

ISSN: Impact Sound Neural Network for Audio-Visual Object Classification

ModelNet	Class	MN10o	MN10os	MN10om	MN10osm	MN40o	MN40osm
MN40	airplane					<a href="#">airplaneMN40o</a>	<a href="#">airplaneMN40osm</a>
MN10/MN40	bathub	<a href="#">bathubMN10o</a>	<a href="#">bathubMN10os</a>	<a href="#">bathubMN10om</a>	<a href="#">bathubMN10osm</a>	<a href="#">bathubMN40o</a>	<a href="#">bathubMN40osm</a>
MN10/MN40	bed	<a href="#">bedMN10o</a>	<a href="#">bedMN10os</a>	<a href="#">bedMN10om</a>	<a href="#">bedMN10osm</a>	<a href="#">bedMN40o</a>	<a href="#">bedMN40osm</a>
MN40	bench					<a href="#">benchMN40o</a>	<a href="#">benchMN40osm</a>
MN40	bookshelf					<a href="#">bookshelfMN40o</a>	<a href="#">bookshelfMN40osm</a>
MN40	bottle					<a href="#">bottleMN40o</a>	<a href="#">bottleMN40osm</a>
MN40	bowl					<a href="#">bowlMN40o</a>	<a href="#">bowlMN40osm</a>
MN40	car					<a href="#">carMN40o</a>	<a href="#">carMN40osm</a>
MN10/MN40	chair	<a href="#">chairMN10o</a>	<a href="#">chairMN10os</a>	<a href="#">chairMN10om</a>	<a href="#">chairMN10osm</a>	<a href="#">chairMN40o</a>	<a href="#">chairMN40osm</a>
MN40	cone					<a href="#">coneMN40o</a>	<a href="#">coneMN40osm</a>
MN40	cup					<a href="#">cupMN40o</a>	<a href="#">cupMN40osm</a>
MN40	curtain					<a href="#">curtainMN40o</a>	<a href="#">curtainMN40osm</a>
MN10/MN40	desk	<a href="#">deskMN10o</a>	<a href="#">deskMN10os</a>	<a href="#">deskMN10om</a>	<a href="#">deskMN10osm</a>	<a href="#">deskMN40o</a>	<a href="#">deskMN40osm</a>
MN40	door					<a href="#">doorMN40o</a>	<a href="#">doorMN40osm</a>
MN10/MN40	dresser	<a href="#">dresserMN10o</a>	<a href="#">dresserMN10os</a>	<a href="#">dresserMN10om</a>	<a href="#">dresserMN10osm</a>	<a href="#">dresserMN40o</a>	<a href="#">dresserMN40osm</a>
MN40	flower_pot					<a href="#">flower_potMN40o</a>	<a href="#">flower_potMN40osm</a>
MN40	glass_box					<a href="#">glass_boxMN40o</a>	<a href="#">glass_boxMN40osm</a>
MN40	guitar					<a href="#">guitarMN40o</a>	<a href="#">guitarMN40osm</a>
MN40	keyboard					<a href="#">keyboardMN40o</a>	<a href="#">keyboardMN40osm</a>
MN40	lamp					<a href="#">lampMN40o</a>	<a href="#">lampMN40osm</a>
MN40	laptop					<a href="#">laptopMN40o</a>	<a href="#">laptopMN40osm</a>
MN40	mantel					<a href="#">mantelMN40o</a>	<a href="#">mantelMN40osm</a>
MN10/MN40	monitor	<a href="#">monitorMN10o</a>	<a href="#">monitorMN10os</a>	<a href="#">monitorMN10om</a>	<a href="#">monitorMN10osm</a>	<a href="#">monitorMN40o</a>	<a href="#">monitorMN40osm</a>
MN10/MN40	night_stand	<a href="#">night_standMN10o</a>	<a href="#">night_standMN10os</a>	<a href="#">night_standMN10om</a>	<a href="#">night_standMN10osm</a>	<a href="#">night_standMN40o</a>	<a href="#">night_standMN40osm</a>
MN40	person					<a href="#">personMN40o</a>	<a href="#">personMN40osm</a>
MN40	piano					<a href="#">pianoMN40o</a>	<a href="#">pianoMN40osm</a>
MN40	plant					<a href="#">plantMN40o</a>	<a href="#">plantMN40osm</a>
MN40	radio					<a href="#">radioMN40o</a>	<a href="#">radioMN40osm</a>
MN40	range_hood					<a href="#">range_hoodMN40o</a>	<a href="#">range_hoodMN40osm</a>
MN40	sink					<a href="#">sinkMN40o</a>	<a href="#">sinkMN40osm</a>
MN10/MN40	sofa	<a href="#">sofaMN10o</a>	<a href="#">sofaMN10os</a>	<a href="#">sofaMN10om</a>	<a href="#">sofaMN10osm</a>	<a href="#">sofaMN40o</a>	<a href="#">sofaMN40osm</a>
MN40	stairs					<a href="#">stairsMN40o</a>	<a href="#">stairsMN40osm</a>
MN40	stool					<a href="#">stoolMN40o</a>	<a href="#">stoolMN40osm</a>
MN10/MN40	table	<a href="#">tableMN10o</a>	<a href="#">tableMN10os</a>	<a href="#">tableMN10om</a>	<a href="#">tableMN10osm</a>	<a href="#">tableMN40o</a>	<a href="#">tableMN40osm</a>
MN40	tent					<a href="#">tentMN40o</a>	<a href="#">tent40osm</a>
MN10/MN40	toilet	<a href="#">toiletMN10o</a>	<a href="#">toiletMN10os</a>	<a href="#">toiletMN10om</a>	<a href="#">toiletMN10osm</a>	<a href="#">toiletMN40o</a>	<a href="#">toiletMN40osm</a>
MN40	tv_stand					<a href="#">tv_standMN40o</a>	<a href="#">tv_standMN40osm</a>
MN40	vase					<a href="#">vaseMN40o</a>	<a href="#">vaseMN40osm</a>
MN40	wardrobe					<a href="#">wardrobeMN40o</a>	<a href="#">wardrobeMN40osm</a>
MN40	xbox					<a href="#">xboxMN40o</a>	<a href="#">xboxMN40osm</a>

o (e.g. MN10/MN40o) indicates only one sound per model was produced and all models were assigned one identical material

s (e.g. MN10/MN40os) indicates that each ModelNet class was assigned a realistic and normally distributed scale, such that monitors would be made smaller than beds, before synthesizing sounds

m (e.g. MN10/MN40om) indicates that each ModelNet class was assigned a realistic material, such as porcelain toilets and plastic monitors (see supplemental material for the material assignments for each class)