

A Study on the Monitoring of Thickness Reduction of Pipes with AI in RT Inspection

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Oil refineries, nuclear power plants, and heavy industries are connected by numerous pipelines. As the thickness of the pipe is generally reduced due to the flow of high pressured and high temperature- fluid inside for a long time, it is exposed to the risk of leakage or explosion of the pipe. Therefore, it is necessary to monitor the thickness reduction of pipes in a non-destructive way periodically to prevent the risk of explosion through replacement or repair. RT is mainly used as a non-destructive test, and the measured RT film is generally checked and read one by one with the human eye. However, as humans read one by one, the reader's tiredness is amplified, making it difficult to make objective and certain judgments and reducing productivity. Digital Radiography (DR) has the advantage of omitting the printing process of the film and simplifying the film retention period and cost by storing data according to ASTM's Diconde standard. DR is in the spotlight by transmitting it to a computer in various formats, and is less utilized in the industry than in the medical industry. Therefore, this study aims to present an algorithm that judges images taken through DR equipment by artificial intelligence instead of humans.