Fingerprint image processing

Fingerprint image processing is an important part of fingerprint recognition. A fingerprint image usually contains ridge and valley. The ridge is darker and the valley is brighter. Please use the image processing method to extract the ridges in the fingerprint image and output a mask. However, there is a high-resolution fingerprint image acquisition device that randomly applies a noise during the image acquisition due to the device itself. You are required to first eliminate this noise through the knowledge you have learned in class, and then extract the ridge.

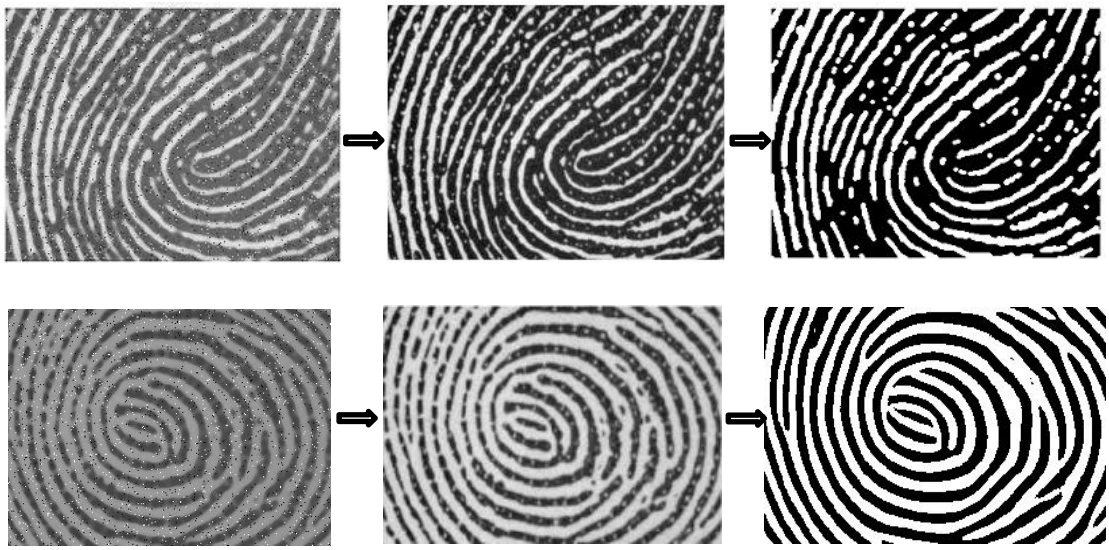

Fig1 Original image　　Fig2 Denoised/normalized image　　Fig3 Ridge mask

Attention：

1. You can use any commercial tools such as Matlab, OpenCV, or other library. Coding language is not limited.
2. Possible knowledge used: **Threshold**, **Dilation and Erosion, Edge detection, Otsu, Image filtering, Image normalization, Image enhancement,Binary image, etc.**
3. A report and the source codes are required when you submit your project. You should send your project to the email: hitszdippro@sina.com
4. The file name is as ‘Pro1_student ID_name.zip/rar’.

5. Each student needs to select some of the specified images to complete the project according to the studentID. Different denoising methods are selected according to the type of noise. Ridge extraction methods can be one or more. Explain the method you use.
6. Deadline: 2019-04-15.
7. All project information can be downloaded from the QQ group.
8. **Most Important: Do it by yourself!**