

# **A Fast Nearest Neighbor Search Scheme over Outsourced Encrypted Medical Images**

## **ABSTRACT:**

Medical imaging is crucial for medical diagnosis, and the sensitive nature of medical images necessitates rigorous security and privacy solutions to be in place. In a cloud-based medical system for Healthcare Industry 4.0, medical images should be encrypted prior to being outsourced. However, processing queries over encrypted data without first executing the decryption operation is challenging and impractical at present. In the paper, we propose a secure and efficient scheme to find the exact nearest neighbor over encrypted medical images. Instead of calculating the Euclidean distance, we reject candidates by computing the lower bound of Euclidean distance that is related to the mean and standard deviation of data. Unlike most existing schemes, our scheme can obtain the exact nearest neighbor rather than an approximate result. We then evaluate our proposed approach to demonstrate its utility.

## **SYSTEM REQUIREMENTS:**

### **HARDWARE REQUIREMENTS:**

- System : Pentium i3 Processor.
- Hard Disk : 500 GB.
- Monitor : 15’’ LED
- Input Devices : Keyboard, Mouse
- Ram : 4 GB

### **SOFTWARE REQUIREMENTS:**

- Operating system : Windows 10.
- Coding Language : Java
- Web Framework : Flask

### **REFERENCE:**

C. Guo, S. Su, K. -K. R. Choo and X. Tang, "A Fast Nearest Neighbor Search Scheme Over Outsourced Encrypted Medical Images," in IEEE Transactions on Industrial Informatics, vol. 17, no. 1, pp. 514-523, Jan. 2021, doi: 10.1109/TII.2018.2883680.