NEU surface defect database

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Description:

In the Northeastern University (**NEU**) **surface defect** database, six kinds of typical **surface** defects of the hot-rolled steel strip are collected, i.e., rolled-in scale (RS), patches (Pa), crazing (Cr), pitted **surface** (PS), inclusion (In) and scratches (Sc). The database includes 1,800 grayscale images: 300 samples each of six different kinds of typical **surface** defects.

Fig. 1 shows the sample images of six kinds of typical **surface** defects, the original resolution of each image is 200×200 pixels. From Fig. 1, we can clearly observe that the intra-class defects existing large differences in appearance, for instance, the scratches (the last column) may be horizontal scratch, vertical scratch, and slanting scratch, etc. Meanwhile the inter-class defects have similar aspects, e.g., rolled-in scale, crazing, and pitted **surface**. In addition, due to the influence of the illumination and material changes, the grayscale of the intra-class **defect** images is varied. In short, the **NEU surface defect** database includes two difficult challenges, i.e., the intra-class defects existing large differences in appearance while the inter-class defects have similar aspects, the **defect** images suffer from the influence of illumination and material changes.

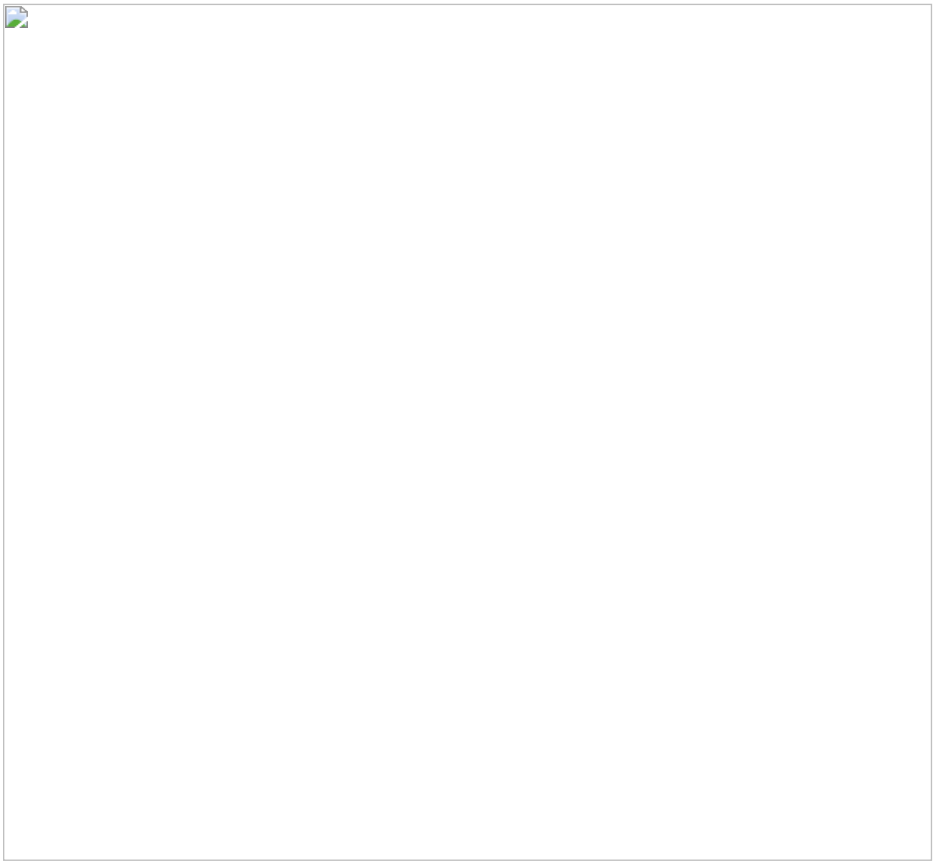

Fig.1 **NEU-CLS**

For **defect** detection task, we provided annotations which indicate the class and location of a

defect in each image. We have carefully clicked annotations of each target in these images. Fig. 2 shows some examples of detection results on **NEU**-DET. For each **defect**, the yellow box is the bounding box indicating its location and the green label is the class score.

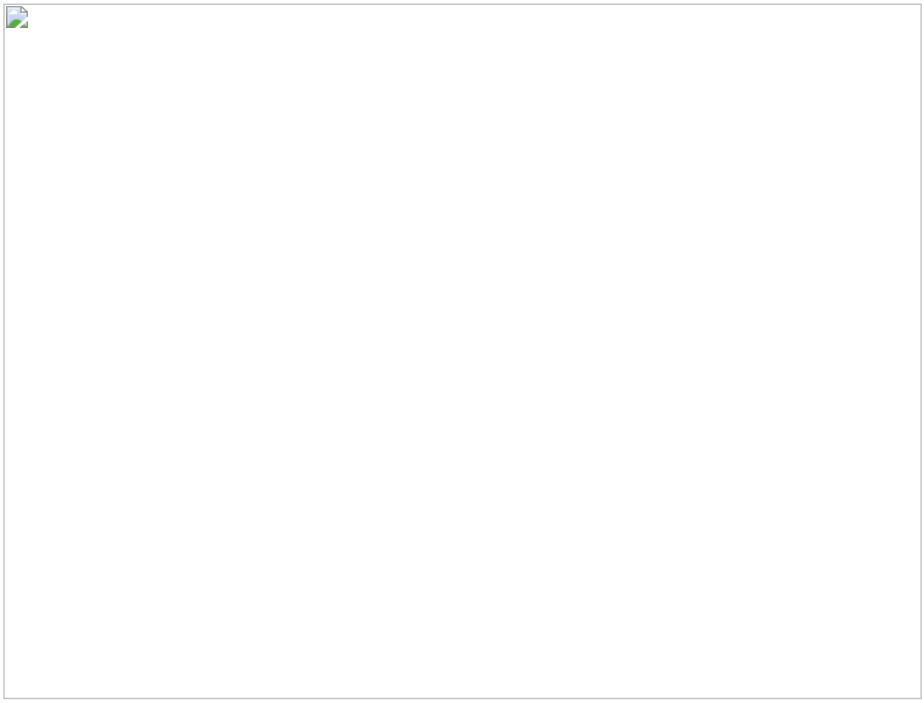

Fig.2 **NEU-DET**

How to use the database:

If you are using the **NEU surface defect** database for **defect** classification task, you only need to download the image-only file, called **NEU-CLS**.

If you are using the **NEU surface defect** database for **defect** detection task, you need to download the image-with-annotations file, called **NEU-DET**.

Download:

For Original **NEU surface defect database**: Google-Drive, Or Baidu-Pan

For **NEU-CLS**: Google-Drive, Or Baidu-Pan

For **NEU-CLS-64**: Google-Drive, Or Baidu-Pan

For **NEU-DET**:Google-Drive, Or Baidu-Pan

Citation:

We would appreciate it if you cite our works when using the database:

K. Song and Y. Yan, "*A noise robust method based on completed local binary patterns for hot-rolled steel strip* ***surface*** *defects*," ***Applied Surface Science***, vol. 285, pp. 858-864, Nov. 2013.*(paper)*

Links:

Vision-based Inspection System for Steel **Surface** Defects

For **Micro surface defect database**: Google-Drive, Or Baidu-Pan

For **Oil pollution defect database**:Google-Drive, Or Baidu-Pan