

Supplementary Material

1 Anomaly Detection Algorithm

Category	Images Below Threshold
Cats	10/10
People	7/10
Buildings	8/10
Cars	10/10
Trees	10/10
Rooms	9/10
Cows	9/10
Hospitals	8/10
Horses	9/10
Dogs	10/10
Backgrounds	10/10
Ships	9/10
Birds	9/10
Frogs	7/10
Trucks	10/10
Airplanes	9/10
Reptiles	6/10
Electronic Devices	9/10
Insects	8/10
Seashells	0/40

Table 1: Anomaly Detection Performance Across Object Categories (n=10 images per category except seashells with n=40). * Threshold score = 0.955. Images with mean similarity scores below threshold are classified as anomalies.

2 List of Species

The dataset was constructed using species from four distinct taxonomic and geographic groups: Caribbean Gastropods, Pacific Gastropods, Caribbean Bivalves, and Pacific Bivalves. The following lists provide the complete taxonomic nomenclature for each species included in the analysis, as provided by Yolanda Camacho García, PhD, Universidad de Costa Rica (UCR).

Table 2: Seashell Species - Caribbean Gastropoda

Species
Acmaeidae <i>Lottia antillarum</i> , Acteonidae <i>rixtaxis punctostriatus</i> , Architectonicidae <i>Philippia krebsi</i> , Areneidae <i>Arene cruentata</i> , Buccinidae <i>Hesperisternia karinae</i> , Buccinidae <i>Polia auritula</i> , Buccinidae <i>pisania auritula</i> , Bullidae <i>Bulla punctulata</i> , Bullidae <i>bulla mabiliei</i> , Bullidae <i>bulla striata</i> , Bursidae <i>Bursa cubaniana</i> , Bursidae <i>bursa thomae</i> ,

Calliostomatidae Calliostoma jujubinum, Calyptraeidae Bostrycapulus aculeatus,
 Calyptraeidae Crepidula convexa, Calyptraeidae Ergaea walshi, Calyptraeidae crepidula aculeata,
 Cassidae Cypraecassis testiculus, Cassidae Semicassis granulata, Cassidae cassis tuberosa,
 Cerithiidae Cerithium eburneum, Cerithiidae cerithium guinaicum, Cerithiidae cerithium litteratum,
 Cerithiidae cerithium lutosum, Charoniidae Charonia variegata, Columbelloidea columbella mercatoria,
 Columbelloidea mazatlaniana fulgurata, Columbelloidea mitrella ocellata,
 Columbelloidea nitidella laevigata, Columbelloidea nitidella nitida, Columbelloidea parametaria ovulata,
 Conidae Conasprella mindana, Conidae Conus cardinalis, Conidae Conus mus,
 Conidae Conus regius, Conidae Conus spurius lorenzianus, Conidae conus daucus,
 Conidae conus jaspideus, Conidae conus spurius phlogopus, Cymatiidae Monoplex nicobaricus,
 Cypraea Luria cinerea, Cypraea Macrocypraea zebra, Cypraea Naria acicularis,
 Cypraea cypraea acicularis, Cypraea cypraea cinerea, Cypraea cypraea zebra,
 Cystiscidae persicula interruptolineata, Ellobiidae Melampus coffea, Elysiidae elysia ornata,
 Fascioliidae Fasciolaria tulipa, Fascioliidae Hemipolygona carinifera,
 Fascioliidae Polygona angulata, Fascioliidae Polygona infundibulum,
 Fascioliidae latirus angulatus, Fascioliidae leucozonia nassa,
 Fascioliidae leucozonia ocellata, Fissurellidae Diodora listeri, Fissurellidae Fissurella barbadensis,
 Fissurellidae Hemitoma octoradiata, Fissurellidae diodora jaumei,
 Fissurellidae fissurella angusta, Fissurellidae fissurella fascicularis,
 Fissurellidae fissurella nodosa, Fissurellidae fissurella rosea,
 Fissurellidae hemitoma octoradiata, Fissurellidae lucapina aegis,
 Fissurellidae lucapina sowerbii, Fissurellidae lucapina suffusa, Harpidae Morum oniscus,
 Hipponicidae hipponix antiquatus, Littorinidae Cenchritis muricatus, Littorinidae Echinolittorina ziczac,
 Littorinidae Littoraria angulifera, Littorinidae echinolittorina meleagris,
 Littorinidae echinolittorina tuberculata, Littorinidae littoraria tessellata, Littorinidae littorina ziczac,
 Littorinidae nodilittorina angustior, Marginellidae prunum holandae, Melongenidae melongena melongena,
 Modulidae modiolus modiolus, Muricidae Stramonita floridiana, Muricidae Stramonita rustica,
 Muricidae Vasula deltoidea, Muricidae chicoreus florifer, Muricidae chicoreus pomum,
 Muricidae muricopsis deformis, Muricidae muricopsis oxytatus, Muricidae plicopurpura patula,
 Muricidae thais haemastoma floridana, Muricidae thais rustica, Nassariidae Nassarius consensus,
 Nassariidae nassarius albus, Nassariidae phos antillarum, Naticidae Natica marochiensis,
 Naticidae Polinices hepaticus, Naticidae naticarius canrena, Naticidae polinices lacteus,
 Naticidae sinum perspectivum, Neritidae Nerita fulgurans, Neritidae Nerita peloronta,
 Neritidae nerita peloronta, Neritidae nerita tessellata, Neritidae nerita versicolor,
 Neritidae vitta virginea, Olividae Oliva fulgurator, Olividae oliva reticularis,
 Olividae olivella minuta, Olividae olivella nivea, Ovulidae Cyphoma gibbosum,
 Ovulidae Cyphoma signatum, Phasianellidae eulithidium bellum, Phasianellidae tricola tessellata,
 Pisaniidae Engina turbinella, Pisaniidae pisanina pusio, Planaxidae Supplanaxis nucleus,
 Planaxidae planaxis nucleus, Pseudomelatomidae Crassispira harfordiana, Ranellidae Cabestana labiosa,
 Ranellidae Charonia tritonis, Ranellidae Monoplex nicobaricus, Ranellidae Monoplex pileare,
 Ranellidae Monoplex vespereus, Ranellidae Septa occidentalis, Rissoidae rissoina elegantissima,
 Rissoidae rissoina sagraiana, Strombidae Aliger gigas, Strombidae Lobatus raninus,
 Strombidae strombus pugilis, Tegulidae Agathistoma viridulum, Tegulidae Cittarium pica,
 Tegulidae tegula excavata, Terebridae hastula cinerea, Tonnidae tonna galea,
 Tonnidae tonna maculosa, Triviidae trivia nix, Triviidae trivia pediculus, Trochidae Calliostoma javanicum,
 Turbinellidae Turbinella angulata, Turbinellidae Volutella muricata, Turbinidae Astraea caelata,
 Turbinidae Lithopoma tectum, Turbinidae astraea phoebia, Turbinidae astraea tecta,
 Turbinidae turbo caillietii, Turbinidae turbo castanea, Vitrinellidae solariorbis corylus,
 Vitrinellidae vitrinella elegans, Volutidae voluta virescens

Table 3: Seashell Species - Pacific Gastropoda

Species
Architectonicida Heliacus areola bicanaliculatus, Architectonicidae Architectonica karsteni, Architectonicidae Heliacus areola bicanaliculatus, Architectonicidae Heliacus caelatus, Batillariidae Rhinocoryne humboldti, Bullidae Bulla punctulata, Bursidae Alanbeuella corrugata, Bursidae Bursa rugosa, Bursidae Dulcerana granularis, Bursidae bufonaria rana, Bursidae bursa granularis, Calyptraeidae Bostrycapulus aculeatus, Calyptraeidae Calyptraea chinensis, Calyptraeidae Calyptraea conica, Calyptraeidae Crepidula lessonii, Calyptraeidae Crepidula marginalis, Calyptraeidae Crepidula striolata, Cassidae Cypraecassis coarctata, Cerithiidae Cerithium adustum, Cerithiidae Cerithium atromarginatum, Cerithiidae Cerithium browni, Cerithiidae Cerithium muscarum, Columbelloidea Anachis boivini, Columbellidae Anachis lyrata, Columbelloidea Anachis rugosa, Columbellidae Columbella haemastoma, Columbelloidea Columbella labiosa, Columbellidae Columbella major, Columbelloidea Columbella paytensis, Columbellidae Columbella socorroensis, Columbelloidea Columbella strombiformis, Columbellidae euplia varians, Columbelloidea mitrella elegans baiyeli, Columbellidae mitrella guttata, Columbelloidea pyrene ocellata, Conidae Conus brunneus, Conidae Conus dalli, Conidae Conus fergusonii, Conidae Conus princeps, Conidae Conus regularis, Conidae conus chaldaeus, Conidae conus ebraeus, Conidae conus gladiator, Conidae conus nux, Conidae conus purpurascens, Conidae conus scalaris, Conidae conus tessulatus, Cymatiidae Monoplex gemmatus, Cymatiidae Monoplex pilearis, Cymatiidae Monoplex vestitus, Cymatiidae Monoplex wiegmanni, Cypraeidae Macrocypraea cervinetta, Cypraeidae Pseudozonaria arabicula, Cypraeidae Pseudozonaria robertsi, Cypraeidae cypraea cervinetta, Cypraeidae cypraea robertsi, Fascioliidae Granolaria salmo, Fascioliidae Leucozonia cerata, Fascioliidae Triplofusus princeps, Fascioliidae leucozonia rudis, Fascioliidae opeatostoma pseudodon, Ficidae Ficus ventricosa, Fissurellidae fissurella virescens, Hipponicidae Antisabia panamensis, Hipponicidae Cheilea corrugata, Janthinidae janthina janthina, Littorinidae Echinolittorina aspera, Lottiidae Lottia fascicularis, Lottiidae Lottia filosa, Lottiidae Lottia mesoleuca, Melongenidae Melongena patula, Mitridae Neotitara lens, Mitridae Strigatella tristis, Modiolidae Trochomodulus catenulatus, Muricidae Hexaplex brassica, Muricidae Hexaplex princeps, Muricidae Muricanthus radix, Muricidae Neorapana muricata, Muricidae Phyllonotus regius, Muricidae Plicopurpura collumelaris, Muricidae Plicopurpura columelaris, Muricidae Stramonita haemastoma, Muricidae Thaisella kiosquiformis, Muricidae Zetecopsis zeteki, Muricidae acanthais brevidentata, Muricidae cymia tectum, Muricidae stramonita biserialis, Muricidae thais tuberosa, Muricidae vasula melones, Nassariidae nassarius erythraeus, Nassariidae nassarius gemmuliferus, Naticidae Polinices uber, Naticidae mammilla simiae, Naticidae natica fasciata, Naticidae notocochlis chemnitzii, Neritidae Nerita funiculata, Neritidae nerita scabricosta, Olividae Agaronia nica, Olividae Agaronia propatula, Olividae Agaronia testacea, Olividae Oliva incrassata, Olividae Oliva polpasta, Olividae Oliva porphyria,

Olividae Olivella volutella, Olividae Pachyoliva semistriata,
 Ovulidae Jenneria pustulata, Personidae Distorsio decussata,
 Pisaniidae Engina tabogaensis, Pisaniidae Gemophos ringens,
 Pisaniidae Hesperisternia vibex, Pisaniidae Solenosteira gatesi,
 Planaxidae Supplanaxis planicostatus, Planaxidae planaxis obsoletus,
 Siphonariidae Siphonaria gigas, Siphonariidae Siphonaria maura,
 Strombidae Lobatus peruvianus, Strombidae Persististrombus granulatus,
 Strombidae Strombus alatus, Strombidae Strombus gracilior,
 Strombidae Titanostrombus galeatus, Strombidae strombus granulatus,
 Tegulidae Tegula pellisserpentis, Tegulidae tegula panamensis,
 Tonnidae Malea ringens, Triviidae trivia sanguinea,
 Turbinellidae vasum caestus, Turbinidae Arene olivacea,
 Turbinidae Turbo saxosus, Turbinidae Uvanilla buschii,
 Turritellidae Caviturritella leucostoma

Table 4: Seashell Species - Caribbean Bivalves

Species

Arcidae Anadara brasiliana, Arcidae Anadara chemnitzii, Arcidae Anadara notabilis,
 Arcidae Anadara transversa, Arcidae Arca imbricata, Arcidae Arca zebra,
 Arcidae Barbatia cancellaria, Arcidae Barbatia candida, Arcidae Barbatia dominguensis,
 Arcidae Fugleria tenera, Arcidae Lamarcka imbricata, Cardiidae Acrosterigma magnum,
 Cardiidae Dalloccardia muricata, Cardiidae Laevicardium pictum, Cardiidae Papyridea semisulcata,
 Cardiidae Papyridea soleniformis, Cardiidae Trachycardium isocardia,
 Cardiidae Trachycardium magnum, Cardiidae Trachycardium muricatum,
 Carditidae Carditamera gracilis, Chamidae Arcinella arcinella, Chamidae Chama congregata,
 Chamidae Chama florida, Chamidae Chama macerophylla, Chamidae Chama sinuosa,
 Chamidae Pseudochama cristella, Chamidae Pseudochama radians, Corbulidae Corbula caribaea,
 Corbulidae Corbula contracta, Corbulidae Juliacorbula aquivalvis, Cyrenidae Polymesoda arctata,
 Donacidae Donax denticulatus, Donacidae Donax striatus, Dreissenidae Mytilopsis sallei,
 Glycymerididae Glycymeris undata, Glycymerididae Tucetona pectinata,
 Isognomonidae Isognomon alatus, Isognomonidae Isognomon bicolor, Isognomonidae Isognomon radiatus,
 Limidae Ctenoides scaber, Limidae Lima caribaea, Limidae Lima caribea,
 Limidae Lima lima, Limidae Limaria pellucida, Lucinidae Anodontia alba,
 Lucinidae Callucina keenae, Lucinidae Clathrolucina costata, Lucinidae Codakia orbicularis,
 Lucinidae Ctena orbiculata, Lucinidae Divalinga quadrisulcata,
 Lucinidae Divaricella quadrisulcata, Lucinidae Lucinisca centrifuga,
 Lucinidae Phacoides pectinatus, Mactridae Mactrellona alata, Mactridae Mactroma fragilis,
 Mactridae Mactrotoma fragilis, Mactridae Mulinia cleryana, Margaritidae Pinctada imbricata,
 Mytilidae Botula fusca, Mytilidae Brachidontes exustus, Mytilidae Lioberus castanea,
 Mytilidae Modiolus americanus, Nuculanidae Adrana lancea,
 Nuculanidae Adrana tellinoides, Ostreidae Crassostrea rhizophorae,
 Ostreidae Crassostrea virginica, Ostreidae Dendostrea frons, Pectinidae Spathochlamys benedicti,
 Pectinidae Antillipeecten antillarum, Pectinidae Argopecten gibbus,
 Pectinidae Argopecten irradians, Pectinidae Argopecten irradians amplicostatus,
 Pectinidae Caribachlamys ornata, Pectinidae Caribachlamys sentis,
 Pectinidae Chlamys ornata, Pectinidae Euvola laurentii, Petricolidae Petricola bicolor,
 Pinnidae Atrina seminuda, Pinnidae Pinna carnea, Plicatulidae Plicatula gibbosa,
 Psammobiidae Asaphis deflorata, Psammobiidae Psammotella cruenta,
 Pteriidae Pteria colymbus, Semelidae Semele proficua, Semelidae Semele purpurascens,

Solecurtidae Solecurtus cumingianus, Solecurtidae Tagelus divisus,
 Spondylidae Spondylus butleri, Tellinidae Arcopagia fausta, Tellinidae Eurytellina angulosa,
 Tellinidae Eurytellina nitens, Tellinidae Eurytellina punicea, Tellinidae Johnsonella fausta,
 Tellinidae Laciolina laevigata, Tellinidae Merisca cristallina, Tellinidae Psammotreta brevifrons,
 Tellinidae Scissula similis, Tellinidae Serratina aequistriata, Tellinidae Strigilla carnaria,
 Tellinidae Strigilla dichotoma, Tellinidae Strigilla pisiformis,
 Tellinidae Strigilla pseudocarnaria, Tellinidae Tellina punicea,
 Tellinidae Tellina radiata, Tellinidae Tellinella listeri, Tellinidae Tellinella listeri,
 Ungulinidae Diplodonta punctata, Ungulinidae Phlyctiderma semiasperum,
 Veneridae Anomalocardia brasiliana, Veneridae Anomalocardia flexuosa,
 Veneridae Chione cancellata, Veneridae Chione intapurpurea,
 Veneridae Chione paphia, Veneridae Chionopsis intapurpurea,
 Veneridae Dosinia concentrica, Veneridae Globivenus rigida,
 Veneridae Gouldia cerina, Veneridae Hysteroconcha circinata,
 Veneridae Hysteroconcha dione, Veneridae Lamelliconcha circinatus,
 Veneridae Lirophora paphia, Veneridae Macrocallista maculata,
 Veneridae Megapitaria maculata, Veneridae Pitar albidus, Veneridae Pitar fulminatus,
 Veneridae Tivela mactroides, Veneridae Transennella cubaniana,
 Veneridae Transennella stimpsoni, Veneridae Ventricola rigida

Table 5: Seashell Species - Pacific Bivalves

Species
Arcidae Acar gradata, Arcidae Acar rostrata, Arcidae Anadara similis, Arcidae Anadara tuberculosa, Arcidae Arca pacifica, Arcidae Barbatia lurida, Arcidae Barbatia reeveana, Arcidae Lamarcka mutabilis, Arcidae Larkinia grandis, Arcidae Larkinia multicostata, Cardiidae Acrosterigma pristipleura, Cardiidae Americardia biangulata, Cardiidae Americardia planicostata, Cardiidae Dalloccardia senticosum, Cardiidae Laevicardium substriatum, Cardiidae Papyridea aspersa, Cardiidae Trachycardium procerum, Carditidae Cardita crassicosta, Carditidae Carditamera affinis, Carditidae Carditamera radiata, Carditidae Cardites crassicostatus, Carditidae Cardites laticostatus, Carditidae Strophocardia megastrophia, Chamidae Chama buddiana, Chamidae Chama coralloides, Chamidae Chama echinata, Corbulidae Caryocorbula amethystina, Corbulidae Caryocorbula biradiata, Corbulidae Caryocorbula nasuta, Corbulidae Caryocorbula ovulata, Crassatellidae Eucrassatella gibbosa, Cyrenoididae Polymesoda inflata, Donacidae Donax carinatus, Donacidae Donax dentifer, Donacidae Iphigenia altior, Glycymerididae Axinactis delessertii, Glycymerididae Axinactis inaequalis, Glycymerididae Tucetona multicostata, Gryphaeidae Hyotissa hyotis, Isognomonidae Isognomon recognitus, Limidae Limaria tetrica, Lucinidae Codakia distinguenda, Lucinidae Ctena galapagana, Lucinidae Ctena mexicana, Lucinidae Divalinga eburnea, Mactridae Harvella elegans, Mactridae Mactrellona clisia, Mactridae Mactrellona exoleta, Mactridae Mactrellona subalata, Mactridae Mulinia pallida, Mytilidae Brachidontes puntarenensis, Mytilidae Leiosolenus aristatus, Mytilidae Leiosolenus plumula, Mytilidae Modiolus capax, Mytilidae Mytella guyanensis, Noetiidae Noetia reversa, Ostreidae Crassostrea columbiensis, Ostreidae Crassostrea corteziensis, Ostreidae Crassostrea gigas, Ostreidae Saccostrea palmula, Ostreidae Striostrea prismatica, Pectinidae Argopecten ventricosus, Pectinidae Nodipecten subnodosus, Pinnidae Atrina maura, Pinnidae Pinna rugosa, Psammobiidae Gari helenae, Psammobiidae Heterodonax pacificus, Psammobiidae Sanguinolaria tellinoides, Pteriidae Pinctada mazatlanica, Pteriidae Pteria sterna, Semelidae Semele bicolor, Semelidae Semele elliptica, Semelidae Semele formosa, Semelidae Semele purpurascens, Semelidae Semele verrucosa, Solecurtidae Tagelus affinis, Solecurtidae Tagelus peruanus, Solecurtidae Tagelus peruvianus, Spondylidae Spondylus limbatus, Tellinidae Eurytellina regia, Tellinidae Iridona subtrigona, Tellinidae Psammotreta pura, Tellinidae Strigilla chroma, Tellinidae Strigilla dichotoma, Tellinidae Strigilla disjuncta, Tellinidae Strigilla serrata, Ungulinidae Zemysina subquadrata, Veneridae Chione subimbricata,

Veneridae *Cyclinella producta*, Veneridae *Cyclinella subquadrata*, Veneridae *Dosinia dunkeri*,
Veneridae *Dosinia ponderosa*, Veneridae *Hysteroconcha lupanaria*, Veneridae *Hysteroconcha multispinosus*,
Veneridae *Hysteroconcha roseus*, Veneridae *Ilioconcha subrugosa*, Veneridae *Lamelliconcha tortuosus*,
Veneridae *Lamelliconcha unicolor*, Veneridae *Leukoma asperrima*, Veneridae *Leukoma ecuadoriana*,
Veneridae *Leukoma grata*, Veneridae *Leukoma histrionica*, Veneridae *Megapitaria aurantiaca*,
Veneridae *Megapitaria squalida*, Veneridae *Periglypta multicostata*, Veneridae *Tivela byronensis*,
Veneridae *Tivela planulata*
