Jordan Pierce

Computer Vision, GIS, And Machine Learning For Underwater Habitats

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A problem solver and challenge seeker to the core, I am a goal oriented and resourceful individual who is often appreciated for having the ability to work independently with minimal oversight, and who consistently delivers as promised.

Education

Aug 2018 - Dec 2020
M.S.: Oceanography
University of New Hampshire - Durham, NH

Aug 2013 - May 2016
B.S.: Geographic Information Systems
Texas A&M University - College Station, TX

Sep 2011 - May 2013
Computer Science
Texas A&M University - Corpus Christi - Corpus Christi, TX

Experience

Nov 2020 - Current
Computer Vision/Machine Learning Engineer
Terradepth, Austin, TX

- Writes scripts in Python to wrangle and curate unorganized data.
- Develops machine learning models to detect objects of interest in sonar data.
- Manages a team of engineers and data annotators for machine learning projects.
- Develops toolchains and pipelines for extracting metadata from geospatial data (images, point clouds).

Aug 2018 - Dec 2020
Graduate Researcher
The Center For Coastal And Ocean Mapping, Durham, NH

- Improved existing machine learning algorithms that automate the annotation of benthic imagery data (e.g., CPCe), performing 8x faster than state-of-the-art.
- Designed workflows to quantify community composition of marine life through classification of 2D images and 3D photogrammetric models.
- Developed deep learning and computer vision models for the detection of marine life and anomalies in benthic and backscatter imagery data.
- Presented research to general and technical audiences through 3-Minute Thesis, podcasts, academic conferences, and publications.

Jan 2018 - Aug 2018
Research Assistant II
The University Of Hong Kong, Hong Kong SAR

- Created a prototype and proposal for the use of structurally complex artificials reefs that was later funded by the local government for a pilot study (100K USD).
- Investigated 3D modeling techniques (LiDAR and Structure-from-Motion Photogrammetry) for quantifying the structural complexity of coral reefs.
- Assisted in proof-of-concept using deep learning algorithms that help prevent illicit trade of endangered species of sharks through image classification.

Feb 2017 - Jan 2018

English Language Teacher

International Personnel Training Centre, Shenzhen, China

- Developed and taught ESL curriculum to improve students' public speaking abilities and dialogue skills.
- Lectured to 60 high-school students, per class.

Aug 2015 - Jul 2016

Geographic Information Systems Intern

The Center For The Study Of The First Americans, College Station, TX

- Curated and digitized artifacts using photogrammetry and LiDAR.
- Performed spatial analysis of underwater artifacts using ArcGIS.
- Presented at multiple undergraduate conferences, awarded at each.

Hydrographic Research Intern

Jun 2015 - Jul 2015

Texas A&M University, Geography Department, Puerto Viejo, Costa Rica

- Led ground-truth mapping of dynamic nearshore environments using custom-made subsurface drogues equipped with GPS and Sonar.
- Handled all data collection, calibration and operation of scientific
- instruments. Constructed digital elevation models and 3D visualizations using ArcGIS.

Research

- J. Pierce, M. Butler, Y. Rzhanov, K. Lowell, J. Dijkstra, "*Classifying 3D Models of Coral Reefs using Structure- from-Motion and Multi-View Semantic Segmentation*". Frontiers in Marine Science. 2021.
- Fisheries and Oceans Canada (DFO), "*Image Annotation, Machine Learning & AI*". Podcast. Hosted by Andrew Cogswell and Catalina Gomez. October, 2020.
- J. Pierce, Y. Rzhanov, K. Lowell, J. Dijkstra, "*Reducing Annotation Times: Semantic Segmentation of Coral Reef Imagery*", OCEANS 2020 MTS/IEEE U.S. Gulf Coast - Singapore, 2020.
- J. Pierce, "*Automating the Boring Stuff: A Deep Learning and Computer Vision Workflow for Coral Reef Habitat Mapping*" , UNH Graduate Research Conference, 2020.
- *D.M. Baker, V. Yu, J. Pierce & V. Sheng, "Coral Reef Restoration - is it Viable for Hong Kong?"*, The 2nd International Workshop on Eco-shoreline Designs for Sustainable Coastal Development. University of Hong Kong, 2018.
- J. Pierce, M. Smith, "*A Preliminary Fabric Analysis on the Spatial Distribution of Artifacts from the Ryan-Harley Site (8JE1004)*", Texas A&M University Student Research Week, 2016.

Honors

- OCEANS 2020 – Student Research Competition, Norman Miller Award, **1st Place.**
- University of New Hampshire's 3-Minute Thesis, 1**st Place**.
- Center for Coastal and Ocean Mapping/Joint Hydrographic Center – Fully-funded Graduate Research Scholarship
- Texas A&M University Student Research Week 2016, **2nd Place**.
- Texas A&M Anthropology Student Research Week 2016, **2nd Place**.
- Society for Underwater Technology: Frontiers in Underwater Technology, **3rd Place**.
- Texas A&M University, College of Geosciences – Academic Scholarship.
- George & Barbara Bush Foundation – Academic Scholarship.

Skills

Programming - C++, Python
Libraries - SciKit, Keras, Pytorch, OpenCV, Open3D
Software - ArcGIS, Metashape, CPCe, ImageJ
SCUBA - PADI Rescue, AAUS Scientific