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**Bangladesh University of Business and Technology (BUBT)**

Course No. : **CSE - 465**

Course Title: **Machine Learning**

Semester: **Summer 2022 [Tri-Semester]**

Survey Paper Name: Hand Frame Extraction in Surgical Video Images

Using Convolutional Neural Network

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**Summary of the Paper:**

Hand frame extraction is one of the important and crucial tasks to analyze video images of Orthopedics surgery. Although a number of vision-based techniques have been used to interpret hand movements in the field of computer vision, proper hand frame extraction in OS video is still a challenging task in the surgical work atmosphere. Components consisting of metal and plastic are being used to seal the surfaces of the knee assembly bone and form the knee joints. The complicated procedures make difficult to recognize the current progress of the surgery by surgical assistant, nurses, and technicians. Thus, it is desired to develop a computer-aided surgery navigation system, which instructs the progress and the condition, and navigates the operation staffs during the surgical operation. Deep learning in recent years is gaining significant popularity in a wide range of domains such as the recognition of surgical videos which demonstrates the valuable potential for the advancement of contemporary medical care and treatment. More notably, the improvement of the surgical assistant system's real-time environmental detection, the online video recognition technology would in the future be an important aspect of the OR to strengthen the quality of surgery [6]. Hand frame extraction is one of the important procedures to analyze the OS video images. Data augmentation is a method widely used in DL, and it helps to generate the number of samples required. The structure of ResNet-50 used for the hand detection is depicted in Fig.3.

**Unique Contribution of the Paper:**

**How the proposed model works in the paper:**

**Advantages of the paper:**

**Disadvantages of the paper:**

**Conclusion:**