, 0, 0, 0], dtype=int32), array([256, 3034, 1, 1], dtype=int32))
output->
classifier.linear1.output
dim=[256 3034 1 1]
read_rect=Rect(array([0, 0, 0, 0], dtype=int32), array([256, 3034, 1, 1], dtype=int32))
write_rect=Rect(array([0, 0, 0, 0], dtype=int32), array([256, 3034, 1, 1], dtype=int32))
data.labels_output
dim=[256 1 1 1]
read_rect=Rect(array([0, 0, 0, 0], dtype=int32), array([256, 1, 1, 1], dtype=int32))
write_rect=Rect(array([0, 0, 0, 0], dtype=int32), array([256, 1, 1, 1], dtype=int32))
->input
->labels
classifier.softmax
result_dim=[1 1 1 1]
dist_result=Rect(array([0, 0, 0, 0], dtype=int32), array([1, 1, 1, 1], dtype=int32))
output->
probability->
->labels
classifier.softmax.output
dim=[1 1 1 1]
read_rect=Rect(array([0, 0, 0, 0], dtype=int32), array([1, 1, 1, 1], dtype=int32))
write_rect=Rect(array([0, 0, 0, 0], dtype=int32), array([1, 1, 1, 1], dtype=int32))
classifier.softmax.probability
dim=[256, 3034, 1, 1]
read_rect=Rect(array([0, 0, 0, 0], dtype=int32), array([256, 3034, 1, 1], dtype=int32))
write_rect=Rect(array([0, 0, 0, 0], dtype=int32), array([256, 3034, 1, 1], dtype=int32))
classifier.softmax.output.grad.set_zero
->
->input
->input
->weights
->input
->a
->input
->probability
->b
->a
->input
->input
->params
->params
->output
->params
->params
->output
->probability
->params
->filters
->input
->input
->filters
->params
output->
f
result_dim=1
delta->
classifier.evaluate
result_dim=[4 1 1 1]
dist_result=Rect(array([0, 0, 0, 0], dtype=int32), array([4, 1, 1, 1], dtype=int32))
output->
classifier.evaluate.ouptut
dim=[4 1 1 1]
read_rect=Rect(array([0, 0, 0, 0], dtype=int32), array([4, 1, 1, 1], dtype=int32))
write_rect=Rect(array([0, 0, 0, 0], dtype=int32), array([4, 1, 1, 1], dtype=int32))
->input
classifier.evaluate.accuracy
result_dim=1
classifier.linear1.output.grad.set_zero
->
->output.delta
classifier.softmax.output.grad
dim=[1 1 1 1]
read_rect=Rect(array([0, 0, 0, 0], dtype=int32), array([0, 0, 0, 0], dtype=int32))
write_rect=Rect(array([0, 0, 0, 0], dtype=int32), array([1, 1, 1, 1], dtype=int32))
output->
classifier.softmax.grad
result_dim=[1 1 1 1]
dist_result=Rect(array([0, 0, 0, 0], dtype=int32), array([256, 3034, 1, 1], dtype=int32))
input.delta->
classifier.linear1.output.grad
dim=[256 3034 1 1]
read_rect=Rect(array([0, 0, 0, 0], dtype=int32), array([256, 3034, 1, 1], dtype=int32))
write_rect=Rect(array([0, 0, 0, 0], dtype=int32), array([256, 3034, 1, 1], dtype=int32))
->output.delta
classifier.weights1.grad.set_zero
->
L1.filterNL.output.grad.set_zero
->
output->
classifier.linear1.grad
read_rect=Rect(array([0, 0, 0, 0], dtype=int32), array([256, 3034, 1, 1], dtype=int32))
write_rect=Rect(array([0, 0, 0, 0], dtype=int32), array([256, 16, 112, 112], dtype=int32))
output->
weights.delta->
input.delta->
classifier.weights1.grad
dim=[3034 16 112 112]
read_rect=Rect(array([0, 0, 0, 0], dtype=int32), array([3034, 16, 112, 112], dtype=int32))
write_rect=Rect(array([0, 0, 0, 0], dtype=int32), array([3034, 16, 112, 112], dtype=int32))
L1.filterA.output.grad.set_zero
L1.filterNL.output.grad
dim=[256 16 112 112]
read_rect=Rect(array([0, 0, 0, 0], dtype=int32), array([256, 16, 112, 112], dtype=int32))
write_rect=Rect(array([0, 0, 0, 0], dtype=int32), array([256, 16, 112, 112], dtype=int32))
->gradient
->output.delta
update_W1
result_dim=[3034 16 112 112]
dist_result=Rect(array([0, 0, 0, 0], dtype=int32), array([3034, 16, 112, 112], dtype=int32))
output->
L1.filterNL.grad
result_dim=[256 16 112 112]
dist_result=Rect(array([0, 0, 0, 0], dtype=int32), array([256, 16, 112, 112], dtype=int32))
input.delta->
L1.a.grad.set_zero
L1.filterA.output.grad
dim=[256 16 112 112]
read_rect=Rect(array([0, 0, 0, 0], dtype=int32), array([256, 16, 112, 112], dtype=int32))
write_rect=Rect(array([0, 0, 0, 0], dtype=int32), array([256, 16, 112, 112], dtype=int32))
->output.delta
L1.filter.output.grad.set_zero
L1.b.grad.set_zero
->
->
->
L1.filterA.grad
result_dim=[256 16 112 112]
dist_result=Rect(array([0, 0, 0, 0], dtype=int32), array([256, 16, 112, 112], dtype=int32))
output->
output->
a.delta->
input.delta->
b.delta->
L1.a.grad
dim=[1]
read_rect=Rect(array([0], dtype=int32), array([1], dtype=int32))
write_rect=Rect(array([0], dtype=int32), array([1], dtype=int32))
L0.filterNL.output.grad.set_zero
L1.filter.output.grad
dim=[256 16 112 112]
read_rect=Rect(array([0, 0, 0, 0], dtype=int32), array([256, 16, 112, 112], dtype=int32))
write_rect=Rect(array([0, 0, 0, 0], dtype=int32), array([256, 16, 112, 112], dtype=int32))
L1.W.grad.set_zero
L1.b.grad
dim=[1 16 112 112]
read_rect=Rect(array([0, 0, 0, 0], dtype=int32), array([1, 16, 112, 112], dtype=int32))
write_rect=Rect(array([0, 0, 0, 0], dtype=int32), array([1, 16, 112, 112], dtype=int32))
->gradient
->output.delta
->
->
->gradient
update_L1.a
result_dim=[1]
dist_result=Rect(array([0], dtype=int32), array([1], dtype=int32))
output->
L1.filter.grad
result_dim=[256 16 112 112]
dist_input=Rect(array([0, 0, 0, 0], dtype=int32), array([256, 16, 64, 64], dtype=int32))
dist_filters=Rect(array([0, 0, 0, 0, 0, 0, 0, 0], dtype=int32), array([16, 4, 4, 16, 10, 10, 28, 28], dtype=int32))
dist_result=Rect(array([0, 0, 0, 0], dtype=int32), array([256, 16, 112, 112], dtype=int32))
output->
update_L1.b
result_dim=[1 16 112 112]
dist_result=Rect(array([0, 0, 0, 0], dtype=int32), array([1, 16, 112, 112], dtype=int32))
input.delta->
filters.delta->
L0.filterNL.output.grad
dim=[256 16 64 64]
read_rect=Rect(array([0, 0, 0, 0], dtype=int32), array([256, 16, 64, 64], dtype=int32))
write_rect=Rect(array([0, 0, 0, 0], dtype=int32), array([256, 16, 64, 64], dtype=int32))
L1.W.grad
dim=[16 4 4 16 10 10 28 28]
read_rect=Rect(array([0, 0, 0, 0, 0, 0, 0, 0], dtype=int32), array([16, 4, 4, 16, 10, 10, 28, 28], dtype=int32))
write_rect=Rect(array([0, 0, 0, 0, 0, 0, 0, 0], dtype=int32), array([16, 4, 4, 16, 10, 10, 28, 28], dtype=int32))
L0.filterA.output.grad.set_zero
->output.delta
->gradient
->
output->
L0.filterNL.grad
result_dim=[256 16 64 64]
dist_result=Rect(array([0, 0, 0, 0], dtype=int32), array([256, 16, 64, 64], dtype=int32))
update_L1.W
result_dim=[16 4 4 16 10 10 28 28]
dist_result=Rect(array([0, 0, 0, 0, 0, 0, 0, 0], dtype=int32), array([16, 4, 4, 16, 10, 10, 28, 28], dtype=int32))
input.delta->
L0.filterA.output.grad
dim=[256 16 64 64]
read_rect=Rect(array([0, 0, 0, 0], dtype=int32), array([256, 16, 64, 64], dtype=int32))
write_rect=Rect(array([0, 0, 0, 0], dtype=int32), array([256, 16, 64, 64], dtype=int32))
L0.b.grad.set_zero
L0.a.grad.set_zero
L0.filter.output.grad.set_zero
->
->
->
output->
output->
output->
L0.filterA.grad
result_dim=[256 16 64 64]
dist_result=Rect(array([0, 0, 0, 0], dtype=int32), array([256, 16, 64, 64], dtype=int32))
->output.delta
b.delta->
a.delta->
input.delta->
L0.b.grad
dim=[1 16 64 64]
read_rect=Rect(array([0, 0, 0, 0], dtype=int32), array([1, 16, 64, 64], dtype=int32))
write_rect=Rect(array([0, 0, 0, 0], dtype=int32), array([1, 16, 64, 64], dtype=int32))
L0.a.grad
dim=[1]
read_rect=Rect(array([0], dtype=int32), array([1], dtype=int32))
write_rect=Rect(array([0], dtype=int32), array([1], dtype=int32))
L0.filter.output.grad
dim=[256 16 64 64]
read_rect=Rect(array([0, 0, 0, 0], dtype=int32), array([256, 16, 64, 64], dtype=int32))
write_rect=Rect(array([0, 0, 0, 0], dtype=int32), array([256, 16, 64, 64], dtype=int32))
L0.W.grad.set_zero
->
->gradient
->gradient
->output.delta
L0.filter.grad
dim=[256 16 64 64]
dist_input=Rect(array([0, 0, 0, 0], dtype=int32), array([256, 1, 40, 40], dtype=int32))
dist_filters=Rect(array([0, 0, 0, 0, 0, 0, 0, 0], dtype=int32), array([16, 4, 4, 1, 10, 10, 16, 16], dtype=int32))
dist_result=Rect(array([0, 0, 0, 0], dtype=int32), array([256, 16, 64, 64], dtype=int32))
output->
filters.delta->
L0.W.grad
dim=[16 4 4 1 10 10 16 16]
read_rect=Rect(array([0, 0, 0, 0, 0, 0, 0, 0], dtype=int32), array([16, 4, 4, 1, 10, 10, 16, 16], dtype=int32))
write_rect=Rect(array([0, 0, 0, 0, 0, 0, 0, 0], dtype=int32), array([16, 4, 4, 1, 10, 10, 16, 16], dtype=int32))
->gradient
update_L0.b
result_dim=[1 16 64 64]
dist_result=Rect(array([0, 0, 0, 0], dtype=int32), array([1, 16, 64, 64], dtype=int32))
update_L0.a
result_dim=[1]
dist_result=Rect(array([0], dtype=int32), array([1], dtype=int32))
update_L0.W
result_dim=[16 4 4 1 10 10 16 16]
dist_result=Rect(array([0, 0, 0, 0, 0, 0, 0, 0], dtype=int32), array([16, 4, 4, 1, 10, 10, 16, 16], dtype=int32))