



Autonomous Defect Learning and Detection Engine for inspection system & on-board remote-controlled systems

Oceans.ai is a deep tech company developing an industrial autonomy platform to help asset maintenance and operations teams be able to take preventive action on their assets by the intelligent and efficient integration of autonomous robotics, IOT, computer vision, predictive AI, analytics and photogrammetry.

We are headquartered in Singapore and have operational bases in Africa, APAC, Europe and India. Our services extend across the globe from Latin America to Japan & Australia.



“Working with the AISG team was tremendously exciting and helped us find ways to do things better in the long run. They understood the methods and the process associated with the AI development and we were able to create valuable models to help address specific industrial applications jointly. We will be working more with AISG towards the development of AI models in our platform. Additionally, the entire team and the mentors worked efficiently with our project team to help build the preliminary models of our platform. ”

*Vinod Govindan
CEO & MD*

BACKGROUND

- Engineering inspection has been around for decades now. With the growth and scale and remoteness of industries, the complexity of inspections performed on these assets have increased.
- Today’s tools kits for these industries are a myriad set of disconnected system and processes that help asset owners and managers understand the state and condition of their assets starting with manually conducted visual inspections (GVI and CVI) of industrial assets
- While technology has evolved, the process of inspections is still significantly manual and tedious. With the advent of drone and robotics-based technology, while some of these challenges have been addressed, a significant portion of the challenges remains

OUTCOMES

Training models yield >90% improvement in precision from the baseline

Automated defect detection improved inspection reporting time by at least 20%

Time and money have been saved: less time needed to perform manual annotations; human experts spend their time verifying the annotations instead

Improvement in data processing and classification for continuous learning and better models’ delivery

BUSINESS CHALLENGE

How can industries automate and improve the efficiency and accuracy in the asset visual inspection process using computer vision to achieve high precision and accuracy while saving costs and time?

AI SOLUTION DEPLOYED

The computer vision models were deployed on the DeepDIVE platform for enabling pre-filtering of visual data for human expert verification and certification.

- Trained and deployed several object detection models to detect and annotate 3 types of common defects in Oil & Gas structures (corrosion/rust, crack and deformation)
- The models are exposed via an Application Programming Interface (API) that can be consumed by services in Oceans.AI
- Predictions from the models can be fine-tuned by human experts, and this feedback can then be used to retrain the models