## A Variational Method For Crack Detection In Robotic Inspection

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Nowadays the civil infrastructure is exposed to several challenges such as daily vehicular traffic and extreme weather conditions, i.e. ghastly winds, strong rain etc. It is well known that these may determine structural deterioration and damages, which can even cause catastrophic collapses related to significant socio-economic losses. For this reason it is evident that automatic inspection and maintenance must play a decisive role in the future. With the objective of quality assessment, cracks on concrete buildings have to be identified and monitored continuously. Due to the availability of cheap devices, techniques based on image processing have been gaining in popularity, but they require a rigorous analysis of large amounts of data. Moreover, the detection of fractures in images is still a challenging task, being these structures sensitive to noise and to changes in environmental conditions. This paper proposes an automatic procedure to detect cracks in images along with a parallel implementation on heterogeneous High Performance Architectures aiming both at automatizing the whole process and at reducing its execution time.