



Bahria University
Discovering Knowledge

FINAL YEAR PROJECT REPORT

**INVESTIGATING SMALL MOTIONS IN A
VIDEOS**

In fulfillment of the requirement
For degree of
BCE (COMPUTER ENGINEERING)

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ABSTRACT

We plan to implement algorithms to enhance small (imperceptible to human) differences in videos to gain greater insight into everyday phenomenon's. These methods encompass two main types of amplification in the time domain colour changes and small motion. We plan to focus on amplification of colour changes, particularly in scenarios where there are multiple people in an image. One of our challenges will be measuring fine signals such as the changing colour of a human face. To facilitate this, we plan to use a steady light source and have people engaged in relatively low motion activities. This would involve determining the time varying changes in colour present in the video, seeing how these signals present in the frequency domain, amplifying the components found in our desired frequency range and then converting back to the time domain. Therefore, we plan to implement a method by which we identify the locations in the video with faces and then detect the heart rate for each of them, increasing the robustness to position and enabling multiple people to be monitored at once.

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