

PANDASET LiDAR SEGMENTATION INSTRUCTIONS



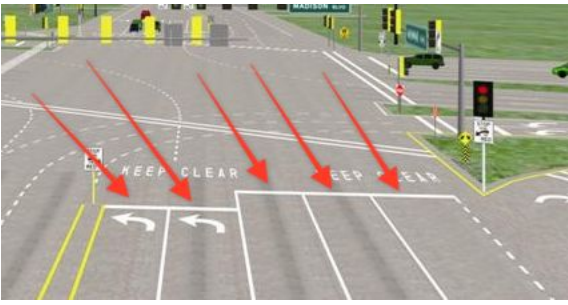
Instructions

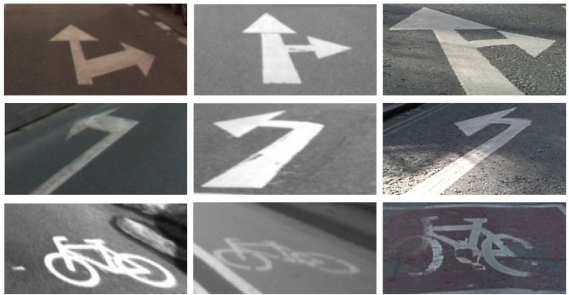



- Please label all points in the LiDAR scene with one of the labels listed below
 - Do NOT label any points where you cannot tell what the object/class is within 90% confidence OR it is less than 5 LiDAR points.
- **Long Articulated Vehicles:**
 - Objects that are being towed by a car (e.g. boat, trailer, etc.) should be annotated separately as “Vehicles” using a separate label from the towing vehicle
 - An articulated vehicle is one where there is a pivot joint between sections, which means that the two sections could turn in such a way that they are no longer facing the exact same direction
 - Use a separate “Vehicle” label for each section of a long articulated vehicle (e.g. multi car trains, semi-trailer truck, etc.)





Semantic Labels





LABELS	DEFINITION	EXAMPLE
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Smoke	By-product of fire or other burning materials, as well as fumes from manhole covers. This <u>does not</u> include car exhaust.	
Exhaust	Fumes or vapor coming out of a vehicle's exhaust.	
Vegetation	Plants, bushes, shrubbery, trees, or other green features.	





Road	The drivable surface of the ground where vehicles can legally drive or park on.	
Lane Line Marking	Painted markings on the road to designate lanes for vehicles or bicyclists.	
Stop Line Marking	Painted marking on the road to designate where vehicles should come to a stop, typically at stop signs or traffic signals.	




<p>Other Road Marking</p>	<p>Other painted markings on the road used to help direct and inform traffic. Typically these are words or symbols. This also includes crosswalks.</p>	
<p>Sidewalk</p>	<p>Paved surface designated for pedestrian use.</p>	
<p>Driveway</p>	<p>Paved area typically in front of houses between the garage and the sidewalk or road.</p>	
<p>Car</p>	<p>Sedans, coupes, SUVs.</p>	

<p>Pickup Truck</p>	<p>Pickup trucks.</p>	
<p>Medium-sized Trucks</p>	<p>Delivery vans, flatbed trucks or other trucks larger than a pickup truck and smaller than a semi-truck.</p>	 
<p>Semi-truck</p>	<p>A six-wheeled trailer. When towing a trailer - label the trailer separately as a towed object.</p>	

<p>Towed Object</p>	<p>Any object being towed by a vehicle - e.g. a boat, trailer, semi-trailer other vehicle.</p>	 
<p>Motorcycle</p>	<p>A motorcycle (two or three wheeled motor vehicle) with a rider or parked</p>	
<p>Other Vehicle - Construction Vehicle</p>	<p>A vehicle used for construction, e.g. an excavator, bulldozer, dump-truck. Does not include pickup trucks in a construction site.</p>	
<p>Other Vehicle - Uncommon</p>	<p>Any rare or unusual motorized vehicles that aren't covered by the other existing labels. This includes uncommon vehicles like meter-maids, tuk tuks, or street-sweepers</p>	

		
Other Vehicle - Pedicab	A human-powered three wheel vehicle.	
Emergency Vehicle	An emergency response vehicle such as ambulance, police car or fire truck.	 

		
<p>Bus</p>	<p>Any bus; must have more than 3 axles Vans with 2 axles should be included in vehicle label.</p>	
<p>Personal Mobility Device</p>	<p>Any two or three wheeled non-motorized device that can be ridden by a person. This includes scooters, strollers, wheelchairs. Annotate the person riding the device and the device under one label.</p>	 

Motorized Scooter	Motorized scooter.	 A person wearing a pink beanie, a grey long-sleeved shirt, blue jeans, and a white bag is riding a black and red motorized scooter on a paved path. The background shows a blurred green lawn and trees.
Bicycle	A two-wheeled vehicle powered by a person, with a rider or parked.	 A person wearing a blue and white cycling jersey, blue shorts, and a blue helmet is riding a black road bicycle on a paved path. In the background, there is a body of water and a line of trees under a clear sky.
Train	Includes ONLY large train engines or cars attached to a large train.	 A large orange and yellow freight train engine is pulling a long line of freight cars on a railway track. The train is moving through a hilly, green landscape under a clear sky. The engine has the number 5350 visible on its front.

Trolley




A trolley car - open air sides, operating on a city street.



Tram / Subway

A single car or small vehicle traveling on rails through a city street or on a raised track.



<p>Pedestrian</p>	<p>A person on foot, sitting or lying down.</p> <p>Ensure that all points corresponding to the person are colored in all frames. Pedestrian arms / legs can swing, requiring the coloring of the points to be adjusted.</p> <p>When a pedestrian is holding an object - e.g. a bag or a backpack - use the 'Pedestrian with Object' label.</p>	 A photograph showing a group of pedestrians crossing a city street at a crosswalk. In the foreground, a woman with long blonde hair, wearing a black jacket and blue jeans, is walking towards the right. Other pedestrians are visible in the background, some walking in the same direction and others in the opposite direction. The street has white crosswalk markings and a green bicycle sign on a utility pole.
<p>Pedestrian with Object</p>	<p>A pedestrian holding an object, or carrying an object (e.g. a backpack or umbrella). Label the objects to include the pedestrian and the object.</p> <p>If the pedestrian is carrying an open umbrella - include the open umbrella with the pedestrian.</p> <p>When a pedestrian is pushing a 'Personal Mobility Device', label both objects under one 'Pedestrian with Object' label.</p>	  Two photographs illustrating pedestrians with objects. The top photograph shows a woman with blonde hair, wearing sunglasses and a white long-sleeved shirt, carrying a brown backpack and walking up a set of stairs. The bottom photograph shows a man in a grey suit, white shirt, and red tie, holding a black open umbrella and smiling.

Animals - Bird


A bird, on the ground or in the air.






Animals - Other

Any other animal visible in the point cloud.



Pylons	Permanent short poles used for traffic guidance. These are fixed to the road. Use the image to confirm the class.	
Road Barriers	Permanent barriers in the road, used for traffic guidance. Use the image to confirm the class.	
Signs	Permanent signs used for traffic guidance; include the pole supporting the sign. Use the image to confirm the class.	

<p>Cones</p>	<p>Non-permanent cone or short pole used for traffic guidance. Use the image to confirm the class.</p>	
<p>Construction Signs</p>	<p>Non-permanent sign in or near the road, used for traffic guidance. Use the image to confirm the class.</p>	
<p>Temporary Construction Barriers</p>	<p>Non-permanent barriers in the road, used for traffic guidance. Use the image to confirm the class.</p>	

Rolling Containers

Garbage cans on wheels, dumpsters or other containers that can move in or out of the road or sidewalk.

