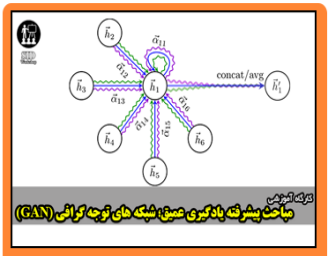
کارگاه های آموزشی مرکز اطلاعات علمی جهاد دانشگاهی

کارگاه آنلاین مکالمه روزمره انگلیسی

کارگاه آنلاین آموزش استفاده از وب آو ساینس



مباحث پیشرفته یادگیری عمیق؛
شبکه های توجه گرافی
(Graph Attention Networks)

"Corrosion Risk Assessment" of Coastal Structures in hostile environment of Persian Gulf

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Abstract

Persian Gulf is one of the major commercial bodies of water in the world and handles many tones of cargo and crude oil each day. This means that a large amount of capital is invested in ports all around the Gulf. To maintain the value of this capital investment is a constant maintenance problem as all materials will deteriorate to some extent with time.

Over the years Port Authorities in Gulf region have used many different materials for construction of various wharves, jetties, vessels, navigational aids and many other items of port activity related equipment. As new materials of construction have been developed, or as new design methods have been formulated, the construction of all these items has varied and this has left a large array of materials which have to be protected from the corrosion of the environment.

Engineers often talk about corrosion control. Although it is essential; but clearly, the consequences that follow from a corrosion failure are more important than the failure itself. It becomes important to assess a coastal structure in the light of what the consequences of a given corrosion failure might be rather than with a view to determining whether, or how soon, a corrosion failure might occur.

This paper outlines how "corrosion risk assessment" can be used to achieve this. There are four stages in setting up a "corrosion risk assessment":

- assigning a life factor
- assigning consequence factors
- developing the risk equation
- setting up the risk classes

These stages must be followed for each component of coastal structure that is to be subject to corrosion.

"Corrosion Risk Assessment" is a formal consideration of the probability of corrosion failure in each and every item but interpreted in the light of the consequence that can ensure from that failure.

Given a ranking of risk, corrosion control program can be organized that consider where, when and how to inspect and survey as well as what method, should be in place.

Port authorities obtain the first benefit of the assessment as the fact that an outsider has taken a constructively critical view of the port. They receive detailed reports considering every equipment and structure on an item-by-item basis showing how the analysis was made and providing both risk tables and color coded "as built" drawings.

The benefits go beyond these simple, but important, advantages and extend to the fact that the results provide reassurance if corrosion management is confirmed as being correctly implemented. The assessment should also prompt refocusing and improvement of corrosion control activities where that is necessary, allow optimization of the inspection program, and ensure the most effective use of the authority's corrosion management resources. Manifestly there is a major financial benefit deriving from all these possibilities.

It will be seen that a corrosion risk assessment is related to a particular port in question and its operating conditions. It is, however, important to recognize that risk assessment cannot take account of corrosion hazards that have not previously been observed in similar ports or in similar situations. That is, the success of risk assessment is based on the fact that there is rarely a new event in corrosion and that, modern information technology permits access to previous experience that can be brought to bear on the risk assessment of the port.

Finally, the risk assessment is not an end in itself. Indeed it will prove a sterile exercise if the results do not provoke reappraisal of corrosion control measures, monitoring schemes and inspection schedules. It then becomes the function of the corrosion engineer to bring together the optimum package of control measures to meet the need. The adoption of these measures brings with it the need to commit the necessary resources to monitor and inspect, to ensure that effective control is maintained. The cost of these latter activities is often surprisingly high and they must be reviewed as critically as the need for corrosion control itself.

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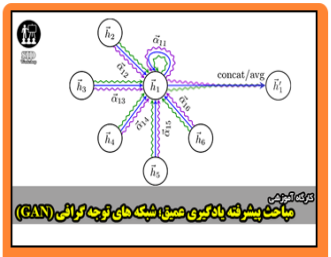

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