

Supplementary material for “Mimic and Fool: A Task Agnostic Adversarial Attack”

1 Examples of Mimic and Fool

Image	What is the brand of drink?	What does the phone say?	Is this a smartphone?
	pepsi	nokia	no
	pepsi	nokia	no
Image	What is the big red thing?	Are there clouds visible?	What city is this?
	fire truck	yes	london
	fire truck	yes	london
Image	What is the man holding?	What occasion is it?	What is the man drinking?
	wine glass	dinner	wine
	wine glass	dinner	wine

Table 1: Examples of *Mimic and Fool* for N2NMN. Single adversarial image suffices for three image-question pairs.



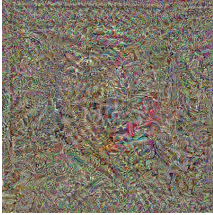
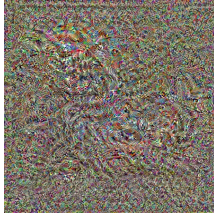


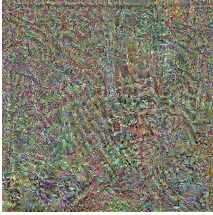
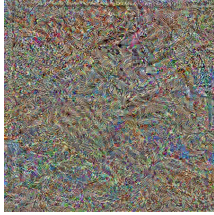


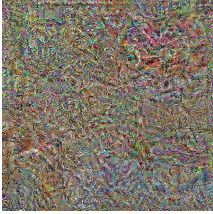
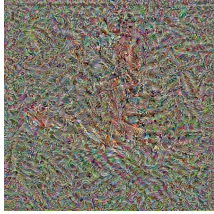
Image	What room is this?	Image	What is the man doing?
	living room		sitting
	living room		sitting
	bathroom		skateboarding
	bathroom		skateboarding
	bedroom		surfing
	bedroom		surfing

Table 2: Examples of Mimic and Fool for N2NMN. N2NMN predicts varied answers for the same question.



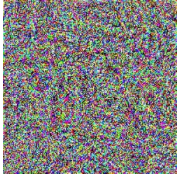
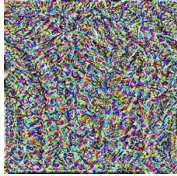


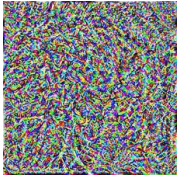
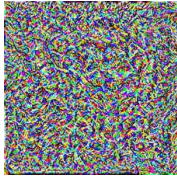

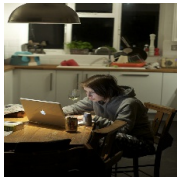
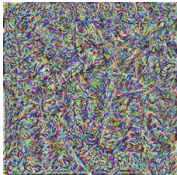
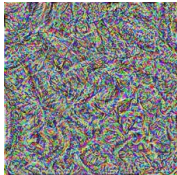
Image	Caption	Image	Caption
	a group of people on surfboards in the water.		a man riding a wave on top of a surfboard.
	<ol style="list-style-type: none"> 1. a group of people on surfboards in the water. 2. a group of people on surfboards in the ocean. 3. a group of people riding on top of surfboards. 		<ol style="list-style-type: none"> 1. a man riding a wave on top of a surfboard. 2. a man riding a surfboard on top of a wave. 3. a man on a surfboard riding a wave.
Image	Caption	Image	Caption
	a man riding a skateboard up the side of a ramp.		a laptop computer sitting on top of a desk.
	<ol style="list-style-type: none"> 1. a man riding a skateboard up the side of a ramp. 2. a man riding a skateboard down the side of a ramp. 3. a man riding a skateboard up the side of a cement ramp. 		<ol style="list-style-type: none"> 1. a laptop computer sitting on top of a desk. 2. a laptop computer sitting on top of a wooden desk. 3. a desk with a laptop and a lamp.
Image	Caption	Image	Caption
	a bus that is sitting in the street.		a woman sitting at a table with a laptop.
	<ol style="list-style-type: none"> 1. a bus that is driving down the street. 2. a bus that is sitting on the side of the road. 3. a bus that is parked on the side of the road. 		<ol style="list-style-type: none"> 1. a woman sitting in front of a laptop computer. 2. a woman sitting at a table with a laptop. 3. a woman sitting at a table with a laptop computer.

Table 3: Examples for Show and Tell. The first two rows contain successful cases and the last row contains unsuccessful cases.




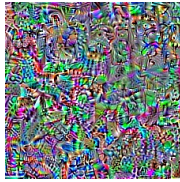

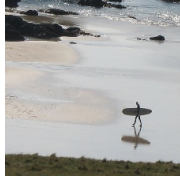
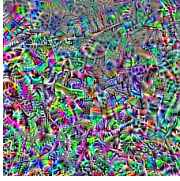
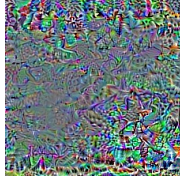


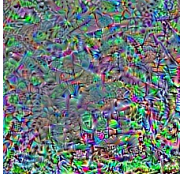
Image	Caption	Image	Caption
	a red double decker bus driving down a street.		a group of people sitting in a room.
	<ol style="list-style-type: none"> 1. a red double decker bus driving down a street. 2. a red double decker bus driving down the street. 3. a red double decker bus traveling down a street. 		<ol style="list-style-type: none"> 1. a group of people sitting in a room. 2. a group of people sitting on a couch. 3. a group of people sitting on a bed.
Image	Caption	Image	Caption
	a group of cows standing in a field.		a person on a beach with a surfboard.
	<ol style="list-style-type: none"> 1. a group of cows standing in a field. 2. a group of cows standing next to each other. 3. a group of cows standing next to each other in a field. 		<ol style="list-style-type: none"> 1. a person on a beach with a surfboard. 2. a person on a beach holding a surfboard. 3. a person walking on a beach with a surfboard.
Image	Caption	Image	Caption
	a train traveling down the tracks near a forest.		a boat floating in a body of water.
	<ol style="list-style-type: none"> 1. a train traveling down the tracks near to a forest. 2. a train traveling down the tracks near a forest. 3. a train traveling down a train track next to a forest. 		<ol style="list-style-type: none"> 1. a boat floating in the water next to a lake. 2. a boat floating in the water near a lake. 3. a boat floating in the water next to a body of water.

Table 4: Examples for Show Attend and Tell. The first two rows contain successful cases and the last row contains unsuccessful cases.

2 Examples of One Image Many Outputs

Image	What number is on the bus?	How many busses are there?	What color is bus bumper?
	22	1	yellow
	22	1	yellow
Image	Is this a hotel room?	Which room is this?	What is on the nightstand?
	yes	bedroom	lamp
	yes	bedroom	lamp
Image	What are the people holding?	What are the people looking at?	How many headbands are pictured?
	tennis rackets	camera	2
	tennis rackets	camera	2

Table 5: Examples of *One Image Many Outputs* for N2NMN. Single adversarial image suffices for three image-question pairs.


Image	What kind of animal is this?	Image	What sport is being played?
	elephant		soccer
	elephant		soccer
	giraffe		skateboarding
	giraffe		skateboarding
	cat		tennis
	cat		tennis

Table 6: Examples of *One Image Many Outputs* for N2NMN. N2NMN predicts varied answers for the same question.

Image	Caption	Image	Caption
	a group of people standing next to each other.		a man riding a wave on top of a surfboard.
	<ol style="list-style-type: none"> 1. a group of people standing next to each other. 2. a group of people standing next to each other eating food. 3. a group of people standing next to each other eating pizza. 		<ol style="list-style-type: none"> 1. a man riding a wave on top of a surfboard. 2. a person riding a surfboard on a wave. 3. a man riding a surfboard on top of a river.
Image	Caption	Image	Caption
	a herd of zebra standing on top of a lush green field.		a pile of luggage sitting next to each other.
	<ol style="list-style-type: none"> 1. a herd of zebra standing on top of a lush green field. 2. a herd of zebra standing on top of a grass covered field. 3. a herd of zebra standing next to each other on a field. 		<ol style="list-style-type: none"> 1. a pile of luggage sitting next to each other. 2. a pile of luggage sitting on top of a wooden floor. 3. a pile of luggage sitting on top of a floor.
Image	Caption	Image	Caption
	a car driving down a road with a herd of cattle.		a man in a suit and tie standing on a street.
	<ol style="list-style-type: none"> 1. a car driving down a road next to a herd of cattle. 2. a car driving down a road next to a herd of sheep. 3. a car driving down a road next to a herd of animals. 		<ol style="list-style-type: none"> 1. a man in a suit and tie standing in front of a building. 2. a man in a suit and tie standing in a street. 3. man in a suit and tie with a hat on.

Table 7: Examples for Show and Tell. The first two rows contain successful cases and the last row contains unsuccessful cases.








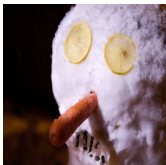

Image	Caption	Image	Caption
	a couple of street signs on a pole.		a close up of a sandwich on a plate.
	1. a couple of street signs on a pole. 2. a couple of street signs on a street. 3. a couple of street signs hanging from a pole.		1. a close up of a sandwich on a plate. 2. a close up of a plate of food. 3. a close up of a plate of food on a table.
Image	Caption	Image	Caption
	a group of people standing on a beach.		a group of zebras standing next to each other.
	1. a group of people standing on a beach. 2. a group of people standing on top of a sandy beach. 3. a group of people standing in the sand.		1. a group of zebras standing next to each other. 2. three zebras standing next to each other in a zoo. 3. three zebras standing next to each other in a zoo enclosure.
Image	Caption	Image	Caption
	a person on a surfboard riding a wave.		a close up of a person holding a doughnut.
	1. a person riding a surfboard on top of a wave. 2. a person on a surfboard riding a wave. 3. a person riding a surfboard on a wave.		1. a close up of a person holding a hot dog. 2. a close up of a person holding a piece of food. 3. a close up of a person holding a piece of cake.

Table 8: Examples for Show Attend and Tell. The first two rows contain successful cases and the last row contains unsuccessful cases.